

Nearshore Fill for State HPA Mitigation Requirements

1.0. Summary of Activity

1.1. For all Fresh Waters excluding the Columbia River mainstem

Placement of up to 25 cubic yards of fill material waterward of the ordinary high water line (OHW) line to meet mitigation requirements imposed by Washington State Department of Fish and Wildlife (WDFW) where all other work (the bank stabilization activity and associated stockpiling) is outside Corps jurisdiction (landward of the OHW line) and has already been constructed, provided that:

1. Work is done within the approved work window.
2. Material is not placed in or adjacent to vegetated shallows (except where such vegetation is limited to State-designated noxious weeds) or other special aquatic sites.
3. Gravel materials are washed and clean prior to being brought to the site.
4. Work occurs only in the dry.
5. Stockpiling shall not occur below OHW.
6. Work is done by hand except that if a barge is used to deliver material it shall not ground out on the bottom.
7. The material is spread out evenly and the beach grade is not altered (to avoid stranding of species).
8. Upon completion of material placement the beach shall not contain any pits, potholes, or large depressions, and all natural beach complexity features that were necessary to remove are repositioned or replaced in their original locations on the beach immediately following completion of the work. [from NWP 18]

1.2. For the Columbia River Mainstem including the Snake River and Baker Bay

This programmatic biological evaluation does not cover activities in the Columbia River mainstem including Snake River and Baker Bay.

1.3. For all Marine/Estuarine Waters excluding Baker Bay

Placement of up to 25 cubic yards of fill material waterward of the mean higher high water (MHHW) line to meet mitigation requirements imposed by Washington State Department of Fish and Wildlife (WDFW) where all other work (the bank stabilization activity and associated stockpiling) is outside Corps jurisdiction (landward of the MHHW line) and already has been constructed, provided that:

1. Work is done within the approved work window.
2. Material is not placed in or adjacent to vegetated shallows (except where such vegetation is limited to State-designated noxious weeds) or habitat for listed or proposed species or prey/forage species (i.e. forage fish for pacific salmon), or other special aquatic sites.
3. Gravel materials washed and clean prior to being brought to the site.
4. Work occurs only in the dry.
5. Stockpiling shall not occur below MHHW.
6. Work is done by hand except that if a barge is used to deliver material it shall not ground out on the bottom.
7. The material is spread out evenly and the beach grade is not altered (to avoid stranding of species).
8. Upon completion of material placement the beach shall not contain any pits, potholes, or large depressions, and all natural beach complexity features that were necessary to remove are repositioned or replaced in their original locations on the beach immediately following completion of the work. [from NWP 18]

2.0. Programmatic Description

Individual permits (IPs) and Nationwide Permits 3, 13, and 18 (NWP 3, NWP 13, NWP 18) may authorize the placement of fill into waters of the U.S. This programmatic biological evaluation applies only to those activities where WDFW is requiring nearshore fill (pea or spawning gravel placement) as mitigation under the State Hydraulic Project Approval (HPA) for bank protection activities and the only work within Corps jurisdiction is the nearshore fill for mitigation. All work for the bank protection activity is outside of Corps jurisdiction (landward of MHHW in marine/estuarine areas and landward of OHW in freshwater areas). Work that cannot be designed or constructed to fit under this biological evaluation must go through individual informal or formal ESA consultation.

3.0. Project Location

In all fresh and marine/estuarine waters excluding the Columbia River mainstem and Baker Bay, only in the counties of Washington State where the National Marine Fisheries Service and U.S. Fish and Wildlife Service have concurred that the project is not likely to adversely affect listed species and designated critical habitat and will not jeopardize proposed species.

4.0. Project Description

Place up to 25 cubic yards of material waterward of the line of OHW or MHHW to create or improve fish spawning habitat in the nearshore environment. This programmatic biological evaluation does not cover any interrelated and/or interdependent work activities in any of the designated critical habitat areas, except those activities distinctly specified.

5.0. Project Construction Description¹

Construction Equipment

The contractor may use a number of the following pieces of equipment. A barge (standard 24' wide x 40' long), a tug boat with a maximum length of 60 feet and the engine power equivalent to an 100-foot long pleasure vessel, wide-track excavator with loader on one end (approximately 2000 lbs.), rubber-tired front-end loader, dump truck, 8" PVC pipe with hopper, 2" x 6" timber plank, I-beam, wheelbarrow, hand shovels or rakes. Erosion controls such as silt fencing, filter fabric, or sheet piling are used on some bank stabilization projects, however, these controls are removed prior to placement of nearshore fill material.

Materials Used

The material used in nearshore fill for HPA mitigation is either pea gravel (no larger than 3/8"), sand, a mixture of pea gravel and sand, or, in freshwater only, spawning gravel (75% smaller than 2", no material larger than 4 inches). The type of material used depends on existing site conditions, mainly beach substrate. The material placed either matches the natural substrate (vs. existing degraded substrate) or one substrate size larger, not to exceed the size of pea or spawning (in freshwater only) gravel. For example, if the natural substrate for the area is fine sand, then fine sand or sand would be the material of choice. Because of the availability and low cost of pea gravel, pea gravel is often opted for over sand. To do a standard 100-foot bulkhead it takes approximately 20 cubic yards of material. To be covered by this informal programmatic consultation, all sand or gravel will be clean, washed material

Site Preparation

By the time the applicant comes to the Corps, typically the project site has already been manipulated for the installation of the bank stabilization structure outside of Corps jurisdiction, which includes the disturbance and/or removal of 25- to 50-foot strip of vegetation landward of the MHHW or OHW for the length of the structure. Bank stabilization structures can include, but are not limited to, vertical bulkheads, riprap, sheet piling, berm construction or large woody debris placement. The only work in Corps jurisdiction is the placement of the pea gravel or, in freshwater, spawning gravel, the structure and any stockpiling is all outside of Corps jurisdiction (landward of MHHW in marine/estuarine areas and landward of OHW in freshwater areas). Beach complexity features such as large boulders, logs or other woody material, and/or debris are temporarily removed from the construction area. At the end of the bank protection construction, the beach grade has been restored to pre-construction contours. The area is now ready to receive the fill material.

Work Corridor

Typical work corridor on the beach is a width of 15 feet waterward of the structure, for its entire length. The finished area for the nearshore fill for HPA mitigation is a standard 9 feet wide (from the toe of the structure) and 6 inches deep for the entire length of the bank stabilization structure. These perimeters are the conditions of the WDFW HPA permit when pea or spawning gravel placement is required.

¹ Description of construction practices was collected from personal communication with representatives of WDFW, King County Department of Natural Resources, and Japhet Bulkhead, Inc.

No heavy equipment will operate on the beach for spreading the gravel, outside of the barge bringing the material in to shore. For handwork and hand tools to access the beach, a single point of entry is used to eliminate impacts to the rest of the beach

Stockpiling

The material used in nearshore fill for HPA mitigation is stockpiled either on the uplands or on a barge. The material is not stockpiled in an intertidal area due to the burying of sedentary benthic organisms and the risk of it being washed away.

Placement

The material used in nearshore fill for HPA mitigation originates from either the uplands or a barge. The following is a description of each.

1. Hauled in from Uplands: The material is transported to the site via a dump truck. The material may either be stockpiled on the uplands or it may be used straight from the bed of the truck. The material is shot down to the toe of the bank protection structure via an 8" PVC pipe with a hopper attachment. Once the material is on the beach it is spread out with the edge of the loader bucket, a piece of wood or I-beam attached to the excavator, or the material is hand shoveled or raked until all the depressions are removed.
2. Barged to the Site: The material is placed on a barge and ferried to the site. In marine/estuarine waters, the material is placed during high tide. Waiting for an extremely high tide, positioning the barge extremely close to the nearshore without grounding out the barge, and pushing the material off the end of the barge onto the dry portion of the beach - at the toe of the bank stabilization structure. The barge is anchored by either tying the barge to a tree or stake installed in the uplands, or by dropping a 24" concrete square (spud) on the substrate. Before spreading the material, the contractor waits for the water to recede at the low tide. In freshwater areas, if a barge is used to bring in material, an excavator or crane mounted on the barge would move the material from the barge to the beach, allowing a greater reach so that the barge will not ground out. In most freshwater areas, however, the material is placed either by hand with hand tools or by equipment situated on the uplands, such as an excavator. The material is either "bladed" with the edge of the loader bucket or the material is hand shoveled or raked until all the depressions are removed.

Cleanup

After the material is placed and spread out, any material that was stockpiled on the uplands is removed and put back into the truck. If material is stockpiled on a barge, there is typically never an excess of material placed. Any beach complexity features are repositioned in their approximate pre-construction locations. The hand equipment is removed from the site.

Construction Timing

Typical placement takes one day. Construction cannot occur during the listed or proposed or prey/ forage species migration/spawning or other critical periods.

6.0 Action Area Description

The action area includes all fresh and marine/estuarine waters and adjacent terrestrial areas within 1 mile of the proposed project in Washington State excluding the Columbia River mainstem, Snake River and Baker Bay.

For all Fresh Waters in Washington State excluding Columbia River mainstem:

Project site, including work corridor, 50 feet² waterward the bank stabilization activity (this includes the pea or spawning gravel placement, work corridor and 25 feet waterward of the work corridor for temporary water quality impacts), and 300 feet from either end of the project for potential relocation of material from water currents.

For all Marine/Estuarine Waters in Washington State excluding Baker Bay:

Project site, including work corridor, 50 feet² waterward of toe of the bank stabilization activity (this includes the pea gravel placement, work corridor and 25 feet waterward of the work corridor for temporary water quality impacts), and up to the length of the drift cell for potential relocation of material from water currents.

7.0 Species and Habitat Information

7.1 Species Present

9.10.1.1 The plants, animals, insects, and fish present in the project area are provided in Table 1 through

Table 4. Details on each species can be found in Appendix B.

Although this programmatic biological assessment does not cover actions in the Columbia River mainstem (including Snake River and Baker Bay), there may be circumstances when the actions occur in tributaries to the Columbia River (included in the fresh waters list of actions).

² The determination of impact area for potential water quality impacts is based on personal communication with John Malek, Sediment Management, Environmental Protection Agency, on May 10, 2000. Mr. Malek stated that typically turbidity impacts of a pile driving, anchor placement or the like would not exceed a 15-foot radius, a 25-foot radius is the maximum extent of impact, regardless of substrate type and currents at a project site.

Table 1. Sensitive Terrestrial Animals and Insects Potentially Occurring in Designated Project Areas

Species Name <i>Scientific Name</i>	Status	Fresh Water Areas (excluding the Columbia River mainstem)	Marine/Estuarine Water Area (excluding Baker Bay)
Brown Pelican <i>Pelecanus occidentalis</i>	E	X	X
Marbled Murrelet <i>Brachyramphus marmoratus</i>	T	X	X
Northern Spotted Owl <i>Strix occidentalis</i>	T	X	X
Short-Tailed Albatross <i>Phoebastria albatrus</i>	E	X	X
Western Snowy Plover <i>Charadrius alexandrinus</i>	T	X	X
Canada Lynx <i>Lynx canadensis</i>	T	X	
Columbia White-Tailed Deer <i>Odocoileus virginianus leucurus</i>	E	X	
Gray Wolf <i>Canis lupis</i>	E	X	
Grizzly Bear <i>Ursus arctos horribilis</i>	T	X	
Pygmy Rabbit <i>Barchylagus idahoensis</i>	E	X	
Woodland Caribou <i>Rangifer tarandus caribou</i>	E	X	
Oregon Silverspot Butterfly <i>Speyeria zerene hippolyta</i>	T	X	X

Table 2. Sensitive Marine Animals Potentially Occurring in Designated Project Areas

Species Name <i>Scientific Name</i>	Status	Fresh Water Areas (excluding the Columbia River mainstem)	Marine/Estuarine Water Area (excluding Baker Bay)
Blue Whale <i>Balaenoptera musculus</i>	E		X
Fin Whale <i>Balaenoptera physalus</i>	E		X
Humpback Whale <i>Megaptera novaeangliae</i>	E		X
Sei Whale <i>Balaenoptera borealis</i>	E		X
Sperm Whale <i>Physeter macrocephalus</i>	E		X
Killer Whale <i>Orcinus orca</i>	E		X
Steller Sea Lion <i>Eumetopias jubatus</i>	T		X
Green Sea Turtle <i>Chelonia mydas</i>	T		X
Leatherback Sea Turtle <i>Dermochelys coriacea</i>	E		X
Loggerhead Sea Turtle <i>Caretta caretta</i>	T		X

Table 3. Sensitive Plants Species Potentially Occurring in Designated Project Areas

Species Name <i>Scientific Name</i>	Status	Fresh Water Areas (excluding the Columbia River mainstem)	Marine/Estuarine Water Area (excluding Baker Bay)
Bradshaw's Desert Parsley <i>Lomatium bradshawii</i>	E	X	
Golden Paintbrush <i>Castilleja levisecta</i>	T	X	
Kincaid's Sulphur Lupine <i>Lupinus sulphureus ssp. Kincaidii</i>	T	X	
Marsh Sandwort <i>Arenaria paludicola</i>	E	X	
Nelson's Checker-Mallow <i>Sidalcea nelsoniana</i>	T	X	
Showy Stickseed <i>Hackelia venusta</i>	PE	X	
Spalding's Silene <i>Silene spaldingii</i>	PT		
Water Howellia <i>Howellia aquatilis</i>	T	X	
Wenatchee Mountain Checker-Mallow <i>Sidalcea oregana var. calva</i>	E	X	
Ute Ladies'-Tresses <i>Spiranthes diluvialis</i>	T	X	

Table 4. Sensitive Fish Species Potentially Occurring in Designated Project Areas

Species Name <i>Scientific Name</i> Evolutionary Significant Unit (ESU)/Distinct Population Segment (DPS)	Status	Fresh Water Areas (excluding the Columbia River mainstem)	Marine/Estuarine Water Area (excluding Baker Bay)
Bull Trout <i>Salvelinus confluentus</i>			
Coastal/Puget Sound DPS	T	X	X
Columbia River DPS	T	X	X
Chinook Salmon <i>Oncorhynchus tshawytscha</i>			
Puget Sound ESU	T	X	X
Snake River Fall Run ESU	T	X	X
Snake River Spring/Summer-run ESU	T	X	X
Lower Columbia River ESU	T	X	X
Upper Columbia River Spring-run ESU	E	X	X
Upper Willamette River ESU	T		X
Sockeye Salmon <i>Oncorhynchus nerka</i>			
Ozette Lake ESU	T	X	X
Snake River ESU	E		X
Coho Salmon <i>Oncorhynchus kisutch</i>			
Puget Sound/Strait of Georgia ESU	C	X	X
Lower Columbia River/SW WA ESU	C	X	X
Chum Salmon <i>Oncorhynchus keta</i>			
Hood Canal Summer-run ESU	T	X	X
Columbia River ESU	T	X	X
Steelhead Trout <i>Oncorhynchus mykiss</i>			
Upper Columbia River ESU	E	X	X
Middle Columbia River ESU	T	X	X
Lower Columbia River ESU	T	X	X
Snake River Basin ESU	T		X
Upper Willamette River ESU	T		X
Puget Sound ESU	T	X	X

8.0 Activity History and Status

Table 5 is a breakdown of the number of bank stabilization projects, both new construction and repair/maintenance, authorized by the Corps of Engineers. The breakdown is organized by year and waterbody. The waterbody includes all creeks, streams, and unnamed tributaries that flow into it. Each of the waterbodies is categorized as below:

8.1 Marine

All marine waters, excluding Baker Bay, within Washington State (i.e., Pacific Ocean, Willapa Bay, Grays Harbor, Strait of Juan de Fuca, Strait of Georgia, Puget Sound, Hood Canal, Sammish Bay, Skagit Bay, Totten Inlet, Dabob Bay, Commencement Bay, etc.). Because of the design of the Corps database, it

was not possible to separate out tidal areas from minor freshwater creeks, streams, and unnamed tributaries that flow into these waterbodies.

8.2 Fresh

All fresh waters within Washington State including all rivers, tributaries, lakes, and reservoirs (regardless of size) and excluding the Columbia River mainstem (i.e., Snoqualmie River, Skagit River, Puyallup River, Nisqually River, Cowlitz River, Yakima River, Wenatchee River, Snake River, Pend Oreille River, Lake Washington, Lake Sammamish, Lake Chelan, Moses Lake, Baker Lake, Spanaway Lake, etc).

To determine the number of authorized nearshore fill activities for HPA mitigation conducted to mitigate the impacts of bank stabilization activities, all finalized permit actions were queried against the key word “NWP 13” and “NWP 3” and cross-referenced with the work type “bank protection.” The cross-referencing ensures that the activity is properly categorized and each authorization is only counted once. Nearshore fill activities for HPA mitigation are authorized either by the Nationwide Permit general conditions on mitigation (authorizing mitigation requirements by other agencies) when a NWP 13 or NWP 3 is issued or by NWP 18 – Minor discharges when the only work in Corps jurisdiction is the nearshore fill. Under NWP 18, if the discharge is less than 25 cubic yards, no notification is required. Nearshore fill activities for HPA mitigation is not specifically tracked by the Corps of Engineers, therefore there is no Corps data on this type of work. However, this programmatic addresses nearshore fill performed as mitigation for bank stabilization activities, thus an approximation of nearshore fill activities for HPA mitigation can be inferred from the number of authorized bank stabilization activities. The data set below represents only those activities where the Corps was notified and a verification was actually issued. The following data also includes before- and, when applicable, after-the-fact authorizations. In comparing the Corps database with one year of data from WDFW (1998) for both new bank protection activities and repair of existing bank protection, the Corps database represents approximately 33 % of the actual number of nearshore fill activities for State HPA mitigation.

Table 5. Historical Record of Corps Authorization of Nearshore Fill Activities

Waterbody	1995	1996	1997	1998	1999
Marine	58	73	90	79	28
Fresh	80	206	153	138	106
Total	138	279	243	217	134

As of August 2005, this programmatic has been used 16 times since authorization.

9.0. Environmental Baseline

The environmental baseline is provided in Appendix C.

10.0. Effects of the Action

10.1. Direct effects

The direct effects of nearshore fill for HPA mitigation on the listed or proposed species will be similar in nature among each of the species, and potentially within the variable life stages of the species. Both adult and juvenile salmonids use the action area for migration, forage, and refuge. The degree to which an adult or juvenile of the species uses an area varies from waterbody and varies as to whether the work is in marine/estuarine waters or fresh waters. Juvenile listed or proposed fish species will be the most effected as a result of the work in the marine nearshore. Juveniles use the nearshore environment for migration, refuge and forage.

Adult fish species may not be as directly affected as juveniles from nearshore activities because adults do not typically use the nearshore environment. Adults tend to travel somewhat away from the shoreline and would be less likely to encounter the project. Adult bull trout, however, have been documented in shallow waters³. Forage fish also use the nearshore environment to spawn, rear, and live, and are prey for adult listed or proposed fish species. A detailed discussion of the direct effects follows:

- 1) **Water Quality (turbidity):** The placement of clean, washed material and all construction will be done in the dry in the approved work windows when listed, or proposed or prey/forage species are least likely to be present. In addition, the barge will not ground out, no stockpiling will occur on the beach, and all work will be done by hand. Wheelbarrows, shovels, rakes, etc. will be used on the beach during construction. Any mechanized equipment will be staged in the upland area. Thus, water quality effects would be extremely minor. As discussed in Appendix F - Implementation Conditions, all equipment will be cleaned and washed in the uplands so that no wash water shall reenter the waterbody, and access to the beach will be limited to an existing upland access point either on site or within 300 feet of other property line. There is the possibility, though unlikely, that the placement of the enhancement material will produce a temporary, localized sediment plume triggered by construction activities. In the unlikely event that a temporary sediment plume would occur, it would be small in nature (not to exceed a radius of 25 feet around the area where the fill is placed⁴) and the impact to listed or proposed or prey/forage species will be insignificant and/or discountable due to the timing of the work.
- 2) **Water quality (propwash):** The tug bringing in the barge and removing it may cause some sediment suspension associated with propwash. The tug brings the barge in and retrieves it during high water. The placement is done very quickly (within an hour) and the work is done in the approved work windows when listed or proposed or prey/forage species are least likely to be present. Any turbidity associated with propwash from the tug and barge would settle out of the water column to background levels in no more than an hour, depending on sediment type and currents. All temporary water quality impacts associated with propwash are insignificant and/or discountable.
- 3) **Habitat Access:** The work (including barge operation) will be done in the approved work window when listed or proposed or prey forage species are least likely to be present. By accessing the site during the approved work windows, potential direct impacts by the barge - such as displacing listed or proposed or prey/forage species by the engine noise or impacting listed or proposed or

³ Jeff Chan, U.S. Fish and Wildlife Service, "Seattle District Regulatory Branch, ESA Training", personal communication. July, 23, 1999.

⁴ See discussion to 25-foot radius in Action Area (footnote 2).

prey/forage species with the potential introduction of oil and as from the barge – are insignificant and/or discountable. Using this method of installation, impacts to habitat access for listed or proposed or prey/forage species are insignificant and/or discountable.

- 4) Habitat Health (Spawning areas): The work is proposed as mitigation of impacts to spawning areas for either listed, proposed or forage species associated with bank stabilization activities outside of Corps jurisdiction (landward of OHW in fresh waters and MHHW in marine/estuarine waters). As such, it is highly likely that the work will occur in spawning areas for listed or proposed fish. However, if mitigation is being required in listed or proposed fish spawning habitat, the spawning habitat is degraded or impaired and unlikely to be actively utilized though adjacent areas may be active spawning grounds. The fill is clean/washed material of adequate size to enhance spawning habitat and work is done in the approved work windows when listed or proposed fish (especially redds) are least likely to be present, so there is little likelihood that redds would be buried or smothered by the activity. The work on the beach is done by hand, an existing upland access point is used, and if a barge is being used, it will not ground out, so there is little likelihood that the construction will result in additional disturbance to the substrate. Using this method of installation, impacts to spawning areas of listed or proposed fish are insignificant and/or discountable.
- 5) Habitat Health (Forage insects and invertebrates): Benthic invertebrates that reside in the intertidal beaches are a primary food source for juvenile listed or proposed fish species. Juvenile fish species have been documented to feed on both aquatic and terrestrial insects. Insects are dependent upon the overhanging riparian vegetation and the debris introduced by the overhanging vegetation for food and refuge. As outlined in Appendix F - Implementation Conditions, no woody riparian vegetation shall be disturbed and any disturbed herbaceous vegetation will be revegetated, an access to the beach will be from an existing upland location or by barge. This programmatic biological evaluation allows for only those activities where the work is done in the dry, clean/washed gravel is used, and all work on the beach being done by hand except for delivery of material by barge that will not ground. The woody riparian vegetation may have been disturbed by the bank stabilization activity outside of Corps jurisdiction (landward of OHW in freshwater and landward of MHHW in marine/estuarine areas). The material will be placed in an area that has been disturbed as a result of the construction of a bank stabilization activity outside of Corps jurisdiction (landward of OHW in freshwater areas and landward of MHHW in marine/estuarine areas). Some temporary impacts to benthic organisms will occur with the placement of the material: any sedentary benthic organisms will be covered for a short period of time and foot traffic and hand equipment bury or squish benthic organisms and their habitat. The destruction of benthic organisms and their habitat will affect the availability of a food source for juvenile fish species. Based on field observations of WDFW Habitat Biologists, benthic organisms recover within half the time (approximately 3 months) with the gravel/sand placement than without (approximately 6 months). Using this method of installation, the impacts to forage insects and invertebrates is insignificant and/or discountable.
- 6) Habitat Health (Forage Fish): Primary forage fish for salmonids include Pacific herring, surf smelt, and Pacific sandlance. Pacific herring spawn in vegetated shallow and algal surfaces from late January through early April. Surf smelt spawn in the upper intertidal areas between the tidal elevations of +7.0 feet and MHHW and require specific ratios of coarse sand to pea gravel for spawning habitat. The spawning areas are typically associated with freshwater seepages. Pacific sandlance spawn in the upper intertidal zone on a variety of substrates, from fine sand to pea gravel dominated beaches. As adults, sandlance school in nearshore marine waters, foraging during the day and burrowing in the sand at night. (WDFW, 1997b) The proposed activity is to

enhance beach substrate, especially in areas where there are listed, proposed or forage fish spawning areas. Vegetated shallows support spawning habitat for Pacific herring and provide refuge for juvenile listed or proposed fish. Boat activity or the like near or adjacent to vegetated areas has been documented to damage and/or destroy the vegetated areas. (NOAA, 1998) Work in or adjacent to special aquatic sites such as vegetated shallows is not covered under this informal programmatic consultation. Work will be done in the approved work windows when listed, proposed or forage fish are least likely to be present. Using this method of installation, impacts to forage fish spawning habitat are insignificant and/or discountable.

- 7) **Habitat Health (Refugia):** Overhanging vegetation, beach complexity features such as large woody debris and rocks, and vegetated shallows all provide refugia for juvenile fish species as well as other species. As outlined in Appendix F - Implementation Conditions, no woody riparian vegetation shall be disturbed and any disturbed herbaceous vegetation will be revegetated, and access to the beach will be from an existing upland location or by barge. This programmatic biological evaluation allows for only those activities where the barge does not ground out, no work occurs in or adjacent to special aquatic sites such as vegetated shallows, and any natural beach complexity features removed during construction are replaced in the same location. The woody riparian vegetation may have been disturbed by the bank stabilization activity outside of Corps jurisdiction (landward of OHW in fresh waters and landward of MHHW in marine/estuarine waters). Using this method of installation, any impacts to refugia will be insignificant and/or discountable.
- 8) **Watershed Conditions:** When an area becomes heavily disturbed by manmade structures, degradation to the substrate and/or riparian vegetation, in addition to other impacts, may exponentially increase and significantly alter watershed conditions. Because the work on the beach will be conducted 1) from either the uplands and with hand tools, or from a barge that does not ground out, 2) with no stockpiling on the beach, and 3) the material placed on beach is cleaned and washed prior to placement and will be spread out evenly so as not to alter the beach grade, changes to the existing substrate are minor. As outlined in Appendix F – Implementation Conditions, no woody riparian vegetation shall be disturbed, degraded, or altered by the placement of the material and any disturbed herbaceous areas will be revegetated with native plant species. Woody riparian vegetation may have been removed or disturbed by the construction of the bank stabilization activity that is outside of Corps jurisdiction. There will be no additional disturbance to the woody riparian vegetation by the placement of the fill material. Using these methods of installation, impacts to watershed conditions will be insignificant and/or discountable.
- 9) **Disturbance:** The presence and operation of equipment (i.e., vessel) may have an effect on listed species. Construction activities could disrupt marine mammals, sea turtles, and murrelet nesting and foraging, causing animals to temporarily avoid the project area. However, construction activities would be short-term and potential impacts to listed species would be minimized by implementing timing restrictions (Appendix D and E) designed to avoid or minimize impacts.

10.2 Indirect effects

The effects resulting from the activity that are later in time could include enhanced access for juvenile listed or proposed fish to shallow water, addition of “feeder” material to the aquatic ecosystem, and enhanced spawning areas for listed, proposed, or forage fish.

- 1) **Water Quality:** The fill material either matches or is one grain size larger than the existing substrate to increase stability of the material. All material is cleaned and washed prior to placement. The fill material may stay on site, but it is more likely to drift into the aquatic ecosystem and disperse with wind driven wave action, stream currents, tidal inundation, and/or littoral drift. The fill material will be relocated on another beach either downstream in fresh waters or within the same littoral cell in marine/estuarine waters. Since the material is cleaned and washed, designed to match material lacking in the aquatic ecosystem, and of a small amount (25 cubic yards or less), any impacts to water quality from its movement in the aquatic ecosystem later in time would be the same as movement of material naturally occurring in the aquatic ecosystem. Indirect effects to water quality are insignificant and/or discountable.
- 2) **Habitat Access:** Juvenile fish species have been documented to avoid hardened shorelines and swim into deeper waters, increasing their risk to predation. Bank protection structures may cause erosion of the beach waterward of the structure as a result of the decrease in sediment supply due to the restriction of otherwise naturally eroding material. This erosion of the beach grade would increase the water depth in front of the bank protection and may increase the access of predators to juvenile salmonids. With the addition of nearshore fill material following bank stabilization, the area in front of the bank stabilization structure may be temporarily restored to almost natural conditions. Any additional habitat access of predators may be reduced, at least temporarily, as the beach grade is raised so that it becomes too shallow for predator species. This will increase the potential for juvenile survival. Because the fill activity is minor in nature and is designed to restore the disturbed areas, indirect effects to habitat access are insignificant and/or discountable.
- 3) **Habitat Health (forage fish habitat):** The main purpose of placement of the material as part of the State HPA mitigation requirements is to restore or create habitat for forage fish and other juvenile fish species, as a result of the impacts and effects of bank stabilization activities. The presence of bank stabilization structures has been documented to erode beach elevations, resulting in the loss of prime spawning habitat for forage fish. High intertidal areas from tidal elevations of +7.0 feet to MHHW area necessary for spawning habitat for many forage species, such as surf smelt and sand lance. (WDFW, 1997b) Bank protection activities may also impair the introduction of natural sediment supply sources (eroding feeder bluffs) to the nearshore environment. Forage fish spawning areas and epibenthic invertebrate habitat are dependent upon the natural introduction of sands and/or gravels from these feeder bluffs. Each of these fish species have specific habitat requirements in terms of type of substrate, beach elevation, and introduction of nutrients. As the supply of sediment decreases, sandy gravelly substrates degrade to hardpan cobble substrates thus decreasing forage fish species habitat. The nearshore fill for HPA mitigation is designed to restore these areas, slow the erosion that would otherwise occur in front of the bank stabilization activity, and provide habitat. Vegetated shallows support spawning habitat for Pacific Herring and provide refuge for juvenile list fish. Boat activity or the like near or adjacent to vegetated areas has been documented to damage and/or destroy the vegetated areas. (NOAA, 1998) Because the project will not occur over or adjacent to (within 300 feet) special aquatic sites such as vegetated shallows, and the work will enhance the nearshore environment, the indirect effect to forage fish spawning habitat are insignificant and/or discountable.

10.3 Others

By the time the applicant comes to the Corps, typically the site has already been manipulated for the installation of the bank stabilization activity. This interrelated activity could have potentially caused the following direct effects: temporary water quality impacts with the use of heavy equipment and/or stockpiling on the beach; habitat access and health impacts if constructed outside of the approved work windows; habitat health impacts with the disturbance of beach substrate during construction; and impacts to refuge and forage with the removal of overhanging woody riparian vegetation. Potential indirect effects of the bank stabilization activity could include: increased erosion of the beach in front of the bank stabilization activity; erosion or destruction of habitat in adjacent areas due to the bank stabilization activity; impairment of sediment supply from the bank into the aquatic ecosystem; increased predation due to “lowering of the beach” in front of the bank stabilization activity; and, impairment to species migration by the presence of the bank stabilization activity if it is a vertical structure or groin. Amelioration of these potential effects is outside the Corps’ authority.

For all other pathways and indicators not specifically mentioned above, the activity will not alter the present environmental baseline.

10.4. Determination of Effect

Activities covered by this document may affect certain threatened and endangered species, species proposed for listing as threatened or endangered, and designated or proposed critical habitat for those species (summarized in Table 7 through Table 8). The determinations for each species assumes the following:

For all Fresh Waters excluding the Columbia River mainstem:

- Work is done within the approved work window.
- Material is not placed in or adjacent to vegetated shallows (except where such vegetation is limited to State-designated noxious weeds) or habitat for listed or proposed species or prey/forage species, or other special aquatic sites.
- Gravel materials are 3/8-inch or less and are washed and clean prior to being brought to the site.
- Work occurs only in the dry.
- Stockpiling shall not occur below OHW.
- Work is done by hand except that if a barge is used to deliver material it shall not ground out on the bottom.
- The material is spread out evenly and the beach grade is not altered (to avoid stranding of species).
- Upon completion of material placement the beach shall not contain any pits, potholes, or large depressions.
- All natural beach complexity features that were necessary to remove are repositioned or replaced in their original locations on the beach immediately following completion of the work.

For all Marine/Estuarine Waters excluding Baker Bay:

- Work is done within the approved work window.

- Material is not placed in or adjacent to vegetated shallows(except where such vegetation is limited to State-designated noxious weeds) or habitat for listed or proposed species or prey/forage species, or other special aquatic sites.
- Gravel materials are washed and clean prior to being brought to the site.
- Work occurs only in the dry.
- Stockpiling shall not occur below MHHW.
- Work is done by hand except that if a barge is used to deliver material it shall not ground out on the bottom.
- The material is spread out evenly and the beach grade is not altered (to avoid stranding of species).
- Upon completion of material placement the beach shall not contain any pits, potholes, or large depressions.
- All natural beach complexity features that were necessary to remove are repositioned or replaced in their original locations on the beach immediately following completion of the work.

Brown Pelican (*Pelecanus occidentalis*)

The proposed activity “may affect, but is not likely to adversely affect” brown pelicans. In Washington, brown pelicans inhabit only coastal marine waters. Any work near coastal marine waters and associated with the proposed activity may result in temporary displacement of brown pelicans during construction due to the associated noise and visual disturbance. Direct mortality or sub-lethal effects are unlikely. To minimize impacts, work would be limited in Pacific and Grays Harbor Counties by the work window specified in Appendix E.

Marbled Murrelet (*Brachyramphus marmoratus*)

The proposed activity “may affect, but is not likely to adversely affect” marbled murrelets and their critical habitat. The proposed activity may result in temporary displacement of marbled murrelets during construction due to the associated noise and visual disturbance. Direct mortality or sub-lethal effects are unlikely. The proposed activity will not alter or impact critical habitat because activity would occur offshore or at the shoreline, away from old growth habitat. To minimize impacts, noise attenuation BMPs would be implemented and work would be prohibited in or near critical habitat areas and during sensitive nesting or foraging periods as described in Appendix E.

Northern Spotted Owl (*Strix occidentalis*)

The proposed activity “may affect, but is not likely to adversely affect” the northern spotted owl and its critical habitat. The proposed activity may result in temporary displacement of spotted owls during construction due to the associated noise and visual disturbance. Direct mortality or sub-lethal effects are unlikely. The proposed activity will not alter or impact current spotted owl prey or habitat because activity would occur along the shoreline, away from old growth habitat. In addition, work would be prohibited in or near critical habitat areas and during sensitive nesting periods as described in Appendix E.

Short-Tailed Albatross (*Phoebastria albatrus*)

The proposed activity “may affect, but is not likely to adversely affect” short-tailed albatross. In Washington, short-tailed albatross inhabit only coastal and offshore marine waters. Any work near coastal marine waters may result in temporary displacement of short-tailed albatross during construction due to the associated noise and visual disturbance. Direct mortality or sub-lethal effects are unlikely.

Western Snowy Plover (*Charadrius alexandrinus*)

The proposed activity “may affect, but is not likely to adversely affect” western snowy plover and its proposed critical habitat. Plovers inhabit only ocean beach areas in Pacific and Grays Harbor counties; southwest Washington is furthest known northern area for snowy plovers. Western snowy plover utilize open shoreline areas where little vegetation exists. The proposed activity would occur the shoreline and may result in temporary displacement of western snowy plover during construction due to the associated noise and visual disturbance. To minimize impacts, work would be limited by the work window and distance to nesting areas specified in Appendix E.

Canada Lynx (*Lynx canadensis*)

The proposed activity would have “no effect” on Canada lynx. The proposed activity would not occur near remote areas of the Selkirk Mountains or the Cascade Range where lynx occur. Because there would be no overlap of the proposed activity action area and Canada lynx or their habitat, the proposed activity would have no potential to affect Canada lynx.

Columbia White-Tailed Deer (*Odocoileus virginianus leucurus*)

The proposed activity would have “no effect” on Columbia white-tailed deer. In Washington, Columbia white-tailed deer are only found in Wahkiakum County on islands in, and along the banks of, the Columbia River from River Mile (RM) 50 to RM 52. This PBE does not cover placing nearshore fill in or near the Columbia River mainstem, thus, activities would not occur near suitable habitat and known populations of Columbia white-tailed deer. Because there would be no overlap of the proposed activity action area and Columbia white-tailed deer or their habitat, the proposed activity would have no potential to affect Columbia white-tailed deer.

Gray Wolf (*Canis lupis*)

The proposed activity would have “no effect” on gray wolves. The proposed activity would not occur near remote areas of the Selkirk Mountains or the Cascade Range where gray wolves occur. Because there would be no overlap of the proposed activity action area and gray wolves or their habitat, the proposed activity would have no potential to affect gray wolves.

Grizzly Bear (*Ursus arctos horribilis*)

The proposed activity would have “no effect” on grizzly bears. The proposed activity would not occur near remote areas of the Selkirk Mountains or the Cascade Range where grizzly bears occur. Because there would be no overlap of the proposed activity action area and grizzly bear or their habitat, the proposed activity would have no potential to affect grizzly bears.

Pygmy Rabbit (*Barchylagus idahoensis*)

The proposed activity “may affect, but is not likely to adversely affect” pygmy rabbits. Pygmy rabbits occur in the shrub steppe habitat of Douglas County, Washington. Such habitat could occur along freshwater streams and lakes in eastern Washington. Thus, activities could occur near suitable habitat and known populations of pygmy rabbit. Construction has the potential to adversely affect pygmy rabbits via activities occurring along the shoreline in suitable habitat. To minimize impacts, construction will avoid areas near suitable habitat and known populations of pygmy rabbit.

Woodland Caribou (*Rangifer tarandus caribou*)

The proposed activity would have “no effect” on woodland caribou. The proposed activity would not occur in or near the Selkirk Mountains where woodland caribou occur. Because there would be no overlap of the proposed activity action area and woodland caribou or their habitat, the proposed activity would have no potential to affect woodland caribou.

Oregon Silverspot Butterfly (*Speyeria zerene hippolyta*)

The proposed activity “may affect, but is not likely to adversely affect” Oregon silverspot butterflies and their critical habitat. Oregon silverspot butterflies inhabit coastal salt spray marshes and open meadows. In Washington, Oregon silverspot butterflies may be extirpated. However, areas suitable for recolonization or reintroduction occur in southwest Washington. Activities near sand dune, salt-spray meadows or open field habitat in the Pacific coastal and Willapa Bay areas of Pacific County could impact the butterfly or their habitat. The early blue violet is a host species for the butterfly larvae, and no activity would be allowed where blue violet is detected by a plant survey conducted at the appropriate time of year. To minimize potential impacts work will be prohibited in or near sensitive habitat areas as specified in Appendix E.

Blue Whale (*Balaenoptera musculus*)

The proposed activity “may affect, but is not likely to adversely affect” whales. The blue whale occurs in marine areas where activities could occur. Construction noise and activity could result in confusion, disruption of social cohesion, separation, alteration of travel, and/or stranding.

Fin Whale (*Balaenoptera physalus*)

The proposed activity “may affect, but is not likely to adversely affect” fin whales. The fin whale occurs in marine areas where activities could occur. Construction noise and activity could result in confusion, disruption of social cohesion, separation, alteration of travel, and/or stranding.

Humpback Whale (*Megaptera novaeangliae*)

The proposed activity “may affect, but is not likely to adversely affect” humpback whales. The humpback whale occurs in marine areas where activities could occur. Construction noise and activity could result in confusion, disruption of social cohesion, separation, alteration of travel, and/or stranding.

Sei Whale (*Balaenoptera borealis*)

The proposed activity “may affect, but is not likely to adversely affect” sei whales. The sei whale occurs in marine areas where activities could occur. Construction noise and activity could result in confusion, disruption of social cohesion, separation, alteration of travel, and/or stranding.

Sperm Whale (*Physeter macrocephalus*)

The proposed activity “may affect, but is not likely to adversely affect” sperm whales. The sperm whale occurs in marine areas where activities could occur. Construction noise and activity could result in confusion, disruption of social cohesion, separation, alteration of travel, and/or stranding.

Killer Whale (*Orcinus orca*) and Critical Habitat

The proposed activity “may affect, but is not likely to adversely affect killer whales and their critical habitat. The killer whale occurs in marine areas where activities could occur. Construction noise and activity could result in confusion, disruption of social cohesion, separation, alteration of travel, and/or stranding.

Steller Sea Lion (*Eumetopias jubatus*)

The proposed activity “may affect, but is not likely to adversely affect” steller sea lions and their critical habitat. In Washington, Steller sea lions inhabit pelagic areas of marine waters and occasionally move up the lower Columbia River to feed during the fall. Activities could result in confusion, disruption of social cohesion, separation, alteration of travel, and interference with feeding or breeding.

Green Sea Turtle (*Chelonia mydas*)

The proposed activity “may affect, but is not likely to adversely affect” green sea turtles. The green sea turtle occurs in marine areas where activities could occur. Any work in marine waters may result in temporary disturbance of green sea turtles during construction due to the associated noise and visual disturbance. Construction noise and activity could interfere with travel and foraging.

Leatherback Sea Turtle (*Dermochelys coriacea*)

The proposed activity “may affect, but is not likely to adversely affect” leatherback sea turtles. The leatherback sea turtle occurs in marine areas where activities could occur. Any work in marine waters may result in temporary disturbance of leatherback sea turtles during construction due to the associated noise and visual disturbance. Construction noise and activity could interfere with travel and foraging.

Loggerhead Sea Turtle (*Caretta caretta*)

The proposed activity “may affect, but is not likely to adversely affect” loggerhead sea turtles. The loggerhead sea occurs in marine areas where activities could occur. Any work in marine waters may result in temporary disturbance of loggerhead sea turtles during construction due to the associated noise and visual disturbance. Construction noise and activity could interfere with travel and foraging.

Bradshaw's Desert Parsley (*Lomatium bradshawii*)

The proposed activity “may affect, but is not likely to adversely affect” Bradshaw's desert parsley. Bradshaw's desert parsley occurs in wet meadows. Populations of desert parsley have been identified near streams in Clark County, Washington, areas that could potentially be affected by construction activities. In or near potentially suitable habitat areas surveys to determine the presence of Bradshaw's desert parsley can help avoid and minimize potential impacts

Golden Paintbrush (*Castilleja levisecta*)

The proposed activity would have “no effect” on golden paintbrush. Golden paintbrush occurs in small populations in uplands in the Puget Trough, San Juan County, and Clark County. It is unlikely that species or habitat would be affected by the proposed activity because the proposed activity is associated with shorelines and beaches, away from upland areas. In addition, work would be prohibited in or near sensitive areas as specified in Appendix E.

Kincaid's Sulphur Lupine (*Lupinus sulphureus ssp. Kincaidii*)

The proposed activity would have “no effect” on Kincaid's sulphur lupine. Kincaid's sulphur lupine occurs in upland prairie habitat in southwest Washington. It is unlikely that species or habitat would be affected by the proposed activity because the proposed activity is associated with shorelines and beaches, away from upland areas. In addition, work would be prohibited in or near sensitive areas as specified in Appendix E.

Marsh Sandwort (*Arenaria paludicola*)

The proposed activity would have “no effect” on the marsh sandwort. Marsh sandwort may be extirpated in Washington, but marsh sandwort historically occurred in freshwater wetlands. Surveys to determine the presence of marsh sandwort can help avoid and minimize potential impacts. Because it may be extirpated and the activity would be limited to shorelines and beaches, where plants are not expected to occur, it is unlikely the proposed activity would affect the species or habitat.

Nelson's Checker-Mallow (*Sidalcea nelsoniana*)

The proposed activity “may affect, but is not likely to adversely affect” Nelson's checker mallow. Nelson's checker-mallow occurs in meadows and along streams in southwest Washington and the Olympic peninsula, areas that could potentially be affected by the proposed activity. In or near potentially suitable habitat areas surveys to determine the presence of Nelson's checker-mallow can help avoid and minimize potential impacts. In addition, work will be prohibited in sensitive areas (Appendix E).

Showy Stickseed (*Hackelia venusta*)

The proposed activity would have “no effect” on showy stickseed. Showy stickseed occurs in open mountain sites composed of loose sand or talus slopes, areas where activities would not occur. Therefore, species or habitat would not be affected by the proposed activity because the activities would occur near shorelines and beaches, away from open mountain sites.

Spalding's Silene (*Silene spaldingii*)

The proposed activity would have “no effect” on Spalding's silene. Spalding's silene occurs in upland grasslands in eastern Washington, away from areas where activities would typically occur (e.g. shorelines and beaches). Therefore, the species would not be affected by the proposed activity because the activity would not occur in or near upland grassland habitat. In addition, surveys to determine the presence of Spalding's silene can help avoid and minimize potential impacts.

Water Howellia (*Howellia aquatilis*)

The proposed activity would have “no effect” on water howellia. Water howellia occurs in seasonal wetlands in the Puget lowlands and the Columbia basin, primarily in small, vernal ponds, although some ponds may retain water throughout the year. Ponds would not be influenced or affected by proposed activity due to their small size. Surveys to determine the presence of water howellia can help avoid and minimize potential impacts. In addition, work would be prohibited in or near sensitive areas as specified in Appendix E.

Wenatchee Mountain Checker-Mallow (*Sidalcea oregana var. calva*)

The proposed activity would have “no effect” on the Wenatchee mountain checker-mallow and its critical habitat. Wenatchee mountain checker-mallow occurs in wet meadows within a small region southeast of Leavenworth, Washington. Surveys to determine the presence of Wenatchee mountain checker-mallow can help avoid and minimize potential impacts. Because it is unlikely that a project would occur near known plant populations and construction would be prohibited in or near sensitive areas (as specified in Appendix E), the species and habitat would not be affected by the proposed activity.

Ute Ladies'-Tresses (*Spiranthes diluvialis*)

The proposed activity “may affect, but is not likely to adversely affect” Ute ladies'-tresses. Ute ladies'-tresses can occur in wet meadows associated with meandering wetland complexes, areas that could potentially be affected by construction activities. In or near potentially suitable habitat areas surveys to determine the presence of Ute ladies'-tresses can help avoid and minimize potential impacts. In addition, work will be prohibited in sensitive areas (Appendix E).

Pacific Salmon and Bull Trout

Adult and juvenile salmonids utilize habitats within the action area as migratory corridors and rearing habitat and may be affected by construction activities. The proposed activity may result in temporary increases in suspended sediment during construction; however, turbidity is expected to be short-term. Proposed activity will not occur in or near vegetated shallows where listed salmonids or forage fish may occur. The in-water work windows (see Appendix D) will minimize the chance that adult and juvenile salmonids are present during project construction, and forage fish spawning will be protected. In addition, the long term purpose of the proposed activity is for creating or improving fish spawning habitat in the nearshore environment.

The proposed activity “may affect, but is not likely to adversely affect”:

- Snake River sockeye and their critical habitat

- Snake River spring/summer chinook and their critical habitat
- Snake River fall chinook and their critical habitat
- Snake River steelhead and their critical habitat
- Columbia River chum
- Columbia River bull trout
- Lower Columbia River steelhead
- Lower Columbia River chinook
- Middle Columbia River steelhead
- Upper Columbia River steelhead
- Upper Columbia River spring chinook
- Upper Willamette River chinook
- Upper Willamette River steelhead
- Ozette Lake sockeye
- Hood Canal summer chum
- Puget Sound chinook
- Puget Sound steelhead
- Coastal/Puget Sound bull trout/dolly varden
- Lower Columbia River/SW Washington coho salmon

Table 5. Effect Determinations for Listed Terrestrial Animals and Insects

Species Name <i>Scientific Name</i>	Status	Determination	Rational for Determination
Brown Pelican <i>Pelecanus occidentalis</i>	E	May affect, but not likely to adversely affect	Any work near coastal marine waters and associated with the proposed activity may result in temporary displacement during construction due to noise and visual disturbance. To minimize impacts work would be limited in Pacific and Grays Harbor Counties by a work window (Appendix E).
Marbled Murrelet <i>Brachyramphus marmoratus</i>	T	May affect, but not likely to adversely affect	The proposed activity may result in temporary displacement during construction due to noise and visual disturbance. Work will be prohibited in or near critical habitat areas and during sensitive nesting or foraging periods (Appendix E).
Northern Spotted Owl <i>Strix occidentalis</i>	T	May affect, but not likely to adversely affect	The proposed activity may result in temporary displacement during construction due to noise and visual disturbance. Work will be prohibited in or near critical habitat areas and during sensitive nesting or foraging periods (Appendix E).
Short-Tailed Albatross <i>Phoebastria albatrus</i>	E	May affect, but not likely to adversely affect	In Washington, short-tailed albatross inhabit only coastal and offshore marine waters where temporary displacement during construction has the potential to adversely affect short-tailed albatross.
Western Snowy Plover <i>Charadrius alexandrinus</i>	T	May affect, but not likely to adversely affect	Plovers inhabit only ocean beach areas in Pacific and Grays Harbor counties where temporary displacement during construction due to noise and visual disturbance has the potential to affect western snowy plover. Work will be prohibited in or near critical habitat and sensitive nesting areas (Appendix E).
Canada Lynx <i>Lynx Canadensis</i>	T	No effect	The proposed activity would not occur near remote areas of the Selkirk Mountains or the Cascade Range where lynx occur.
Columbia White-Tailed Deer <i>Odocoileus virginianus leucurus</i>	E	No effect	This PBE does not cover placing nearshore fill in the Columbia River mainstem, therefore, would not occur near suitable habitat and known populations of Columbia white-tailed deer.
Gray Wolf <i>Canis lupis</i>	E	No effect	The proposed activity would not occur near remote areas of the Selkirk Mountains or the Cascade Range where grey wolves occur.
Grizzly Bear <i>Ursus arctos horribilis</i>	T	No effect	The proposed activity would not occur near remote areas of the Selkirk Mountains or the Cascade Range where grizzly bears occur.

Species Name <i>Scientific Name</i>	Status	Determination	Rational for Determination
Pygmy Rabbit <i>Barchylagus idahoensis</i>	E	May affect, but not likely to adversely affect	The proposed activity may result in temporary displacement or habitat disturbance during construction. Construction will avoid areas of suitable habitat and known populations of pygmy rabbit.
Woodland Caribou <i>Rangifer tarandus caribou</i>	E	No effect	The proposed activity would not occur in or near the Selkirk Mountains where woodland caribou occur.
Oregon Silverspot Butterfly <i>Speyeria zerene hippolyta</i>	T	May affect, but not likely to adversely affect	Activities near sand dune, salt-spray meadows or open field habitat in the Pacific coastal and Willapa Bay areas of Pacific County could impact the butterfly or their habitat. Work will be prohibited in or near sensitive habitat areas as specified in Appendix E.

Table 6. Effect Determinations for Listed Marine Animals

Species Name <i>Scientific Name</i>	Status	Determination	Rational for Determination
Blue Whale <i>Balaenoptera musculus</i>	E	May affect, but not likely to adversely affect	Construction noise and activity could result in confusion, disruption of social cohesion, separation, alteration of travel, and/or stranding.
Fin Whale <i>Balaenoptera physalus</i>	E	May affect, but not likely to adversely affect	Construction noise and activity could result in confusion, disruption of social cohesion, separation, alteration of travel, and/or stranding.
Humpback Whale <i>Megaptera novaeangliae</i>	E	May affect, but not likely to adversely affect	Construction noise and activity could result in confusion, disruption of social cohesion, separation, alteration of travel, and/or stranding.
Sei Whale <i>Balaenoptera borealis</i>	E	May affect, but not likely to adversely affect	Construction noise and activity could result in confusion, disruption of social cohesion, separation, alteration of travel, and/or stranding.
Sperm Whale <i>Physeter macrocephalus</i>	E	May affect, but not likely to adversely affect	Construction noise and activity could result in confusion, disruption of social cohesion, separation, alteration of travel, and/or stranding.
Killer Whale <i>Orcinus orca</i>	E	May affect, but not likely to adversely affect	Construction noise and activity could result in confusion, disruption of social cohesion, separation, alteration of travel, and/or stranding.
Steller Sea Lion <i>Eumetopias jubatus</i>	T	May affect, but not likely to adversely affect	Construction noise and activity could result in confusion, disruption of social cohesion, separation, alteration of travel, and interference with feeding or breeding.
Green Sea Turtle <i>Chelonia mydas</i>	T	May affect, but not likely to adversely affect	Construction noise and activity could interfere with travel and foraging
Leatherback Sea Turtle <i>Dermochelys coriacea</i>	E	May affect, but not likely to adversely affect	Construction noise and activity could interfere with travel and foraging
Loggerhead Sea Turtle <i>Caretta caretta</i>	T	May affect, but not likely to adversely affect	Construction noise and activity could interfere with travel and foraging.

Table 7. Effect Determinations for Listed and Proposed Plant Species

Species Name <i>Scientific Name</i>	Status	Determination	Rational for Determination
Bradshaw's Desert Parsley <i>Lomatium bradshawii</i>	E	May affect, but not likely to adversely affect	Populations of desert parsley have been identified near streams in Clark County, Washington, areas that could potentially be affected by construction activities. In or near potentially suitable habitat areas surveys to determine the presence of Bradshaw's desert parsley can help avoid and minimize potential impacts.
Golden Paintbrush <i>Castilleja levisecta</i>	T	No effect	The proposed activity would be limited to shorelines and beaches, where these plants do not occur. Hence, this species and its habitat (upland areas) would not be affected by the proposed activity.
Kincaid's Sulphur Lupine <i>Lupinus sulphureus ssp. Kincaidii</i>	T	No effect	The proposed activity would be limited to shorelines and beaches, where these plants do not occur. Hence, this species and its habitat (upland prairie habitat) would not be affected by the proposed activity.
Marsh Sandwort <i>Arenaria paludicola</i>	E	No effect	The proposed activity would not affect the species or habitat because activity would be limited to shorelines and beaches, where plants are not expected to occur, and the plant may be extirpated in Washington
Nelson's Checker-Mallow <i>Sidalcea nelsoniana</i>	T	May affect, but not likely to adversely affect	Nelson's checker-mallow occurs in meadows and along streams, which could potentially be affected by construction activities. In or near potentially suitable habitat areas surveys to determine the presence of Nelson's checker-mallow can help avoid and minimize potential impacts. In addition, work will be prohibited in sensitive areas (Appendix E).
Showy Stickseed <i>Hackelia venusta</i>	PE	No effect	The proposed activity would be limited to shorelines and beaches, where these plants do not occur. Hence, this species and its habitat (loose sand or talus slopes in open mountain sites) would not be affected by the proposed activity.
Spalding's Silene <i>Silene spaldingii</i>	PT	No effect	The proposed activity would be limited to shorelines and beaches, where these plants do not occur. Hence, this species and its habitat (upland grasslands) would not be affected by the proposed activity.
Water Howellia <i>Howellia aquatilis</i>	T	No effect	The proposed activity would be limited to shorelines and beaches, where these plants do not occur. Hence, this species and its habitat (small, vernal ponds) would not be affected by the proposed activity.
Wenatchee Mountain Checker-Mallow <i>Sidalcea oregana var. calva</i>	E	No effect	It is unlikely that a project would occur near known plant populations. The proposed activity would be limited to shorelines and beaches. In addition, construction would be prohibited in or near sensitive areas (as specified in Appendix E). Hence, this species and its habitat (wet meadows) would not be affected by the proposed activity.
Ute Ladies'-Tresses <i>Spiranthes diluvialis</i>	T	May affect, but not likely to adversely affect	Ute ladies'-tresses can occur in wet meadows associated with meandering wetland complexes, areas that could potentially be affected by construction activities. In or near potentially suitable habitat areas surveys to determine the presence of Ute ladies'-tresses can help avoid and minimize potential impacts. Work will be prohibited in sensitive areas (Appendix E).

Table 8. Effect Determinations for Listed, Proposed, and Candidate Fish Species

Species Name <i>Scientific Name</i> Evolutionary Significant Unit (ESU)/Distinct Population Segment (DPS)	Status	Determination	Rational for Determination
Bull Trout <i>Salvelinus confluentus</i> Coastal/Puget Sound DPS Columbia River DPS	T T	May affect, but not likely to adversely affect	Proposed activity occurs in areas where fish may occur and potential impacts from turbidity, contaminants, and noise associated with construction could affect fish.
Chinook Salmon <i>Oncorhynchus tshawytscha</i> Puget Sound ESU Snake River Fall Run ESU Snake River Spring/Summer-run ESU Lower Columbia River ESU Upper Columbia River Spring-run ESU Upper Willamette River ESU	T T T T E T	May affect, but not likely to adversely affect	Proposed activity occurs in areas where fish may occur and potential impacts from turbidity, contaminants, and noise associated with construction could affect fish.
Sockeye Salmon <i>Oncorhynchus nerka</i> Ozette Lake ESU Snake River ESU	T E	May affect, but not likely to adversely affect	Proposed activity occurs in areas where fish may occur and potential impacts from turbidity, contaminants, and noise associated with construction could affect fish.
Coho Salmon <i>Oncorhynchus kisutch</i> Puget Sound/Strait of Georgia ESU Lower Columbia River/SW WA ESU	C C	Will not jeopardize (“may affect, but not likely to adversely affect” if listed)	Proposed activity occurs in areas where fish may occur and potential impacts from turbidity, contaminants, and noise associated with construction could affect fish.
Chum Salmon <i>Oncorhynchus keta</i> Hood Canal Summer-run ESU Columbia River ESU	T T	May affect, but not likely to adversely affect	Proposed activity occurs in areas where fish may occur and potential impacts from turbidity, contaminants, and noise associated with construction could affect fish.
Steelhead Trout <i>Oncorhynchus mykiss</i> Puget Sound ESU Upper Columbia River ESU Middle Columbia River ESU Lower Columbia River ESU Snake River Basin ESU Upper Willamette River ESU	T E T T T T	May affect, but not likely to adversely affect	Proposed activity occurs in areas where fish may occur and potential impacts from turbidity, contaminants, and noise associated with construction could affect fish.

11.0 Essential Fish Habitat

Overview

Public Law 104-297, the Sustainable Fisheries Act of 1996, amended the Magnuson-Stevens Fishery Conservation and Management Act to establish new requirements for Essential Fish Habitat (EFH) descriptions in Federal fishery management plans and to require federal agencies to consult with NMFS on activities that may adversely affect EFH.

The Magnuson-Stevens Act requires all fishery management councils to amend their fishery management plans to describe and identify EFH for each managed fishery. The Pacific Fishery Management Council (1999) has issued such an amendment in the form of Amendment 14 to the Pacific Coast Salmon Plan, and this amendment covers EFH for all fisheries under NMFS jurisdiction that would potentially be affected by the proposed action. Specifically, these are the chinook, coho and pink salmon fisheries. EFH includes all streams, lakes, ponds, wetlands, and other currently viable water bodies and most of the habitat historically accessible to salmon. Activities occurring above impassable barriers that are likely to adversely affect EFH below impassable barriers are subject to the consultation provisions of the Magnuson-Stevens Act.

The Magnuson-Stevens Act requires consultation for all federal agency actions that may adversely affect EFH. EFH consultation with NMFS is required by federal agencies undertaking, permitting, or funding activities that may adversely affect EFH, regardless of its location. Under Section 305(b)(4) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation and enhancement recommendations to federal and state agencies for actions that adversely affect EFH. Wherever possible, NMFS utilizes existing interagency coordination processes to fulfill EFH consultations with federal agencies. For the proposed action, this goal is being met by incorporating EFH consultation to the Endangered Species Act Section 7 consultation, as represented by this biological evaluation.

Location

The location of the activity covered by this assessment has been described earlier in this document (see Section 3).

Description of Proposed Activity

The activity covered by this assessment have been described earlier in this document (see Section 4).

Potential Adverse Effects of the Proposed Activity

Projects would occur in or along the edges of marine, estuarine, and freshwater waters. EFH for ground fish (Table 9), coastal pelagics (Table 10) and salmonids (Table 11) could be affected by proposed activity.

Ground Fish EFH

Effects to the environmental baseline that would impact groundfish species are discussed in Section 10.

Coastal Pelagic EFH

Effects to the environmental baseline that would impact coastal pelagic species are discussed in detail in Section 10.

Salmon EFH

Effects to the environmental baseline that would impact salmon species are discussed in detail in Section 10.

EFH Conservation Measures

Conservation measures designed to protect listed species and those proposed as threatened or endangered will also help avoid and minimize impacts of the proposed activities on salmonid and groundfish EFH (see Appendix D, E, F, and G).

Conclusion

In accordance with EFH requirements of the Magnuson-Stevens Fishery Conservation and Management Act, the Corps has determined that the proposed activity would not adversely impact EFH utilized by Pacific salmon and groundfish. It has been determined that the proposed action will not adversely affect EFH for federally managed fisheries in Washington waters.

Table 9. Ground Fish Species with Designated EFH and the Life History Stages that May Occur in the Action Area (PFMC, 1998a).

GROUND FISH SPECIES	Adults	Spawning/ Mating	Large Juvenile	Small Juvenile	Larvae	Eggs/ Parturition
Leopard Shark	X	X	N/A	X	N/A	X
Soupin Shark	X	X	N/A	X	N/A	X
Spiny Dogfish	X		X	X	N/A	X
California Skate	X	X	N/A	X	N/A	X
Ratfish	X	X	N/A	X	N/A	
Lingcod	X	X	X	X	X	X
Cabezon	X	X	X	X	X	X
Kelp Greenling	X	X	X	X	X	X
Pacific Cod	X	X	N/A	X	X	X
Pacific Whiting (Hake)	X	X	N/A	X	X	X
Sablefish				X		
Jack Mackerel	X		N/A		X	
Black Rockfish	X			X		
Bocaccio				X	X	
Brown Rockfish	X	X	N/A	X		X
Calico Rockfish	X		N/A	X		
California Scorpionfish						X
Copper Rockfish	X		X	X		X
Kelp Rockfish				X		
Quillback Rockfish	X		X	X	X	X
English Sole	X	X	N/A	X	X	X
Pacific Sanddab			N/A	X	X	X
Rex Sole	X		N/A			
Starry Flounder	X	X	N/A	X	X	X

N/A - Not Applicable. Either the species does not have a particular life stage in its life history, or when EFH of juveniles is not identified separately for small juvenile and large juvenile stages. For many species, habitats occupied by juveniles differ substantially, depending on the size (or age) of the fish. Frequently, small juveniles are pelagic and large juveniles live on or near the bottom; these life stages are identified separately in the table when sufficient information is available to do so. When juvenile habitats do not differ so substantially or when information is insufficient to identify differences, EFH is identified only for the juvenile stage (small and large juveniles combined), and N/A is listed in the column for the large juvenile stage in the table (PFMC, 1998a).

Table 10. Coastal Pelagic Species with Designated EFH and the Life History Stages that May Occur in the Action Area (PFMC, 1998a).

COASTAL PELAGIC SPECIES	Adults	Spawning/ Mating	Large Juvenile	Small Juvenile	Larvae	Eggs/ Parturition
Northern Anchovy	X		X		X	X
Pacific Sardine	X		X		X	X
Pacific Mackerel	X		X		X	X
Jack Mackerel	X					
Market Squid	X	N/A		N/A	N/A	N/A

N/A - Not Applicable. Either the species does not have a particular life stage in its life history, or when EFH of juveniles is not identified separately for small juvenile and large juvenile stages. For many species, habitats occupied by juveniles differ substantially, depending on the size (or age) of the fish. Frequently, small juveniles are pelagic and large juveniles live on or near the bottom; these life stages are identified separately in the table when sufficient information is available to do so. When juvenile habitats do not differ so substantially or when information is insufficient to identify differences, EFH is identified only for the juvenile stage (small and large juveniles combined), and N/A is listed in the column for the large juvenile stage in the table (PFMC, 1998a).

Table 11. Salmonid Species with Designated EFH and the Life History Stages that May Occur in the Action Area (PFMC, 1998a).

PACIFIC SALMON	Egg	Larvae	Young Juvenile	Juvenile	Adult	Spawning
Chinook salmon	X	X	X	X	X	X
Coho salmon	X	X	X	X	X	X
Pink salmon	X	X	X	X	X	X