SALISH SEA NEARSHORE PROGRAMMATIC (SSNP) CONSULTATIONS
LIST OF REQUIREMENTS
Version: May 25, 2023

General Construction Measures (GCM) and Essential Fish Habitat (EFH) Conservation Recommendations

Programmatic Endangered Species Act (ESA) Consultations [National Marine Fisheries Service (NMFS) reference number WCRO-2019-04086, U.S. Fish and Wildlife Service (USFWS) reference number FWS/R1/2002-0048454] have been completed for the activities listed below. If you can design your project to meet all of the requirements of the Programmatic Biological Opinions (i.e. Project Design Criteria, GCM, and EFH Conservation Recommendations) including those GCM's and EFH Conservation Recommendations listed below, then the review of your ESA consultation and permit application will be streamlined. The submittal of this list is not required. However, to further expedite your review you may include a description of how you meet these requirements in your SSNP application materials.

Notification Requirements The application materials and notification should include the information below, if applicable. If there is an alteration requested from the applicable GCM requirements, verification is required from both NMFS and USFWS.
• If concrete would dry quicker than the 7-day curing rate, information must be provided as part of the project submittal as described in GCM #3.
• If in-water impact pile driving more than two piles greater than 12 inches per day, a Marbled Murrelet Monitoring Plan as described in GCM #7 must be submitted. Applicants must confirm, after construction a summary of monitoring reports will be provided to USFWS.
• If impervious surface is installed or replaced as part of the proposed work or resulting from the proposed work, a Post-Construction Stormwater Management Plan (PCSMP) must be submitted as described in GCM #13. • In addition, include the name, email address, and telephone number of the person responsible for designing the stormwater management facilities, so that NMFS may contact that person if additional information is necessary.
• If the work area may be isolated, applicant must confirm after construction a Fish Salvage Report will be submitted within 60 days to NMFS and the Corps. The report should include the date, time, and place of fish relocation; number and species of fish captured; number of fish killed; and location of fish release.
• If the following is applicable, a Marine Mammal Monitoring Plan must be submitted. See Program Administration (PA) Section 9 of the Biological Opinions for supporting information. NMFS verification of the plan is required. o In-water construction activities cause underwater noise greater than 120dBrms. o Southern Resident Killer whales have been documented in the action area more than four times during the proposed work window.

○ Or four or more humpback whale sightings have been documented in the action area in the past two years during the proposed work month.
• If removing creosote piling for conservation offset credits: applicants must confirm after creosote removal and upland disposal they will submit the disposal receipts and a picture of the dump truck on the scale to the Services. Disposal receipts need to contain actual weight of the total removed creosote.

General Construction Measures	
	The proposed project must comply with the following General Construction Measures (GCMs) as applicable.
1.	**Minimize Construction Impacts at Project Site**
	To the extent feasible, retain natural vegetation, limit impermeable surfaces, limit duration of in-water work and otherwise minimize the extent and duration of earthwork (e.g., compacting, dredging, drilling, excavation, and filling).
2.	**In-Water Work Timing**
	Complete all work waterward of the line of the Highest Astronomical Tide (HAT) during dates listed in the most recent version of in-water work guidelines, Washington Department of Fish and Wildlife (WDFW) Marine Water Work Windows: https://app.leg.wa.gov/WAC/default.aspx?cite=220-660-330
	Hydraulic and bathymetric measurement, sediment sampling and geotechnical sampling are not constrained by the work timing constraints above and may be completed at any time.
3.	**Isolation of Concrete Work**
	All concrete will be placed in the dry (e.g., isolated from water) or within confined waters (i.e., within a form or cofferdam) not connected to surface waters, and will be allowed to cure a minimum of 7 days before contact with surface water. Should new concrete technology develop which has a quicker curing rate, information must be provided as part of the project submittal and NMFS and USFWS will evaluate whether a shorter cure time will be no more impactful than the cure time evaluated in this Opinion.
4.	**Fish Screens**
	Whenever diverting or pumping surface water or water in an isolated work area, a fish screen that meets the most recent revisions of NMFS' fish screen criteria will be installed prior to and during pumping activities and will be maintained in a condition that prevents fish movement through the barrier. Fish screen criteria can be found in Chapter 11 of NMFS Anadromous Salmonid Fish Facility manual or most recent version (NMFS 2022): https://media.fisheries.noaa.gov/2022-06/anadromous-salmonid-passage-design-manual-2022.pdf. If at any time fish screens have damage, pumping activities and in-water work shall cease until damaged fish screens are repaired.
5.	**Drilling, Boring, and Tunneling**

	If drilling, boring, or tunneling are used, isolate drilling operations in wetted areas using a steel casing or other appropriate isolation method to prevent drilling fluids from contacting water.
	If drilling through decking is necessary, use containment measures to prevent drilling debris from entering the water.
	Sampling and directional drill recovery/recycling pits, and any associated waste or spoils will be completely isolated from surface waters and wetlands.
	All waste or spoils will be covered if precipitation is falling or imminent.
	All drilling fluids and waste will be recovered and recycled or disposed of to prevent entry into the water.
	If a drill boring case breaks and drilling fluid or waste is visible in water or a wetland, make all possible efforts to contain the waste.
	All drilling equipment, drill recovery and recycling pits, and any waste or spoil produced, will be contained and then completely recovered and recycled or disposed of as necessary to prevent entry into any waterway. Use a tank to recycle drilling fluids.
	When drilling is completed, remove as much of the remaining drilling fluid as possible from the casing (e.g., by pumping) to reduce turbidity when the casing is removed.
	Drilling, boring, or coring may be used to collect sediment samples/cores. Work at contaminated sites is addressed in PDC #14.
6.	**Pile Installation**
	Piles may be round concrete, steel pipe, untreated wood or some pressure-treated wood with appropriate wrapping (see below). Pressure-treated wood may be installed as described below. Piles must be 36 inches in diameter or smaller or steel H-pile designated as HP 24 inches or smaller.
	Whenever practical, use a vibratory hammer for in-water pile installation.
	Jetting may be used to install pile in areas with coarse, uncontaminated sediments that meet criteria for unconfined in-water disposal.
	When using an impact hammer to drive or proof a steel pile, one of the following sound attenuation methods will be used: (a) complete isolation from water by dewatering the area around the pile; (b) a double-walled pile; or (c) a bubble curtain that will distribute small air bubbles around the pile perimeter for the full depth of the water column during pile installation (see NMFS and USFWS (2006), CALTRANS Technical Report No. CTHWASSNP-RT-306.01.01 (2015), Wursig et al. (2000), and Longmuir and Lively (2001)); or c) if water velocity is greater than 1.6 feet per second, the permittee will use a confined bubble curtain (e.g., surrounded by a fabric or sleeve) that will distribute air bubbles around 100% of the pile perimeter for the full depth of the water column during impact pile installation. New technologies that have demonstrated equivalent sound attenuation can be used if verified by USFWS.
	To assist a permittee in determining biological monitoring needs during pile installation, an optional Pile Installation Calculator is available: https://www.fws.gov/library/collections/washingtonsection-7-consultation-technical-assistance-and-guidance

	The tool aids in determining the extent of underwater noise impacts and distances. Construction activities will cease if marbled murrelets are observed within or entering a zone where pile driving noise is likely to cause injury.
	No more than 8 piles may be driven on any day using impact pile driving.
	Impact pile driving will not begin earlier than two hours after sunrise and will be complete at least one hour before sunset for the period from April 1 through September 30.
	Complete all work waterward of the line of the Highest Astronomical Tide (HAT) during dates listed in the most recent version of in-water work guidelines, Washington Department of Fish and Wildlife (WDFW) Marine Water Work Windows: https://app.leg.wa.gov/WAC/default.aspx?cite=220-660-330
	Hydraulic and bathymetric measurement, sediment sampling and geotechnical sampling are not constrained by the work timing constraints above and may be completed at any time.
7.	**Marbled Murrelet Monitoring Plan**
	The applicant will develop and implement a marbled murrelet monitoring plan for projects that include in-water impact pile driving when injurious sound pressure levels are expected or when in-air sounds are expected to cause masking effects.
	Applicants may request technical assistance from the USFWS while developing a Marbled Murrelet Monitoring Plan to ensure it meets requirements under the USFWS Protocol for Marbled Murrelet Monitoring During Pile Driving (further detail is provided in Appendix B of USFWS's Biological Opinion for this programmatic consultation). A plan must be submitted with the project notification.
	Certified observers will visually monitor the monitoring area (area of potential injury) for marbled murrelets following the protocol. Protocol is provided in Appendix B of USFWS's Biological Opinion for this programmatic consultation.
	An appropriate number of certified marbled murrelet observers will be positioned to provide adequate coverage of the monitoring area without looking farther than 50 meters to ensure no murrelets are in the monitoring area.
	All monitoring will be conducted by observers meeting appropriate qualifications and certified by the USFWS.
	One qualified biologist will be identified as the Lead Biologist. The Lead Biologist has the authority to stop pile driving when murrelets are detected in the monitoring area or when visibility impairs monitoring.
	If murrelets are spotted in the monitoring area, pile driving will not resume until the murrelets have left the monitoring area and at least 2 full sweeps of the monitoring area have confirmed no murrelets are present. If visibility impairs monitoring, pile driving will not resume until effective monitoring can be conducted.
	If weather or sea conditions restrict the observer's ability to observe for marbled murrelets, or become unsafe for the monitoring vessels to operate, cease pile installation until conditions allow for monitoring to resume. Monitoring will only occur when the sea state is at a Beaufort scale of 2 or less.

	The Permittee will provide a summary of marbled murrelet monitoring results, including observation dates, times, and conditions; description of any "take" identified by the biologist, and seabirds found during beach surveys to USFWS.
8.	**Treated Wood Piles**
	Inorganic arsenical pressure-treated wood piles (chromated copper arsenate (CCA) or ammoniacal copper zinc arsenate (ACZA)) that are sealed with a wrapping or a polyurea barrier may be installed under SSNP. Any proposal to use arsenical pressure-treated wood pilings without a wrapping or polyurea barrier systems is not covered by SSNP. Pile wrappings must meet the following criteria:
	A. Wrappings are made from a pre-formed plastic such as polyvinyl chloride (PVC), a fiber glass-reinforced plastic or a high density polyethylene (HDPE) with an epoxy fill or petrolatum saturated tape (PST) inner wrap in the void between the HDPE and the pile.
	B. Wrapping material used for interior pilings must be a minimum of 1/10 of an inch thick, durable enough to maintain integrity for at least 10 years, and have all joints sealed to prevent leakage.
	C. Wrapping material used for exterior pilings that come into direct contact with ocean going vessels or barges must be HDPE pile wrappings with epoxy fill or PST inner wrap.
	D. The tops of all wrapped piles must be capped or sealed to prevent exposure of the treated wood surface to the water column and to prevent preservative from dripping into the water.
	E. Polyurea barrier systems must meet these additional criteria: i. The polyurea barrier must be an impact-resistant, biologically inert coating that lasts or can be maintained for 10 years and in accordance with American Wood Protection Association M 27 standard. ii. The polyurea barrier must be ultraviolet light resistant and a minimum of 250 mm (0.25 inch) thick in the area that is submerged (Morrell 2017). iii. Polyurea barriers must be installed on dry piles that are free of loose wood, splinters, sawdust or mechanical damage. iv. Wrappings or polyurea barriers will extend both above and below the portion of the pile that is in contact with the water. The wrapping or polyurea barrier must extend at least 18 inches below the mudline into the substrate and to the top of the pile. v. All operations to prepare wrappings or polyurea barriers for installation over piles (cutting, drilling, and placement of epoxy fill) will occur in a staging area away from the waterbody. vi. All piles with wrappings or polyurea barriers must be regularly inspected and maintained to identify unobserved failures of the wrapping or polyurea barrier or anytime a wrapping or polyurea barrier breach is observed.
9.	**Pile Removal - Intact**

	The following steps will be used to minimize contaminant release, sediment disturbance, and total suspended solids when removing an intact pile:
	A. Install a floating surface boom to capture floating surface debris.
	B. To the extent possible, keep all equipment (e.g., bucket, steel cable, vibratory hammer) out of the water, grip piles above the waterline, and complete all work during low water and low current conditions.
	C. Dislodge (i.e., wake up) the piling with a vibratory hammer, whenever feasible.
	D. Slowly lift piles from the sediment and through the water column.
	E. Place piles in a containment basin on a barge deck, pier, or shoreline without attempting to clean or remove any adhering sediment. A containment basin for the removed piles and any adhering sediment may be constructed of durable plastic sheeting with continuous sidewalls supported by hay bales or other support to contain all sediment and return flow which may otherwise be directed back to the waterway. Containment basin shall be lined with an oil absorbent boom.
	F. Dispose of all removed piles, floating surface debris, any sediment spilled on work surfaces, and all containment supplies at a permitted upland disposal site.
	If removing creosote piling for conservation offset credits: applicants must submit the disposal receipts and a picture of the dump truck on the scale to the Services after creosote removal and upland disposal. Disposal receipts need to contain actual weight of the total removed creosote.
10.	**Pile Removal - Broken or Intractable Pile.**
	If a pile breaks above the surface of uncontaminated sediment, or less than two feet below the surface, make every feasible attempt short of excavation to remove it entirely. If the pile cannot be removed without excavation, drive the pile deeper if possible.
	If a pile in contaminated sediment is intractable or breaks above the surface, of contaminated sediment, cut the pile or stump off at the sediment line. Cutting the pile up to two feet below the sediment line is allowed if required by a state permit or other authorization.
	If a pile breaks below the surface of contaminated sediment, make no further effort to remove it.
	If removing creosote piling for conservation offset credits: applicants must submit the disposal receipts and a picture of the dump truck on the scale to the Services after creosote removal and upland disposal. Disposal receipts need to contain actual weight of the total removed creosote.
11.	**Treated Wood For Uses Other Than Piles.**
	The following criteria pertains to the repair or maintenance of pre-existing bridges, boardwalks, pier, ramp and floats, footbridges, piers, stringers, and structures in or near waterways and wetlands:
	A. Pesticide and preservative-treated wood can only be used for substructures that are not in direct exposure to leaching by precipitation, overtopping waves, or submersion. Treated wood is prohibited for the application of decking and repair or replacement of bulkheads.

	B. Treated wood shipped to the project area will be stored out of contact with standing water and wet soil and will be protected from precipitation.
	C. Each load and piece of treated wood will be visually inspected and rejected for use in or above aquatic environments if visible residue, bleeding of preservative, preservative-saturated sawdust, contaminated soil, or other dispersible materials are present.
	D. Offsite prefabrication will be used whenever possible to minimize cutting, drilling and field preservative treatment over or near water.
	E. When field fabrication is necessary, all drilling, and field preservative treatment of exposed treated wood will be done above the plane of the High Tide Line to minimize discharge of sawdust, drill shavings, excess preservative and other debris. Tarps, plastic tubs, or similar devices will be used to contain the bulk of any fabrication debris, and any excess field preservative will be removed from the treated wood by wiping and proper disposal to prevent run-off to marine waters.
	F. Cutting of treated wood shall occur 50 feet from open water. Cutting of treated wood in nearshore areas shall include means of minimizing sawdust contamination, such as vacuum dust collectors or similar means of collecting dust.
	G. Evaluate all wood construction debris removed during a project to ensure proper disposal of treated wood.
	H. Ensure that no treated wood debris falls into the water or, if debris does fall into the water, remove it immediately.
	I. After removal, place treated wood debris in an appropriate dry storage site protected from precipitation until it can be removed from the project area.
	J. Treated wood debris shall not be left in the water or stacked at or below the High Tide Line.
12.	**Barge Use.**
	Barges will be large enough to remain stable under foreseeable loads and adverse conditions.
	Barges will be inspected before arrival to ensure the vessel and ballast are free of invasive species if the barge has been used in any other waterbody.
	Barges will be secured, stabilized, and maintained as necessary to ensure no loss of balance, stability, anchorage, or other condition that can result in the release of contaminants or construction debris.
	Ensure the barge does not ground out.
13.	**Stormwater Management**
	Stormwater management, as described below, is required for PDC #3 and any other project that will create or prolong stormwater runoff discharging to a stream, river, estuary, or nearshore marine area when that proposed project: (1) Includes construction of new impervious surface that; (2) repairs or replaces existing impervious surface when the stormwater management at the site does not currently meet all the criteria identified below; or (3) prolongs the life of an existing impervious surface and the stormwater management at the site does not currently meet the all of the criteria identified below.

	The following actions do not require any post-construction stormwater management: i. Removing marine debris or marine life from existing outfalls. ii. Replacing outfall flap gates or flow control devices. iii. Minor repairs or non-structural pavement preservation including installation or repair of guard rails, patching, chip seal, grind/inlay, overlay; removal or plugging of scuppers in a way that benefits stormwater treatment. iv. Modifying on-street parking modifications that reduces contributing impervious surfaces. v. Retrofitting, without increasing the amount of pollution generating impervious surface (PGIS), an existing impervious surface (pavement, parking lot, etc.) as necessary and required by law to comply with Americans with Disabilities Act (ADA) standards for accessible design (e.g., curbcuts). This does not include retrofitting of overwater structures. vi. Minor building repairs such as re-roofing, re-siding, painting, replacing or installing fasteners, shingles, flashing, and gutters, or similar building elements.
	For residential application, hardscape areas should utilize pervious materials (e.g., pavers, porous concrete) as feasible; if infeasible, incorporate rain gardens, bioswales, planted wetponds or comparable Low Impact Development (LID) treatments.
	For commercial, industrial, or public application, utilize LID approaches to design stormwater treatment and management facilities. LID uses on-site features to maximize evapotranspiration and infiltration, which improve water quality and reduce adverse effects to receiving waters such as hydromodification. Manufactured (or proprietary) stormwater facilities, or alternative approaches, will only be considered if site constraints preclude the implementation of LID methods or the alternative can demonstrate improvement in ecosystem health and function commensurate with identified LID practices. Examples of LID practices, ordered by preference, include: i. Minimize impervious area. ii. Limit disturbance. iii. Landscape and hardscape areas.
	Provide a Post-Construction Stormwater Management Plan (PCSMP) for any action proposed to be carried out under this GCM to NMFS. This plan will be validated by NMFS during the verification step. A PCSMP must include the following information: i. All relevant plans, drawings, exhibits, and a narrative report addressing PDC #3 below, that describes, explains, and defines the proposed project. Any engineering design sheets must be stamped and signed by a professional engineer licensed to practice in the state of Washington. ii. Site maps indicating the following elements within the project boundaries:

	a. Property boundaries and project boundaries, especially if the project includes activities extending beyond/outside the property or parcel boundaries. b. Impervious areas, landscape areas, and undeveloped natural areas (e.g., forested areas, wetlands, riparian zones). c. Location and extent of all LID stormwater facilities and BMPs by type and capacity. d. Location and extent of proprietary stormwater treatment technologies by type and capacity, if proposed. e. Location and extent of other structural source control practices by type and capacity (e.g., special practices for known or suspected contaminated sites, methods for targeting specific pollutants of concern). f. All runoff discharge points and conveyance paths to the nearest receiving water.
	Water Quality Treatment Analysis that describes how LID or commensurate practices will treat the water quality design storm and provide adequate treatment for runoff that will be discharged from the site, based on design storm flows. The Water Quality Treatment Analysis should include: i. Descriptions of each proposed LID facility's capacity in terms of discharge or volume depending on the type of facility (i.e., flow rate or volume managed facilities). ii. If proposed, describe each proprietary stormwater treatment facility's capacity to treat the water quality design storm and provide adequate treatment for runoff that will be discharged from the site. iii. Describe any other structural source control practices that address LID or proprietary facilities treatment efficiency objectives (i.e., amount or percent of contaminant reduction, treatment, or management).
	Flow Control Analysis that describes how treatment facilities (LID or commensurate practices) will manage and control the quantity of stormwater discharged from the site (i.e., detention, retention). Flow control is required for all projects, unless the outfall of the stormwater facility discharges directly into a major water body or directly to nearshore marine areas. Post-construction stormwater flow control methods shall demonstrate that the post-construction stormwater runoff is equal to, or less than, the pre-development stormwater runoff for all storm events between the 50% of the 2-year, 24-hour and the 10-year storm events. i. Describe each proposed LID facility's capacity in terms of flow or volume retention/detention depending on facility type. ii. Describe each proprietary stormwater facility's capacity in terms of flow or volume retention/detention depending on facility type. iii. Describe any other structural source control practices in terms of flow or volume retention/detention depending on facility type.

	If relevant, a description of how the proposed stormwater treatment prevents adverse hydromodification of receiving waters. This step would not typically be required for discharge directly into nearshore marine areas. This step is necessary if a project will: i. Peak runoff exceeds 0.5 cfs during the 2-year, 24-hour storm event; and, ii. Not meet the flow control requirements, detailed above; and, iii. Discharge into an intermittent or perennial water body with a watershed area less than 100 square miles above the discharge location.
	Flow control treatment and practices must be designed using continuous simulation modeling to ensure facilities are designed to capture the frequency and duration of flows generated by storms within the following criteria: i. Lower discharge endpoint, by U.S. Geological Survey (USGS) flood frequency zone = 50% of 2-year event (i.e., Water Quality Design Storm) ii. Upper discharge endpoint a.Entrenchment ratio <2.2 = 10-year event, 24-hour storm; or, b. Entrenchment ratio >2.2 = bank overtopping event.
	Provide a description of the stormwater conveyance system. When conveyance is necessary to discharge treated stormwater directly into a surface water or a wetland, the following requirements apply: i. Maintain natural drainage patterns such that runoff is not redirected to a different drainage basin (i.e., watershed, subwatershed) from the pre-project conditions. ii. Ensure that treatment for post-construction runoff from the site is completed before it is allowed to commingle with any offsite runoff in the conveyance. iii. Prevent erosion of the flow path from the project to the receiving water(s). If preventing erosion using a natural flow path is not feasible, use manufactured elements (e.g., pipes, ditches, discharge facility protection) to discharge runoff that extends below the OHWM or HTL elevation of the receiving water. Note: The Corps does not consider activities occurring above the OHWM or HTL.
	Provide an Operations and Maintenance Plan that describes the schedule of the proposed inspection as well as maintenance activities for the stormwater facilities. This plan will be validated by NMFS during the verification step. The party that is legally responsible for maintenance and monitoring activities should also be stated. Finally, describe events that would trigger an inspection outside of routine inspection (e.g., a large storm event, localized flooding). Provide a contact phone number and email address for the legally responsible party or parties.
	The name, email address, and telephone number of the person responsible for designing the stormwater management facilities, so that NMFS may contact that person if additional information is necessary.
14.	**Pollution and Erosion Control**

	Use site planning and site erosion control measures commensurate with the scope of the project to minimize damage to natural vegetation and permeable soils and prevent erosion and sediment discharge from the project site.
	Before significant earthwork begins, install appropriate, temporary erosion controls downslope to prevent sediment deposition in the riparian area, wetlands, or water body. In tidal areas, plan work in dry areas as much as possible.
	During construction: i. Complete earthwork in wetlands, riparian areas, and stream channels as quickly as possible. ii. Cease project operations when high flows may inundate the project area, except for efforts to avoid or minimize resource damage. iii. If eroded sediment appears likely to be deposited in the stream during construction, install additional sediment barriers as necessary. iv. Temporary erosion control measures may include fiber wattles, silt fences, jute matting, wood fiber mulch and soil binder, or geotextiles and geosynthetic fabric. v. Soil stabilization using wood fiber mulch and tackifier (hydro-applied) may be used to reduce erosion of bare soil, if the materials are free of noxious weeds and non-toxic to aquatic and terrestrial animals, soil microorganisms, and vegetation. vi. Inspect and monitor pollution and erosion control measures throughout the length of the project. vii. Remove sediment from erosion controls if it reaches one-third of the exposed height of the control. viii. Whenever surface water is present, maintain a supply of sediment control materials and an oil-absorbing floating boom at the project site. ix. Stabilize all disturbed soils following any break in work unless construction will resume within four days.
	Remove temporary erosion controls after construction is complete and the site is fully stabilized.
15.	**Fish Capture and Release**
	If practicable, allow listed fish species to migrate out of the work area or remove fish before dewatering; otherwise remove fish from an exclusion area as it is slowly dewatered with methods such as hand or dip-nets, seining, or trapping with minnow traps (or gee-minnow traps).
	Manage isolation areas in a manner to avoid multiple salvage events (e.g. do not let water or fish into the isolated area during non-work times).
	Fish capture will be supervised by a qualified fisheries biologist, with experience in work area isolation and competent to ensure the safe handling of all fish.
	Conduct fish capture activities during periods of the day with the coolest air and water temperatures possible, normally early in the morning to minimize stress and injury of species present.

	Monitor the block nets frequently enough to ensure they stay secured to the banks and free of organic accumulation.
	Electrofishing will be used during the coolest time of day, only after other means of fish capture are determined to be not feasible or ineffective. a. Do not electrofish when the water appears turbid, e.g., when objects are not visible at depth of 12 inches. b. Do not intentionally contact fish with the anode. c. Follow NMFS (2000 or most recent) electrofishing guidelines, including use of only direct current (DC) or pulsed direct current within the following ranges: i. If conductivity is less than 100 microsecond (µs), use 900 to 1100 volts. ii. If conductivity is between 100 and 300 µs, use 500 to 800 volts. iii. If conductivity greater than 300 µs, use less than 400 volts. iv. Begin electrofishing with a minimum pulse width and recommended voltage, then gradually increase to the point where fish are immobilized. v. Immediately discontinue electrofishing if fish are killed or injured, i.e., dark bands visible on the body, spinal deformations, significant de-scaling, torpid or inability to maintain upright attitude after sufficient recovery time. Recheck machine settings, water temperature and conductivity, and adjust or postpone procedures as necessary to reduce injuries. vi. If buckets are used to transport fish: 1. Minimize the time fish are in a transport bucket. Check condition of fish in the bucket frequently. 2. Keep buckets in shaded areas or, if no shade is available, covered by a canopy. 3. Limit the number of fish within a bucket; fish will be of relatively comparable size to minimize predation. 4. Use aerators or replace the water in the buckets at least every 15 minutes with cold clear water. 5. Release fish in an area upstream with adequate cover and flow refuge; downstream is acceptable provided the release site is below the influence of construction. 6. Ensure water levels in buckets is low enough to prevent fish from jumping out of the bucket or cover the bucket with a wet towel
	The USFWS is to be notified within three working days upon locating a dead, injured or sick endangered or threatened species specimen. Initial notification must be made to the nearest U.S. Fish and Wildlife Service Law Enforcement Office. Contact the U.S. Fish and Wildlife Service Law Enforcement Office at

	(425) 883-8122, or the Service's Washington Fish and Wildlife Office at (360) 753-9440.
PA #9	**Marine Mammals**
	In-water construction activities causing underwater noise greater than 120dBrms, such as pile driving, jackhammering, and underwater sawing, will shut down if marine mammals enter the zone of influence. See Program Administration (PA) Section 9 of the Biological Opinions for supporting information. Construction activities will not resume until all marine mammals have been cleared from the zone of harm and are observed to be moving away from the construction site.
	A. If Southern Resident Killer whales have been documented more than four times during the proposed work window in the quadrant the project area is in, a Marine Mammal Monitoring Plan (MMMP) must be prepared and submitted with the project notification. The MMMP will be reviewed by a NMFS biologist. The goal of a MMMP is to stop or not start work if a marine mammal is in the area where it may be affected by pile driving noise.
	If in the previous two years there were four or more humpback whale sightings during the proposed work month, in the action area of the proposed work, a MMMP must be submitted with the project notification.
	NOAA's website identifies these quadrants and contains guidance on the potential for ESA-listed marine mammal occurrences in project areas: http://www.westcoast.fisheries.noaa.gov/protected_species/marine_mammals/evaluating_sound.html
	Check the Orca Network Sightings Maps at: http://www.orcanetwork.org/Archives/index.php?categories_file=Sightings%20Archives%20Home for Humpback whale sightings.
	Guidance for developing an MMMP can be found on NOAA's website: http://www.westcoast.fisheries.noaa.gov/protected_species/marine_mammals/monitoring_plan_guidance.html

	Essential Fish Habitat Conservation Recommendations
	1. All projects resulting in a loss of eelgrass habitat, are required to follow eelgrass mitigation monitoring requirements put forth in the Washington Department of Fish and Wildlife "Eelgrass/Macroalgae Habitat Interim Survey Guidelines" unless it conflicts with Seattle District Corps guidelines, in which case the Corps guidelines apply. .
	Mooring Anchors and Persistently Moored Vessels
	2. All new moorings buoys should be anchored in areas where SAV (e.g., eelgrass, kelp) habitat is absent. This will reduce adverse impacts to SAV. Additionally, all new mooring buoys should, to the maximum extent practicable, be in waters deep enough so that the bottom of the vessel remains a minimum of 18 inches off the substrate during extreme low tide events. This will reduce adverse grounding impacts to benthic habitat.

	3. When repairing or replacing mooring buoys, located within SAV habitat should be of the type that use midline floats, where appropriate, to prevent chain scour to the substrate. This will reduce adverse impacts to SAV and other benthic habitat.
	Pile Removal and Installation
	4. Encircle the pile with a silt curtain that extends from the surface of the water to the substrate, where appropriate and feasible.
	5. Drive piles during low tide periods when substrates are exposed in intertidal areas, where appropriate and feasible. This minimizes the direct impacts to fish from sound waves and minimizing the amount of sediments re-suspended in the water column.
	Over- and in- water Structures
	6. Any cross or transverse bracing should be placed above the plane of MHHW, where appropriate and feasible, to avoid impacts to water flow and circulation.
	7. Minimize, to the maximum extent practicable, the footprint of the overwater structure.
	8. Design structures in a north-south orientation, to the maximum extent practicable, to minimize persistent shading over the course of a diurnal cycle.
	9. For residential dock and pier structures, the height of the structure above water should be a minimum of 5 feet above MHHW, where appropriate and feasible.
	10. The use of floats should be minimized to the extent practicable and should be restricted to terminal platforms placed in deep water where appropriate and feasible and when the Corps determines there will not be a navigation hazard.
	11. When breakwaters are required, floating breakwaters are preferred. Encourage seasonal use of breakwaters.
	Nearshore Structures
	12. Use soft approaches (e.g., beach nourishment, soft or hybrid armoring, vegetative plantings, and placement of LWD) in lieu of “hard” shoreline stabilization and modifications (such as concrete bulkheads and seawalls, concrete or rock revetments), where appropriate and feasible.
	13. If planting in the riparian zone, use an adaptive management plan with ecological indicators and performance standards to oversee monitoring and ensure mitigation objectives are met, unless it is contrary to a Corps approved riparian planting plan.