

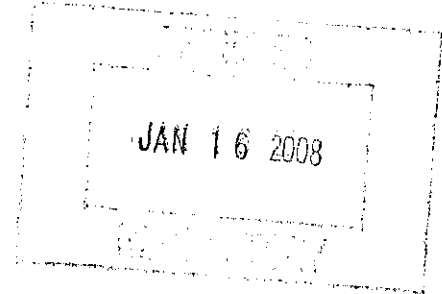


**UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration**

NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115
January 14, 2008

NMFS Tracking No.:
2005/07506

Michelle Walker
Corps of Engineers, Seattle District
Regulatory Branch CENWS-OD-RG
Post Office Box 3755
Seattle, Washington 98124-3755



Re: Endangered Species Act Section 7 Consultation and Magnuson-Stevens Fishery Conservation Management Act Essential Fish Habitat Consultation – Programmatic Evaluation of Ten Activities Authorized by the Army Corps of Engineers in the State of Washington.

Dear Ms. Walker:

This letter responds to the Army Corps of Engineers (COE) September 23, 2005 request for programmatic informal consultation under Section 7 of the Endangered Species Act (ESA) on ten COE-permitted activities in Washington State. Additionally, this letter serves to meet the requirements for consultation under the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

Endangered Species Act

A Programmatic Biological Evaluation (PBE) was developed by the COE over the last two years and addresses listed salmonids, marine mammals, sea turtles and designated critical habitat. The COE requested NMFS' concurrence with its finding of "may affect, but not likely to adversely affect" for 18 listed, proposed, and candidate evolutionarily significant units (ESU) or distinct population segments (DPS) of fish species (Table 1). The COE requested NMFS' concurrence with its finding of "may affect, not likely to adversely affect" for seven species of marine mammals and three species of marine turtles, including Southern Resident killer whale DPS (*Orcinus orca*). The COE also requested NMFS' concurrence with its finding of "may affect, not likely to adversely affect" designated critical habitat for listed salmonid species (see Table 1), and Southern Resident killer whales.

The Southern Resident killer whale DPS was listed as endangered under the ESA on November 18, 2005 (70 FR 69903), and critical habitat for it was designated on November 29, 2006 (71 FR 69054) and became effective on December 29, 2006. This consultation with the COE is conducted under section 7(a)(2) of the ESA, and its implementing regulations, 50 CFR 402.



Table 1. List and status of Washington State salmonid ESU's or DPS's.

ESU	ESA Listing Status	ESA Critical Habitat
Upper Columbia River Spring-run Chinook	Endangered 6/28/05 (70FR37160)	Designated 9/2/05 (70FR52630)
Snake River Spring/Summer-run Chinook	Threatened 6/28/05 (70FR37160)	Designated 10/25/99 (64FR57399)
Snake River Fall-run Chinook	Threatened 6/28/05 (70FR37160)	Designated 12/28/93 (58FR68543)
Puget Sound Chinook	Threatened 6/28/05 (70FR37160)	Designated 9/2/05 (70FR52630)
Lower Columbia River Chinook	Threatened 6/28/05 (70FR37160)	Designated 9/2/05 (70FR52630)
Upper Willamette River Chinook	Threatened 6/28/05 (70FR37160)	Designated 9/2/05 (70FR52630)
Hood Canal Summer-run Chum	Threatened 6/28/05 (70FR37160)	Designated 9/2/05 (70FR52630)
Columbia River Chum	Threatened 6/28/05 (70FR37160)	Designated 9/2/05 (70FR52630)
Puget Sound/ Strait of Georgia Coho	Species of Concern 4/15/04 (69FR19975)	NA
Lower Columbia River Coho	Species of Concern 4/15/04 (69FR19975)	Designated 9/2/05 (70FR52630)
Snake River Sockeye	Endangered 6/28/05 (70FR37160)	Designated 12/28/93 (58FR68543)
Ozette Lake Sockeye	Threatened 6/28/05 (70FR37160)	Designated 9/2/05 (70FR52630)
Upper Columbia River Steelhead	Endangered 6/13/07 (court decision)	Designated 9/2/05 (70FR52630)
Snake River Basin Steelhead	Threatened 1/5/06 (71FR834)	Designated 9/2/05 (70FR52630)
Middle Columbia River Steelhead	Threatened 1/5/06 (71FR834)	Designated 9/2/05 (70FR52630)
Lower Columbia River Steelhead	Threatened 1/5/06 (71FR834)	Designated 9/2/05 (70FR52630)
Upper Willamette River Steelhead	Threatened 1/5/06 (71FR834)	Designated 9/2/05 (70FR52630)
Puget Sound Steelhead	Threatened 5/11/07 (72FR26722)	Under development

The PBE includes 10 activities which are authorized through certain nationwide permits, regional general permits, or individual permits. The 10 activities include: aids to navigation, mooring buoys, temporary recreational structures, piling replacement, scientific measurement devices, oil spill containment, fish and wildlife harvesting, tideland markers, nearshore fill for State Hydraulic Project Approval mitigation requirements, and minor bank stabilization repair activities. Each activity includes a programmatic description, project construction description, action area description, species and habitat information, activity history and status, environmental baseline, effects of the action, determination of effects, and monitoring, as appropriate. Approved work windows are defined on the COE website (<http://www.nws.usace.army.mil>). The PBE explicitly identifies specific methods which may affect, but are not likely to

adversely affect, listed species or designated critical habitat. Projects with methods or activities that are not covered by this PBE will be consulted on individually either informally or formally.

The PBE includes conservation measures such as timing restrictions for in-water work, as well as notification, monitoring and tracking of proposed actions by the COE. The timing restrictions were developed in coordination with Washington Department of Fish and Wildlife (WDFW). Work windows established for in-water work are based on the best information available at the time of consultation and protect juvenile salmonid out-migration and rearing and forage fish spawning. The timing restrictions are specific to watercourse, stream reach, tributary, and marine/estuarine tidal reference area. The PBE also establishes a permit notification requirement for all projects that use the PBE to comply with the ESA. The COE will submit annual reports containing all projects that used the PBE to NMFS. Upon reviewing the reports, NMFS can elect to request additional information on a case-by-case basis. The PBE may be revised as necessary after the first year to include additional activities or to add or remove conservation measures. Any additions or changes would be subject to consultation.

Proposed Actions

The proposed actions are detailed below and involve the implementation by the COE of permit conditions for 10 activities, as listed above. This programmatic consultation precludes the need for further ESA consultation on an individual basis unless any of these activities are substantially revised, or new information becomes available that affects the basis for NMFS' Essential Fish Habitat (EFH) designation.

The action area for aids to navigation, mooring buoys, piling replacement, and scientific measurement devices includes all navigable freshwater and marine/estuarine waters of Washington State. Nearshore fill for state hydraulic project approval mitigation requirements and oil spill containment may occur in all navigable fresh and marine/estuarine waters of Washington State, excluding the Columbia River mainstem and Baker Bay. Fish and wildlife harvesting and tideland markers may occur in all navigable marine/estuarine waters and minor bank stabilization repairs may occur in all marine/estuarine waters excluding the mouth of the Columbia River (Baker Bay) in Washington State. Temporary recreational structures in navigable marine/estuarine waters would not be covered under the PBE; however, the PBE would cover temporary recreational structures in navigable freshwater. For all proposed actions that may occur in navigable marine/estuarine waters and/or the mouth or mainstem of the Columbia River, the PBE does not cover actions within one mile of known Steller sea lion haul outs.

Aids to Navigation. The placement of navigation aids and regulatory markers, which may include lights, traffic signs, etc., is designed to regulate on-water traffic and aid in boat navigation. This action does not include the placement of pilings in fresh water, and is limited to the placement of one new pile or dolphin (three piles) in marine or estuary waters, excluding the mouth of the Columbia River (see Piling Replacement for more

details). The buoy has a radius of one to six feet, and is typically composed of close-cell Styrofoam, which is completely contained to avoid break up. The anchor is fully cured concrete or steel up to a maximum weight of 1.5 tons and maximum size is 4 cubic yards (cy) dependent on the buoy size.

The buoy is placed from a "Buoy Tender" or crane-mounted barge and tug. Smaller buoys use 22 ft boats. If a barge is used, the barge does not ground on substrate, and is not over or adjacent to vegetated shallows or spawning habitat. The anchor is released over the side of the vessel by crane, and is partially suspended in the water before being released to minimize splash disturbance. Buoys are anchored securely and anchors are installed so that the anchor lines do not drag. Any left-over materials will be collected and disposed of off-site. The buoys will not be placed adjacent to (within 25 feet) or over vegetated shallows. Work is done during approved work windows for listed species and forage fish.

Mooring Buoys. The placement of mooring buoys provides moorage for a single boat's non-commercial use. The buoy location is accessed by a small boat or dinghy. One or two SCUBA divers screw the helical anchor into the substrate. If the substrate is too hard for a helical screw, a 5-gallon bucket filled with cured concrete is used. Buoys are placed at water depth from 15 to 30 feet. The buoy is typically one to three feet in diameter, made of a Styrofoam ball with plastic coating and a steel rod through the center with key holes at the top and bottom, one for the anchor attachment, and one for the boat moorage. Anchors are installed so that the anchor line does not drag. The action will be completed within a few hours, and any material left over will be collected and disposed of off-site. Work is done during approved work windows for listed species and forage fish. Boat moorage at mooring buoys typically occurs for six months of the year during summer and fall by single boats from 22 to 65 feet long. Buoys are not to exceed four per acre, and vessels do not ground out at low water. Anchor buoys and moored vessels are not located over or adjacent to (within 25 feet of) vegetated shallows.

Temporary Recreational Structures. The placement of temporary recreational structures provides recreational use during specific events, such as water skiing competitions and boat races. Placement of temporary recreational structures is covered by the PBE in navigable freshwater; however, placement in marine/estuarine waters is not covered by the PBE. A vessel or buoy tender (as described for Aids to Navigation) is used to place the temporary structure in a minimum water depth of 10 feet. The buoy is made of Styrofoam or plastic and has a maximum radius of four feet. The anchor is made of fully cured concrete or steel, with a maximum weight of 200 pounds for small buoys (2 by 3 feet) and 500 pounds for large buoys (4 by 2.5 feet). Temporary log booms and floating docks may be tied with nylon rope or a combination of rope and chain to bulkheads or permanent structures such as docks, piling, markers, or buoys. Temporary floating docks are small enough to drag out of water for storage. Floating docks are no larger than 400 square feet and multiples (no more than four) are placed the length of the longest dock. All log booms and floating docks are made from untreated wood. Temporary ski jumps are anchored with a 500-pound weight at each corner, and are made of pre-painted wood.

No work will be done over or adjacent to vegetated shallows, and large woody debris (LWD) will not be removed. No new pilings will be installed. Additional structures will not exceed four per acre, will not remain in the water longer than 60 days, and will be removed within 15 days after use has been discontinued. All devices and structures will be anchored securely, and anchor lines will not drag. Work will be done within the approved work window for listed species and forage fish.

Piling Replacement. The replacement of existing pilings includes pilings that may be damaged, failing, or posing an environmental threat. There are three methods typically used to remove pilings: partial cutting, full extraction, and pile cut at mud-line following best management practices. Partial cutting is used if the pile is partially deteriorated. The deteriorated portion is removed and a new "top" or "stub-pile" is placed using a sleeve, a 10- to 12-inch diameter pipe. The stub-pile is usually ACZA-treated wood. A stub-pile is secured in the sleeve with steel bolts or with a steel and concrete collar, and no uncured concrete will come in contact with the waterbody. Full extraction of piles is used if partial cutting is not possible, and the piles are not too deteriorated or rotted. Piles are removed using a choker chain and crane, or with vibratory equipment. Once removed, the pile is placed on a barge and then disposed of at an approved upland location. When piles are too deteriorated or rotted to remove without breaking, piles are cut at the mud-line in freshwater and two feet below the mud-line in marine/estuarine waters. Piles are cut by a diver underwater using a pneumatic saw.

Upon removal of the piling, new or recycled piles are driven using a barge-mounted pneumatic pile driver, standard drop hammer impact or vibratory pile driver. The PBE does not apply to pile driving for steel piles greater than 12-inch diameter or concrete piles greater than 24-inch diameter. Impact and/or vibratory pile driving will be used for any size wood pile, concrete piles up to 24-inch diameter, and steel piles up to 12-inch diameter. (Impact pile driving for steel piles (12-inch diameter or less) includes sound attenuation from use of micarta pile caps). Impact pile driving for concrete (24-inch diameter or less) and wood piles does not require sound attenuation devices. A marine mammal buffer area will be monitored during and immediately before pile driving activity and pile driving will not be initiated or will be temporarily suspended if an ESA-listed marine mammal is within a 400-foot radius of the work site.

Work will be done from an open barge with a crane and a guide on the end of the barge for placement of the piling in specific locations. The working barge will be kept in place with steel spuds or large steel piles that act as anchors at each corner of the barge to prevent the barge from grounding out. Barges will not be anchored over eelgrass. All freshwater piling will be untreated, and marine/estuarine piling will not be treated with creosote or pentachlorophenol. No piles are associated with log raft booms, and sheet piling will not be used in lieu of pole piling. Removed creosote treated piles will be disposed of in a manner that precludes further use. Hydraulic water jets will not be used to remove or place piles. Piles will be replaced in the same general location and will not extend beyond the existing footprint. Where piling removal occurs within existing or previously designated Superfund Clean-up sites or sites currently or previously

designated for clean-up under the Washington State Model Toxic Clean-up Act, best management practices established by EPA will be followed during CERCLA coordination. The replacement of existing piling with up to 100 wood, plastic, or concrete piling, or 40 steel piling will be accomplished within 14 workdays within the approved work windows. Any additional changes to structures associated with the pilings is not covered under this programmatic and would require a separate consultation. Specifically, repairs or modification to existing docks, piers and floats should comply with existing programmatic consultations or be submitted to NMFS for consultation.

Scientific Measurement Devices. Scientific measurement devices such as staff gauges, tide gauges, water recording devices, and water quality testing and improvement devices are placed to measure and record scientific data. Measuring devices will be placed by construction of a new facility within or next to a waterbody, on existing structures, over waterways or on buoys. New facilities within a waterbody will be constructed of a small (5-foot by 5-foot) facility to house the measuring device near Ordinary High Water (OHW) or mean higher high water (MHHW), extending one or two PVC pipes into the water. An anchoring system will only be necessary if the device is placed on a buoy. Measuring devices associated with buoys in open water will be placed at a minimum depth of 10 feet at low water and maximum depth of 2,000 feet or more, in locations such as the Strait of Juan de Fuca or Puget Sound. No fill will be placed in wetlands or waterward of OHW, and with no dewatering, or hydraulic modification of a stream or waterbody. Scour chains (chains inserted into the bank or stream bottom that measure the amount of scour by the number of links exposed) will be placed at or below OHW. A single pile or dolphin may be driven in fresh or marine/estuarine waters in water depth from 8 to 45 feet at high water (for details, see the Piling Replacement section) to hold a protected wooden platform (up to 10 square feet) to house scientific measuring devices. In marine/estuarine waters work will be done at low tide and when possible in the dry. No new piling will be placed in the Columbia River mainstem. New facilities next to a waterbody will generally be placed at or near OHW. These will be close enough to the water so PVC piping or measuring devices extend into the water and can record low flows. No dewatering, re-routing, or placement of fill of any kind will take place.

Placement of scientific measuring devices on existing structures may require one or more PVC pipe(s) from existing structures into the waterbody. If new equipment is installed, the electronic measuring devices will be housed within the existing structure. Placement of scientific measuring devices over waterways includes structures that extend over the water during data collection periods. These will generally be constructed upland and linked with a cable and suspended device extending into the water that measures water depth and velocity. For placement of scientific measuring devices on buoys, the device will be attached to the buoys either on it or below it, depending on what the device is measuring. For more information on the buoy and anchor system, see the section pertaining to buoys in Aids to Navigation. Work will be done within approved work windows, and will not occur on or near vegetated shallows.

Oil Spill Containment. Oil spill containment devices are placed to contain spills of oil and hazardous substances. Emergency actions that require placement of booms and

anchors outside of the approved work window or in vegetated shallows is not covered by this consultation. For emergency response, the lead Federal agency (EPA, USCG, or COE for state response actions) will coordinate with NMFS and USFWS under existing emergency procedures. Clean-up of oil or hazardous substances including placement of surfactants is not covered by this programmatic; however, sorbent pads may be used if they are removed quickly. Containment booms are either anchored to shore or tethered to anchors on the bottom, and installed by hand, small boat, or barge and tug boat. Helicopters may place anchors but not booms. There are two types of booms used: nearshore booms to contain small seeps from shoreline banks and spills, and offshore booms. Half or whole concrete ecology blocks (depending on currents, location, etc.) are used to secure the booms, which are anchored to shore with guy lines or at depth in deeper waters. Booms will be installed so that anchors and anchor lines do not drag or scour the streambed. Booms that ground out during low water are not covered under this PBE. Sorbent pads and booms will be removed once saturated, which varies from hours for emergency spills to up to six months for slow leaking seeps. Removal will be completed by hand either in-water using chest waders or from a dinghy or small open vessel. If contaminants are at acceptable levels, sorbent pads or booms may be disposed of at landfills. If not, these materials will be disposed of as approved by Washington State Department of Ecology. Work will be done in accordance with the Spill Control and Countermeasures Plan and any existing State Contingency Plan and the Regional Response Team. The COE will track oil spill containment activities under the PBE in the future.

Fish and Wildlife Harvesting. Recreational harvesting involves the placement of crab or shrimp pots, non-commercial clam digging, and non-commercial oyster and mussel harvesting. Non-commercial crab pots, ring nets, star traps, dip nets, or SCUBA gear are used to harvest at depths between 10 to 60 feet at High Water (HW) by boat or from an existing in-water structure such as a pier or float. The equipment will be weighted down and placed on the substrate. A total of two units of gear are allowed per person, and limits vary by species and location. Crab pots are typically dropped in the morning, picked up at night, or left over night for 1-2 days. A buoy, rope, and weight will be used to anchor and mark the pot. Non-commercial shrimp pots are allowed in waters 250- to 400-feet deep and near some existing in-water structures. Pots will be deployed from boats and weighted down on the substrate using a weighted rope and buoy marking the location. Limits vary by location and species. Shrimp pots are typically out for one day.

Commercial placement of crab pots requires one buoy per pot, anchored with rope and weight. Pots are partially submerged in the water before dropped to ensure better placement on the substrate. Commercial crab pots are usually left for one day, but may stay in the water for up to seven days. Approximately 100 to 300 pots are allowed per vessel (100 limit per license), and are usually placed in water 20 to 300 feet deep. Commercial placement of shrimp pots allows up to 20 pots per two buoys. Pots are partially submerged before dropping to ensure better placement. Each vessel has approximately 100 to 300 pots, anchored with rope and weight. The commercial shrimping season is short, varies by location, is regulated by WDFW, and pots can only be left out for one day. The PBE does not cover trawling.

Non-commercial clam digging is done by hand or with hand-operated equipment. Limits depend on the location and species. Non-commercial oyster and mussel harvesting is done by prying the mussels and oysters from rock areas with a wedge or knife. Limits are 10 pounds per day year round for mussels, and 18 oysters total per day year round for oyster. On privately held land, land owners are allowed to harvest a larger quantity and are allowed to "rake" the beach. No clam digging or oyster and mussel harvesting activities will occur over or adjacent to vegetated shallows or habitat for listed or proposed species or prey/forage species.

Tideland Markers. Single piles or buoys are placed as markers to designate public tidelands, vegetated areas, or shellfish harvesting closures. Buoys will be placed by hand at low tide or from a small boat at a maximum depth of 6-feet HW. Pile placement will be conducted from a barge positioned by a tug boat and anchored with spuds. Pile driving activities covered in the PBE are described above in Piling Replacement. Work will be done within the approved work windows, and only occurs in marine/estuarine locations. No work will be done in or adjacent to vegetated shallows or spawning habitat for listed or proposed species. Piles will not be treated with creosote or pentachlorophenol, and uncured concrete will not come into contact with the waterbody. Barges and boats will not ground out, and will not operate over or adjacent to vegetated shallows. Buoys will be anchored securely ensuring that anchors and anchor lines do not drag. The COE will track tideland marker activities as conducted by Washington State Department of Natural Resources under the PBE in the future.

Nearshore Fill for State Hydraulic Project Approval Mitigation Requirements. To meet WDFW mitigation requirements for hydraulic project approval (HPA), up to 25 cy of fill material may be placed waterward of the OHW or MHHW to create or improve fish habitat and nearshore environment. Fill material for HPA mitigation will either be pea gravel (no larger than 3/8-inch), sand, a mixture of pea gravel and sand, or (in freshwater only) spawning gravel. All sand and gravel covered in the PBE will be clean, washed material. No heavy equipment will operate on the beach to spread the gravel. Material will be: 1) hauled in from uplands and transported to the site via dump truck and either stockpiled upland or used straight from the bed of the truck; or 2) placed on a crane-mounted barge and ferried to the site. In marine/estuarine waters material will be placed at extreme high tide, positioning the barge extremely close to the nearshore without grounding out. The material will be spread at low tide.

Silt fencing, filter fabric, or sheet piling will be used for erosion control and to minimize and contain suspended sediment. Controls will be removed prior to placement of nearshore fill materials. Work will be done within the approved work windows, and material will not be placed in or on vegetated shallows. Stockpiling will not occur below OHW. Work will only be done by hand except if a barge is used to deliver material. The material will be spread out evenly without altering the beach grade. The beach will not contain any pits, potholes, or large depressions, and all natural beach complexity that was necessary to remove will be repositioned or replaced in the original locations immediately following completion of the work.

Minor Bank Stabilization Repairs. Small repairs of existing bulkhead or sloped revetment including rock wall, timber wall and occasional repair of a concrete wall are covered under the PBE. Complete replacement is not covered under the PBE. For small repairs, any work on the beach will be done by hand with the use of a hand truck, wheelbarrow, and shovels. For partial replacement, the damaged area will be removed by hand with hand tools, a trench will be excavated at the damaged location, and new material placed. The trench is typically 2 feet deep and trench width depends upon the type of material. Excavated material is stockpiled upland and transported from the beach by wheelbarrow. For rock wall, a fallen rock will be lifted off the beach and put back into place by hand or with excavator on uplands. For concrete repairs, concrete will be poured in forms with rebar and timber, which will be sprayed with a biodegradable lubricant prior to concrete placement to ensure it will not stick. Concrete cures before the incoming tide and uncured concrete will not come into contact with the waterbody. For repair of timber bulkheads, timber piles will be driven by hand or pile driver (replacement described in Pile Replacement above). The PBE does not cover repair activities in or adjacent to existing or previously designated superfund sites of Washington Model Toxic Clean-Up Sites.

Work will be done within the approved work windows, and no work will be done over or adjacent to vegetated shallows, wetlands, or spawning habitat for forage species. Natural beach complexity features will not be disturbed. The PBE only covers repairs for bank stabilizations with damage or failure to less than 10 percent of the total bank protection (not to exceed 10 linear feet), where repairs are in kind and in place of the existing structure. Timber used will be untreated or treated with biodegradable, non-toxic materials. All work will be done in the dry, and work on the beach will be done by hand. No uncured concrete will come in contact with the waterbody.

Species Determination

Salmonids

The NMFS analyzed the potential impacts of the project on Washington State salmonids (see Table 1) and determined that the impacts will be discountable and insignificant.

The effects will be discountable because all work will be completed during the approved work windows when no salmonid species are expected to be present. If a few salmonids do occur in the action area, the effects are expected to be insignificant.

Anchor, piling, or dolphin placement and removal, and prop wash may affect water quality temporarily by creating a small amount of suspended sediment. Suspended sediment is generated when the anchor drops or a piling is installed, and is intensified if the anchor or line drags. The amount of suspended sediment would not extend beyond the immediate area and will re-settle quickly following the cessation of activity. The placement of anchors and prop wash could destroy areas of vegetated areas, which provide refuge for juvenile salmonids and support forage fish, but buoys will be placed so

they're not over or adjacent to (within 25 feet of) vegetated areas. Boats will be stopped or moving slowly during work. Anchors and lines will be installed to ensure they don't drag. The removal of pilings may also result in the exposure of hazardous and toxic chemical contaminants within the substrate, but will likely resettle and dissipate quickly.

Localized and temporary suspended sediment plumes may be caused by the placement of crab and shrimp pots and prop wash, but the plumes will likely dissipate quickly. Pots placed in vegetated shallows will be placed by hand to minimize the disturbance. Excavation of holes for clam digging may increase the amount of loose sediment available to become suspended in the water column, so the harvester will refill the hole with the same material after they're done. Raking associated with clam digging is allowed only once per area per tidal cycle.

The water quality may be temporarily affected by the placement of fill by an increase in turbidity, which will be minimized by the use of silt curtains and sediment fences to ensure the effect on water quality is localized. To further minimize the amount of suspended sediment, all fill material will be clean and washed. Work will occur in spawning areas, but will be done by hand during the approved work windows when fish will not be spawning. Benthic invertebrates that reside in the intertidal beaches are a primary food source for juvenile listed species may be covered with the fill material, but recruitment should repopulate the area rapidly. The woody riparian vegetation may be disturbed by the bank stabilization, and overhanging vegetation and beach complexity features, such as LWD and rocks may have to be removed. Any vegetation or beach complexity features disturbed or removed will be replaced. Affects of uncured concrete coming in contact with water causes changes in the pH, from the lime in the concrete, so no uncured concrete shall come in contact with fresh or marine/estuarine waters. There will be no changes to flow, hydrology, or overall watershed conditions.

The placement of a barge may cause temporary disturbances in migration patterns, since some fish may migrate to deeper waters to avoid the barge. Work requiring the use of a barge will take no more than a week, so any disturbance will be only temporary. The boom, when placed to assist in the containment of oil and hazardous chemical spill will not generate additional expansion, but will consolidate and remove the spilled fluid. Booms are anchored securely so anchors and anchor lines do not drag.

Any spills will result in the immediate notification of the State Oil Response Team. A Spill Prevention, Control, and Countermeasures (SPCC) plan will be used to prevent, contain, and resolve possible releases of hazardous materials into the water. The contractor will maintain a spill kit onsite during construction in order to respond to accidental spills in a timely manner. Oil contamination often increases the temperature of water, but it will be minimal in unaffected areas. There will be little oil leaching and the booms, which absorb the chemical contamination, will be changed regularly to ensure they are working properly.

Pile driving using an impact hammer, especially on steel, can cause a large amount of noise that radiates outward. Studies show juvenile salmon are frightened away and stay

away, with no long term effects. In more extreme cases, noise may cause ruptured air bladders and other internal damage. Using sound attenuation devices, such as a wood block and bubble curtain, minimizes the affects of underwater noise. If noise should rise to a level of harm, all work will cease until the noise can be better attenuated.

Buoys used for mooring will be placed so vessels using buoys will not ground out during low water, and will not be moored over or adjacent to (within 25 feet of) vegetated shallows. Water quality may also be indirectly affected by the release of contaminants from the leaking oil, gas, or leaching paint from boats. Boats will be fueled at the fuel dock, and painting will not occur at the buoy. Boats moored for longer than 6 months may cause shading impacts, however, at the depth vessels are moored, only adult species will be in that area, and minor migratory changes won't increase the risk of predation or hinder migration.

Temporary and permanent overwater structures increase the amount of shade affecting juveniles by increasing the cover for predators, and will decrease the amount of sunlight that will reach the vegetation in the shallows which feeds forage fish. To minimize the impacts, structures won't be placed over or adjacent to vegetated shallows. The large amount of boats expected to use temporary recreation structures will increase shading and turbidity, but will only be for short time periods.

Repairs to bulkheads may cause a temporary, localized suspended sediment plume, which will dissipate quickly. All timber used for repairs will be untreated or treated with biodegradable, non-toxic material. The presence of barge and operating equipment may temporarily cause disturbances to vegetated shallows, used as habitat for juvenile salmonids and forage fish species, but the disturbances will be for a short time, and will cease after construction activity is finished. Because the structure is repaired in kind and in place, there will be no amount of manmade structures along the shoreline.

Fish may be disturbed by visual disturbances and loud noises, resulting in temporary behavioral changes leading to avoidance that ceases with the completion of construction, but any disturbance will be temporary and localized.

Because all potential adverse effects are discountable or insignificant, NMFS concurs with the COE determination of "may affect, not likely to adversely effect" for PS Chinook and PS steelhead.

Marine Mammals and Sea Turtles

The COE requested NMFS' concurrence with its finding of "may affect, not likely to adversely affect" for seven species of marine mammals and three species of marine turtles. NMFS concurs with the "may affect" determination for three marine mammals-the Southern Resident killer whale DPS, Steller sea lions and humpback whales. After reviewing the proposed action and potential effects mentioned above, NMFS does not anticipate the proposed project will have any effect on the Sei whale, blue whale, sperm whale, green sea turtle, leatherback sea turtle, or loggerhead sea turtle.

Southern Resident Killer Whales

The Southern Resident killer whale DPS composed of J, K, and L pods was listed as endangered under the ESA on November 18, 2005 (70 FR 69903). The final rule listing SR killer whales as endangered identified several potential factors that may have resulted in the decline or may be limiting recovery of these whales, including: quantity and quality of prey, toxic chemicals which accumulate in top predators, and disturbance from sound and vessel traffic. The rule further identified oil spills as a potential risk factor for this species. The draft recovery plan (71 FR 69101) also includes information on these potential threats to Southern Resident killer whales. The potential effects of the COE's proposed action relate to the following threats identified in the listing and recovery plan: 1) prey availability; 2) environmental contaminants and oil spills; and 3) vessel effects and sound (NMFS 2006).

Actions described in the PBE would occur in navigable marine/estuarine waters of Washington State, which is within the range of Southern Resident killer whales. From late spring to early autumn, Southern Resident killer whales spend considerable time in the Georgia Basin with concentrated activity in the inland waters of Washington State around the San Juan Islands and move south into Puget Sound in early autumn. Pods make frequent trips to the outer coast of Washington State during this season. Although less known, winter and early spring movements of Southern Resident killer whales include coastal and nearshore waters along the outer coast of Washington State. While there are seasonal patterns, Southern Resident killer whales have the potential to occur anywhere in navigable marine/estuarine waters of Washington State throughout the year.

1. Prey Availability: The main prey of Southern Resident killer whales is adult salmon (Ford and Ellis 2006) including ESA-listed and non-listed stocks of Chinook and other salmonids. In-water activities of the PBE including components of all actions, with the exception of fish and wildlife harvest, would occur during the approved work windows for listed species and forage fish, which would avoid potential disturbance to out migrating juvenile salmonids and spawning forage fish. Adult migration for ESA-listed and non-listed stocks of Chinook, as well as chum, coho and other salmon species would overlap with in-water construction (WDFW 2002). As indicated in the analysis provided for salmonids above, local, temporary mobilization of sediment during in-water actions would not significantly affect water quality, with insignificant effect to Chinook, a major prey resource of Southern Resident killer whales. In general, adult salmonids are highly mobile and all in-water construction activities will generally take place in broad, non-constricted areas where any adult salmon present would have ample opportunity to avoid in-water actions. Work will not occur on or adjacent to vegetated shallows, and will not disturb natural cover and overhanging vegetation in nearshore marine/estuarine habitat. Additionally, any temporary and short-term project effects on critical habitat of PS Chinook are insignificant, as described above. As a result, effects of the PBE actions on the prey resources for Southern Resident killer whales will be at insignificant levels.

2. Contaminants: Contaminants may be released from in-water actions that cause short-term, localized sediment mobilization; removal of creosote treated piles; and equipment

use during construction and other activities. These releases of contaminants will be at insignificant levels. Conservation measures and best management practices adopted for in-water actions include containment of debris and proper upland disposal during removal of creosote treated piles to minimize release of toxic chemicals such as polycyclic aromatic hydrocarbons (PAHs) into the water column. Under the COE's proposal, permits would not allow placement of creosote or pentachlorophenol treated piles. COE permits would include a Spill Prevention, Control and Counter Measures Plan for responsive action and equipment inspection to prevent release of hazardous materials for in-water actions. Additionally, COE permits would require materials from oil spills to be consolidated and removed. Minor bank stabilization actions will not be permitted in or adjacent to existing or previously designated superfund sites of Washington Model Toxic Clean-Up Sites to avoid potential for release of contaminants in the water. Where pile replacement may occur in or adjacent to existing or previously designated superfund sites or Washington Model Toxic Clean-Up Sites, COE permits will require best management practices established by EPA during CERCLA coordination, to minimize release of contaminants in the water. Thus, it is unlikely that Southern Residents or their potential prey will be exposed to release of contaminants or hazardous material from the proposed actions and any exposure will be insignificant.

3) Vessel Effects and Sound: The proposed actions include the use of vessels, primarily tug/barges and small boats (22 foot) for access, placement, and construction. Any vessel activity would be localized and short-term. Tug/barges and small boats used for proposed actions would require short transit to an access location, where the vessel would remain relatively immobile until work is complete, with minimal sound and insignificant potential for disturbance. When in transit, tug/barges are slow moving, follow a predictable course, do not target whales, and should be easily detected by whales when in transit. Thus, vessel strikes are extremely unlikely and therefore discountable and any potential encounters with Southern Residents are expected to be sporadic and transitory. Sound produced by a tug towing a loaded barge (peak of 500 Hz) is expected to be below the levels of peak hearing sensitivity for killer whales (18 to 42 kHz; Szymanski et al. 1999), and sound pressure levels from the tug are expected to be below ambient levels a short distance from the tug. Thus, tug/barge sound is unlikely to mask acoustic signals of biological significance to Southern Residents. Sound pressure levels from tug/barge transit are also most likely below the behavioral threshold for disturbance even at the source. Therefore, tug/barge sound is expected to have insignificant potential to disturb Southern Residents.

New mooring buoys may result in a temporary increased presence of recreational boaters. If Southern Resident killer whales were present proximate to a new mooring buoy, NMFS expects recreational boaters will be aware of and follow "Be Whale Wise" guidelines, an outreach campaign that targets the recreational boating community. By following "Be Whale Wise" guidelines, recreational boaters will be unlikely to disturb whales.

Southern Residents could be injured or disturbed by sound pressure generated by pile-driving. The potential for such injury or disturbance is insignificant under the COE's proposal, because it would not apply to permits for large-diameter piles (over 12-inch steel piles and over 24-inch concrete piles), and because any permits issued would require conservation measures that will avoid injury or disturbance. Activities under the PBE will be monitored by the COE to ensure the conservation measures are followed. Pile driving permits would require the applicant to use a sound-reducing (micarta) cap for driving steel piles. Permits would also require the applicant to monitor a 400-foot marine mammal buffer area immediately before and during pile driving, and to not initiate or temporarily suspend pile driving if an ESA-listed marine mammal is within the buffer area. The 400-foot buffer ensures that these marine mammals will not be exposed to sound pressure levels that could cause disturbance or injury, as explained in more detail below.

NMFS is currently developing comprehensive guidance on sound exposure levels likely to cause behavioral disruption and injury in the context of the MMPA. Until formal guidance is available, NMFS uses conservative thresholds of sound exposure levels from broad band impulse sounds that cause behavioral disturbance ($160\text{dB}_{\text{RMS}}$ re: $1\mu\text{Pa}$) and injury ($180\text{dB}_{\text{RMS}}$ re: $1\mu\text{Pa}$) to whales. Conservation measures and best management practices adopted in the PBE include use of a sound attenuation measure during impact pile driving of steel piles (micarta cap) and a buffer zone extending to the $160\text{ dB}_{\text{RMS}}$ isopleth, or threshold for behavioral disturbance. The estimated sound pressure level at the source of impact installation of 12-inch steel piles is $176\text{dB}_{\text{RMS}}$ at 10m (Rodkin 2002), with an anticipated 7 dB reduction from use of micarta pile caps (Laughlin 2006) to $169\text{ dB}_{\text{RMS}}$. For 24-inch concrete piles, the estimated sound pressure level at the source is $176\text{ dB}_{\text{RMS}}$ (Hasting and Popper 2005). Following the practical spreading model, the $160\text{ dB}_{\text{RMS}}$ isopleth for pile driving actions under the PBE is within 400 feet of the pile driver.

NMFS has determined that all potential adverse effects to Southern Resident killer whales are insignificant and concurs with your determination of "may affect, not likely to adversely affect" for Southern Resident killer whales.

Steller Sea Lions

NMFS listed Steller sea lions as threatened under the ESA on November 26, 1990 (55 FR 49204) across their entire range. Continued declines in the western portion of the population led to a listing of the western stock as endangered on May 5, 1997 (62 FR 24345) however the eastern stock remained listed as threatened. Steller sea lions in Washington are from the eastern stock. The draft recovery plan (58 FR 45269) identified factors having the potential to impact the recovery of the eastern stock. The potential effects of proposed actions to Steller sea lions relate to the following factors identified in the recovery plan: 1) disturbance; 2) reduced prey availability; and 3) contaminants.

Steller sea lions of the eastern DPS can occur in Washington waters year round, however there are no breeding rookeries in Washington. Haul out locations are used by Steller sea

lions in coastal and inland waters of Washington (Table 2). For all proposed actions that may occur in navigable marine/estuarine waters and/or the mouth or mainstem of the Columbia River, the PBE does not cover actions within one mile of known Steller sea lion haul outs. Thus, proposed actions will not effect breeding and have discountable effects on haul out activities of Steller sea lions.

Table 2. Steller Sea Lion Haul Out Locations in Waters of Washington State

MARINE REGION OF WASHINGTON	HAUL OUT LOCATION	LATITUDE / LONGITUDE ¹
Columbia River	Tip of South Jetty	4614.03 / 12403.94
Olympic Coast - South	South of Split Rock	4723.99 / 12421.58
	Split Rock Area	4724.39 / 12421.76
	Split Rock Area	4724.44 / 12421.50
	Split Rock Area	4724.32 / 12421.47
Olympic Coast - North	Sea Lion Rock	4759.59 / 12443.45
	Carroll Island	4800.34 / 12443.33
	Bodelteh Island Area	4810.55 / 12445.20
	Bodelteh Island Area	4810.52 / 12445.49
	W. Bodelteh Island Area	4810.67 / 12445.89
	Umatilla Reef	4811.10 / 12447.02
	N of Cape Alava	4810.91 / 12444.43
	S of Fuca Pillar / Skagway	4822.22 / 12443.68
	Tatoosh Island Area	4823.53 / 12444.34
	Tatoosh Island Area	4823.57 / 12444.57
E Tatoosh Island Area	4823.51 / 12443.83	
Puget Sound	Toliva Shoals Buoy	4712.15 / 12236.25
San Juan Islands	Bird Rocks	4829.16 / 12245.61
	Bird Rocks	4829.23 / 12245.56
	Whale Rock	4826.84 / 12256.46
	Clements Reef	4846.55 / 12253.21

¹Latitude and longitude reported in decimal degrees.

Sources: Jeffries et al. 2000; WDFW unpublished data.

Potential disturbance from sound associated with proposed actions is expected to be insignificant as discussed above for Southern Resident killer whales. Steller sea lions are opportunistic predators, and generally prey on fish and invertebrates that are seasonally and locally abundant. As discussed for Southern Residents above, proposed actions would not measurably affect prey availability of salmonids. Approved work windows for in-water activities of the PBE would also avoid potential disturbance to spawning forage fish. Therefore, effects on Steller sea lion prey are discountable and insignificant. As

described above, best management practices during proposed actions are expected to have insignificant effects on water quality from any short-term, localized sediment mobilization. Thus, it is unlikely that Steller sea lions or their prey will be exposed to release of contaminants from proposed actions.

NMFS has determined that all potential adverse effects to Steller sea lions are insignificant and concurs with your determination of “may affect, not likely to adversely affect” for Steller sea lions.

Humpback Whale

The humpback whale was listed as endangered under the ESA on June 2, 1970 (35 FR 8491). The eastern North Pacific Stock, which includes humpback whales in the waters of Washington State, is generally located along coastal Central America during winter/spring, and migrates to the coast of California north to southern British Columbia during the summer (NMFS 2005a). Although humpback whales are sighted with increasing frequency in the inside waters of Washington in recent years, primarily during autumn with two sightings during spring (13 individual whales identified in 2003 and 2004; Falcone et al. 2005), they are more common in coastal waters (NMFS 2005a).

Anthropogenic noise was identified as a potential limiting factor in the humpback whale recovery plan. Humpback whales are unlikely to occur in most waters where in-water noise would occur from proposed actions. In the unlikely event that a humpback whale was detected in proximity to proposed actions, any sound disturbance to humpback whales in the vicinity of actions are expected to be insignificant as discussed above for Southern Resident killer whales.

NMFS has determined that all potential adverse effects to humpback whales are insignificant and concurs with your determination of “may affect, not likely to adversely affect” for humpback whales.

Great Whales (Blue, Fin, Sei and Sperm Whales)

The COE determined that proposed actions may affect, but are not likely to adversely affect the following four species of great whales: blue, fin, Sei and sperm whale. NMFS does not concur with the may affect determination for these marine mammal species because they are highly unlikely to be present in the action area. In recent survey efforts, blue whales have not been sighted in Washington waters, and Sei whales have not been sighted within the Exclusive Economic Zone of Washington, Oregon or California (1991-2001, NMFS 2005b, 2003a). Fin whales and sperm whales have been sighted in deep, offshore waters within the Exclusive Economic Zone of Washington, although sightings are rare (1991-2001, NMFS 2003b, 2003c).

After reviewing the proposed actions and potential effects, NMFS does not anticipate the proposed actions will have any effect on blue, fin, Sei, or sperm whales.

Sea Turtles (Green, Leatherback, Loggerhead)

The COE determined that the proposed actions may affect, but are not likely to adversely affect the following three species of marine turtles: green, leatherback and loggerhead turtles. NMFS does not concur with the may affect determination for these marine turtle species because they are highly unlikely to be present in the action area. These marine turtle species are rarely sighted in coastal waters of Washington, and within northeastern Pacific waters are more commonly sighted south of California.

After reviewing the proposed actions and potential effects, NMFS does not anticipate the proposed actions will have any effect on green, leatherback or loggerhead turtles.

This concludes informal consultation pursuant to the regulations implementing the ESA, 50 CFR 402.10. The COE will reinstate consultation if new information reveals effects of the action may affect listed species or adversely modify critical habitat in a manner or to an extent not considered in this consultation; if an action is subsequently modified in a manner that causes an effect to the listed species or adversely modifies critical habitat that was not considered in this consultation; and/or if a new species is listed or critical habitat is designated that may be affected by these projects.

Critical Habitat Determination

Salmonid Species

Critical habitat consists of six Primary Constituent Elements (PCEs) for salmonid evolutionary significant unit.

- PCE 1 includes freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development.
- PCE 2 includes freshwater rearing sites with water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juveniles growth and mobility; water quality and forage supporting juvenile development; and natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.
- PCE 3 includes freshwater migration corridors free of obstruction with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.
- PCE 4 includes estuarine areas free of obstruction with water quality, water quantity, and salinity conditions supporting juvenile and adult physiological transitions between fresh- and saltwater; natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side

- fishes, supporting growth and maturation.
- PCE 5 includes nearshore marine areas free of obstruction with water quality and quantity conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation; and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels.
 - PCE 6 includes offshore marine areas with water quality conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation.

The NMFS analyzed the potential impacts of the projects on the critical habitat and determined that the impacts will be insignificant because all disturbances will be temporary and localized. Many of the activities result in suspended sediment and turbidity, which will dissipate quickly and will not likely extend beyond the immediate area. Vegetated shallows will be avoided during working activities, to minimize the amount of disturbance, and any work that does affect them will be temporary and will recover before salmonids return. Overhanging vegetation and natural cover decrease the temperature, increase the amount of organic debris, and increase insect recruitment. The activities will not result in the disturbance of natural cover and overhanging vegetation, and any cover that is removed will be replaced. Fill activities will result in covering benthic organisms, but fill cover will only be for a short time.

Because all potential adverse effects are discountable or insignificant, NMFS concurs with the COE effect determination of “may affect, not likely to adversely affect” for the critical habitat of salmonid species.

Southern Residents

Critical habitat for Southern Resident killer whales was designated in three specific areas: 1) Summer Core Area in Haro Strait and waters around the San Juan Islands; 2) Puget Sound; and 3) the Strait of Juan de Fuca on November 29, 2006 (71 FR 69054). Critical habitat includes approximately 2,560 square miles of Puget Sound, excluding areas with water less than 20 feet deep relative to extreme high water. The primary constituent elements (PCEs) for SR killer whale critical habitat are: (1) Water quality to support growth and development; (2) prey species of sufficient quantity, quality, and availability to support individual growth, reproduction and development, as well as overall population growth; and (3) passage conditions to allow for migration, resting, and foraging. The potential effects of the project relate to the following primary constituent elements (PCEs) identified: (1) contamination of water and/or prey, (2) reduction in prey availability, and (3) interference with passage.

1. Contamination of Water and/or Prey: The potential for contamination of water and/or prey from the proposed actions will be insignificant. Potential contaminant release from in-water actions including removal of creosote treated piles and equipment use during construction and other activities will be at insignificant levels, as described above. Additionally, actions that cause short-term, localized sediment mobilization will have

insignificant direct and indirect effects on prey of Southern Residents, as described above for salmonids and critical habitat of PS Chinook.

2. Reduction in Prey Availability: The potential for reduction in quantity and availability of prey will be insignificant based on conservation measures and best management practices such as work windows, requirements for placing over water structures, and use of sound attenuation devices. As described above, proposed actions are not likely to adversely affect adult salmonids, including Chinook which are the primary prey resources for Southern Residents. Proposed actions are also not likely to affect critical habitat of PS Chinook.

3. Interference with Passage: The potential for proposed actions to interfere with Southern Resident passage are expected to be insignificant. Actions that include transit by tug/barge are unlikely to result in behavioral disturbance, as described above and are extremely unlikely to affect passage. Minimal transit by tug/barges during assistance with construction actions would be short-term. Therefore, potential for tug/barges to interfere with Southern Resident passage is discountable and insignificant. As described above, an outreach campaign for “Be Whale Wise” guidelines has effectively targeted the recreational boating community, and boaters that follow these guidelines are unlikely to disturb whales. Thus, potential for localized increases in recreational boater presence proximate to new mooring buoys is expected to have a discountable influence on Southern Resident passage. During and immediately prior to proposed pile driving, a marine mammal buffer area will be monitored out to the 160dB_{RMS} isopleth (400 foot radius around the pile driver), which will effectively avoid behavioral disturbance of Southern Residents with insignificant effects on passage.

NMFS has determined that all potential adverse effects to critical habitat of Southern Resident killer whales are discountable and/or insignificant. NMFS concurs with your determination of “may affect, not likely to adversely affect” for critical habitat of Southern Resident killer whales.

Magnuson-Stevens Fishery Conservation and Management Act

Federal agencies are required, under section 305(b)(2) of the MSA and its implementing regulations (50 CFR 600 Subpart K), to consult with NMFS regarding actions that are authorized, funded, or undertaken by that agency that may adversely affect Essential Fish Habitat (EFH). The MSA section 3 defines EFH as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” If an action would adversely affect EFH, NMFS is required to provide the Federal action agency with EFH conservation recommendations (section 305(b)(4)(A)). This consultation is based, in part, on information provided by the Federal action agency and descriptions of EFH for Pacific salmon contained in Appendix A to amendment 14 to the Pacific Coast Salmon Plan (August 1999) developed by the Pacific Fishery Management Council and approved by the Secretary of Commerce (September 27, 2000).

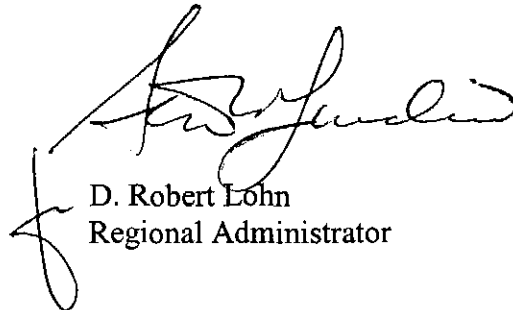
The proposed action is described in the PBE. The project area includes habitat which has been designated as EFH for various life stages of 46 species of groundfish, four species of coastal pelagics, and three species of Pacific salmon (see Table 3 enclosure), and habitats, which have been designated as EFH for various life stages of Chinook salmon and coho (*O. kisutch*) salmon.

The EFH Conservation Recommendations: Because the conservation measures that the COE included as part of the proposed action in the PBE to address ESA/EFH concerns are adequate to avoid, minimize, or otherwise offset potential adverse effects to the EFH of the species, conservation recommendations pursuant to MSA (section 305(b) (4) (A)) are not necessary. Since NMFS is not providing conservation recommendations at this time, no 30-day response from the COE is required (MSA section 305(b) (4) (B)).

This concludes consultation under the MSA. If the proposed action is modified in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH conservation recommendations, the COE will need to reinitiate consultation in accordance with the implementing regulations for EFH at 50 CFR 600.920(1).

If you have questions regarding either the ESA or EFH consultation, please contact Brianna Blaud of the Washington State Habitat Office at (206) 526-4749, or by electronic mail at brianna.blaud@noaa.gov. If any questions pertain to the marine mammal analysis please contact Alison Agness at (206) 526-6152 or alison.agness@noaa.gov.

Sincerely,



D. Robert Lohn
Regional Administrator

cc: Tom McDowell, USFWS
Marcy Reed, COE

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Table 3. Species of fishes found in Puget Sound with designated EFH in the estuarine composite EFH.

Groundfish	redstripe rockfish	Dover sole
Species	<i>S. proriger</i>	<i>Microstomus pacificus</i>
spiny dogfish	rosethorn rockfish	English sole
<i>Squalus acanthias</i>	<i>S. helvomaculatus</i>	<i>Parophrys vetulus</i>
big skate	rosy rockfish	flathead sole
<i>Raja binoculata</i>	<i>S. rosaceus</i>	<i>Hippoglossoides elassodon</i>
California skate	rougeye rockfish	petrale sole
<i>Raja inornata</i>	<i>S. aleutianus</i>	<i>Eopsetta jordani</i>
Longnose skate	sharpchin rockfish	rex sole
<i>Raja rhina</i>	<i>S. zacentrus</i>	<i>Glyptocephalus zachirus</i>
ratfish	splitnose rockfish	rock sole
<i>Hydrolagus colliei</i>	<i>S. diploproa</i>	<i>Lepidopsetta bilineata</i>
Pacific cod	striptail rockfish	sand sole
<i>Gadus macrocephalus</i>	<i>S. saxicola</i>	<i>Psettichthys melanostictus</i>
Pacific whiting (hake)	tiger rockfish	starry flounder
<i>Merluccius productus</i>	<i>S. nigrocinctus</i>	<i>Platichthys stellatus</i>
black rockfish	vermilion rockfish	arrowtooth flounder
<i>Sebastes melanops</i>	<i>S. miniatus</i>	<i>Atheresthes stomias</i>
bocaccio	yelloweye rockfish	
<i>S. paucispinis</i>	<i>S. ruberrimus</i>	
brown rockfish	yellowtail rockfish	Coastal Pelagic
<i>S. auriculatus</i>	<i>S. flavidus</i>	Species
canary rockfish	shortspine thornyhead	anchovy
<i>S. pinniger</i>	<i>Sebastolobus alascanus</i>	<i>Engraulis mordax</i>
China rockfish	cabezon	Pacific sardine
<i>S. nebulosus</i>	<i>Scorpaenichthys marmoratus</i>	<i>Sardinops sagax</i>
copper rockfish	lingcod	Pacific mackerel
<i>S. caurinus</i>	<i>Ophiodon elongatus</i>	<i>Scomber japonicus</i>
darkblotch rockfish	kelp greenling	market squid
<i>S. crameri</i>	<i>Hexagrammos decagrammus</i>	<i>Loligo opalescens</i>
Greenstriped rockfish	sablefish	Pacific Salmon
<i>S. elongatus</i>	<i>Anoplopoma fimbria</i>	Species
Pacific ocean perch	Pacific sanddab	Chinook salmon
<i>S. alutus</i>	<i>Citharichthys sordidus</i>	<i>Oncorhynchus tshawytscha</i>
quillback rockfish	butter sole	coho salmon
<i>S. maliger</i>	<i>Isopsetta isolepis</i>	<i>O. kisutch</i>
redbanded rockfish	curlfin sole	Puget Sound pink salmon
<i>S. babcocki</i>	<i>Pleuronichthys decurrens</i>	<i>O. gorbuscha</i>