UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
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Refer to NMFS No:
WCRO-2025-02359

January 20, 2025

P. Allen Atkins
Chief, Regulatory Branch
U.S. Army Corps of Engineers, Seattle District
4735 East Marginal Way South, Bldg.1202
Seattle, Washington 98134-2388

Re: WCRO-2025-02359 Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Pilchuck River Bank Stabilization (HUC 171100110103). COE Number NWS-2025-0442

Dear Mr. Atkins:

This letter responds to your August 13, 2025, request for initiation of consultation with the National Marine Fisheries Service (NMFS) pursuant to Section 7 of the Endangered Species Act (ESA) for the subject action. Your request qualified for our expedited review and analysis because it met our screening criteria and contained sufficient information on, and analysis of, your proposed action and its potential effects to listed species and designated critical habitat.

We reviewed the U.S. Army Corps of Engineers' (Corps) consultation request and related initiation package. Where relevant, we have adopted the information and analyses you have provided and/or referenced but only after our independent, science-based evaluation confirmed they meet our regulatory and scientific standards. In our biological opinion (Opinion) below, we indicate what parts of your document(s) we have incorporated by reference and where that information is being incorporated.

We adopt by reference sections of the project's Biological Evaluation (BE; prepared in May, 2025) as follows:

- Sections 2.1 and 2.4 for the proposed action;
- Section 2.2 for the action area;
- Sections 4.1 and 4.2 for species in the action area;
- Sections 2.4: *Spill Prevention, Contaminants, and Control Plan, Fish exclusion and relocation*, and 5.2: *Freshwater spawning sites* for the effects; and,
- Section 5.2 for the Integration and Synthesis.

Consultation History

On August 13, 2025, NMFS received the Corps request for formal consultation, submitting with their request a BE, plans, and a JARPA. Emails were exchanged between November 17, 2025, and November 20, 2025.

Updates to the regulations governing interagency consultation (50 CFR part 402) were effective on May 6, 2024 (89 FR 24268). We are applying the updated regulations to this consultation. The 2024 regulatory changes, like those from 2019, were intended to improve and clarify the consultation process, and, with one exception from 2024 (offsetting reasonable and prudent measures), were not intended to result in changes to the Services' existing practice in implementing section 7(a)(2) of the ESA (89 FR 24268; 84 FR 45015). We have considered the prior rules and affirm that the substantive analysis and conclusions articulated in this biological opinion and incidental take statement would not have been any different under the 2019 regulations or pre-2019 regulations.

Proposed Action

The Corps proposes to stabilize 220 ft of the west bank of the Pilchuck River (47.912695, -122.083178) with a large woody debris structure.

The right bank of the Pilchuck River, downstream of the 2nd Street/92nd Street SE bridge has been significantly eroded. To strengthen the bank, and add some habitat features that are currently lacking, the Corps proposes a bank stabilization that would follow the natural contour of the existing bank. The bank stabilization would comprise of:

- 91 logs that are 24-inch (in) diameter, 12 foot (ft) long logs (including the root wad);
- 25 dry Douglass fir logs that are 12-in diameter, 13 ft long;
- 91 boulder ballasts with 3-4 ft diameters.

The total volume of fill, including logs and boulders, would be 426 cubic yards and 336 cubic yards of that (79%) would be under the ordinary high-water mark (OHW).

The Washington Department Fish and Wildlife (WDFW) approved in-water work window is August 1-31st, corresponding with low summer flows. The preference would be to work exclusively in the dry. If work could not be conducted in the dry, dewatering and fish exclusion would occur.

To further stabilize the structure, Pacific willow, black cottonwood, and Scouler's willow would be planted in the structure, between the logs, and Douglas-fir, western red cedar, bigleaf maple, black cotton wood, Nootka rose, snowerry, red elderberry, Pacific ninebark, tall Oregon grape, red-flowering currant and serviceberry would be planted upland of the structure.

Detailed descriptions of the proposed action are adopted by reference from section 2.1 of the BE.

Avoidance and Minimization Measures are adopted by reference from section 2.4 of the BE. As part of these measures, filter socks would be added to pre-existing catch basins located incremental distances along Pilchuck Park Road, upland of the proposed structure (Gray and Osborne 2025).

BIOLOGICAL OPINION

The consultation request submitted by the Corps included a description of each listed species and whether critical habitat is present within the action area. We examined the status of each species that would be adversely affected by the proposed action to inform the description of the species' "reproduction, numbers, or distribution" as described in 50 CFR 402.02. Status is determined by the level of extinction risk that the listed species face, based on parameters considered in documents such as recovery plans, status reviews, and listing decisions. This informs the description of the species' likelihood of both survival and recovery, and informs our jeopardy analysis.

We also examined the condition of critical habitat throughout the designated area and discuss the function of the physical or biological features (PBFs) essential to the conservation of the species that create the conservation value of the various watersheds and coastal and marine environments that make up the designated critical habitat.

One factor affecting the status of ESA-listed species considered in this opinion, and aquatic animals and their habitats at large, is exposure to increasing environmental variation due to shifts in average weather conditions. Increasing environmental variation is likely to play a role in determining the abundance and distribution of ESA-listed species, and the conservation value of their designated critical habitats in the Pacific Northwest. These shifts will not be spatially homogeneous across the Pacific Northwest.

There is a large and growing body of literature on past, present, and future impacts of increasing environmental variation on sea level rise, frequency of severe weather events, and changes in air and water temperatures. Major ecological realignments are already occurring in response to these shifts (IPCC WGII 2022). Long-term trends in warming have continued at global, national, and regional scales. The 10 warmest years in the historical record (1890-2023) have all occurred in the past decade, with NOAA (2025), Bardan (2025), and the WMO (2025) stating 2024 was the world's warmest year on record.

Increasing temperatures and the potential loss of biodiversity represent profound threats to ecosystem functionality (IPCC WGII 2022). These two factors are often examined in isolation, but likely have interacting effects on ecosystem function. Updated projections of increasing temperature are similar to or greater than previous projections (WGI 2021). Retaining and restoring habitat complexity, access to flow and cold-water refuges, and improving growth opportunities in both freshwater and marine environments are strongly advocated in the recent literature (Siegel and Crozier 2019; Siegel et al. 2020).

Status of the Species

We also supplement the information in the BA with the inclusion of Table 1, below, which provides a summary of listing and recovery plan information, status summaries, and limiting factors for the species addressed in this opinion. More information can be found in recovery plans and status reviews for these species. Acronyms appearing in the table include DPS (Distinct Population Segment), ESU (Evolutionarily Significant Unit), MPG (Major Population Group), and TRT (Technical Recovery Team), and DIP (demographically independent populations).

Table 1. Listing classification and date, recovery plan reference, most recent status review, status summary, and limiting factors for each species considered in this opinion.

Species	Listing Classification and Date	Recovery Plan Reference	Most Recent Status Review	Status Summary	Limiting Factors
Puget Sound Chinook salmon	Threatened 6/28/05 (70 FR 37159)	Shared Strategy for Puget Sound 2007 NMFS 2006	NMFS 2017e; Ford 2022	This ESU comprises 22 populations distributed over five geographic areas. All Puget Sound Chinook salmon populations continue to remain well below the TRT planning ranges for recovery escapement levels. Most populations also remain consistently below the spawner–recruit levels identified by the TRT as necessary for recovery. Across the ESU, most populations have increased somewhat in abundance since the last status review in 2016, but have small negative trends over the past 15 years. Productivity remains low in most populations. Overall, the Puget Sound Chinook salmon ESU remains at "moderate" risk of extinction.	● Degraded floodplain and in-river channel structure ● Degraded estuarine conditions and loss of estuarine habitat ● Degraded riparian areas and loss of in-river large woody debris ● Excessive fine-grained sediment in spawning gravel ● Degraded water quality and temperature ● Degraded nearshore conditions ● Impaired passage for migrating fish ● Severely altered flow regime
Puget Sound steelhead	Threatened 5/11/07	NMFS 2019	NMFS 2017e; Ford 2022	This DPS comprises 32 populations. Viability of has improved somewhat since the PSTRT concluded that the DPS was at very low viability, as were all three of its constituent MPGs, and many of its 32 DIPs (Hard et al. 2015). Increases in spawner abundance were observed in a number of populations over the last five years within the Central & South Puget Sound and the Hood Canal & Strait of Juan de Fuca MPGs, primarily among smaller populations. There were also declines for summer- and winter-run populations in the Snohomish River basin. In fact, all summer-run steelhead populations in the Northern Cascades MPG are likely at a very high demographic risk.	● Continued destruction and modification of habitat ● Widespread declines in adult abundance despite significant reductions in harvest ● Threats to diversity posed by use of two hatchery steelhead stocks ● Declining diversity in the DPS, including the uncertain but weak status of summer-run fish ● A reduction in spatial structure ● Reduced habitat quality ● Urbanization ● Dikes, hardening of banks with riprap, and channelization

Status of the Critical Habitat

This section utilizes the condition and trends of essential PBFs to describe the status of designated critical habitat affected by the proposed action within the designated area. These features are essential to the conservation of ESA-listed species because they support one or more of the species' life stages (e.g., sites with conditions that support spawning, rearing, migration, and foraging).

A summary of the status of PBFs considered in this opinion is provided in Table 2, below.

Table 2. PBFs of critical habitats designated for ESA-listed salmon and steelhead species considered in the opinion, and corresponding species life history events.

PBF Site Type	PBF Site Attribute	Species Life History Event
Freshwater spawning	Substrate Water quality Water quantity	Adult spawning Embryo incubation Alevin growth and development
Freshwater rearing	Floodplain connectivity Forage Natural cover Water quality Water quantity	Fry emergence from gravel Fry/parr/smolt growth and development
Freshwater migration	Free of artificial obstruction Natural cover Water quality Water quantity	Adult sexual maturation Adult upstream migration and holding Kelt (steelhead) seaward migration Fry/parr/smolt growth, development, and seaward migration
Estuarine areas	Forage Free of artificial obstruction Natural cover Salinity Water quality Water quantity	Adult sexual maturation and "reverse smoltification" Adult upstream migration and holding Kelt (steelhead) seaward migration Fry/parr/smolt growth, development, and seaward migration
Nearshore marine areas	Forage Free of artificial obstruction Natural cover Water quantity Water quality	Adult growth and sexual maturation Adult spawning migration Nearshore juvenile rearing

For most salmon and steelhead, NMFS's critical habitat analytical review teams (CHARTs) ranked watersheds within designated critical habitat at the scale of the fifth-field hydrologic unit code (HUC5) in terms of the conservation value they provide to each supported ESA-listed species (NMFS 2005). The conservation rankings were high, medium, or low. To determine the conservation value of each watershed to species viability, the CHARTs evaluated: the quantity and quality of habitat features, the watershed's significance to the population occupying that area, and compared the watershed to others within the species' range.

Even if a location had poor habitat quality, it could be ranked with a high conservation value if it were essential due to factors such as limited availability, a unique contribution of individuals from the population it served, or another important role.

We supplement the BA with a summary of the status of critical habitats considered in this opinion is provided in Table 3, below.

Table 3. Critical habitat, designation date, federal register citation, and status summary for critical habitat considered in this opinion.

Species	Designation Date and Federal Register Citation	Critical Habitat Status Summary
Puget Sound Chinook salmon	9/02/05 70 FR 52630	Critical habitat for Puget Sound Chinook salmon includes 1,683 miles of streams, 41 square mile of lakes, and 2,182 miles of nearshore marine habitat in Puget Sounds. The Puget Sound Chinook salmon ESU has 61 freshwater and 19 marine areas within its range. Of the freshwater watersheds, 41 are rated high conservation value, 12 low conservation value, and eight received a medium rating. Of the marine areas, all 19 are ranked with high conservation value.
Puget Sound steelhead	2/24/16 81 FR 9252	Critical habitat for Puget Sound steelhead includes 2,031 stream miles. Nearshore and offshore marine waters were not designated for this species. There are 66 watersheds within the range of this DPS. Nine watersheds received a low conservation value rating, 16 received a medium rating, and 41 received a high rating to the DPS.

Species Determinations

NMFS concurs with the action agency's determinations that the project will result in a 'may affect' and 'likely to adversely affect' (LAA) determination for Puget Sound (PS) Chinook salmon and PS steelhead. NMFS also concurs with the determination that the proposed action is LAA critical habitat for PS Chinook salmon and PS steelhead.

Action Area

"Action area" means all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action (50 CFR 402.02).

NMFS adopts by reference the aquatic action area from section 2.2 of the BE.

Environmental Baseline

The "environmental baseline" refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed federal projects in the action area that have already undergone formal or early section 7 consultations, and the impact of State or private actions which are contemporaneous with the consultation in process. The impacts to listed species or designated critical habitat from federal agency activities or existing federal agency facilities that are not within the agency's discretion to modify are part of the environmental baseline (50 CFR 402.02).

The Pilchuck River watershed is constructed of steep channels, cut into the bedrock, which travel through logged forest, and meander through a network of channels with extensive gravel bars (Committee 2002). As with many regions in western Washington, and across the nation, the lower portion of the Pilchuck River shows the effects of systematic urbanization. Development of the basin followed the path of the railroad and included agriculture and logging industries.

The 3 m tall Pilchuck River dam was built in 1932 to divert water to the growing town of Snohomish. The dam was removed in 2020 to allow for fish passage up river after years of sediment accumulation made the fish ladder impassible. Accumulated sediment behind the dam was manually re-graded and used to create a 50 meter (m) long gravel bar 5 m downstream of the structure. The remainder of the estimated 4,000-7,500 m^3 of sediment in the reservoir dispersed after the dam was removed. Approximately 60% of the sediment filled in the first 100 m downstream and sediment was fully attenuated within 350 m downstream of the dam (Anderson et al. 2024).

Gravel mining from river miles (RM) 1-7 removed 35,000 m^3/year of gravel from the Pilchuck River's gravel bars from 1969-1972 and 11,000 m^3/year from 1972-1991. This extraction resulted in a 1.5 ft (average) degradation of the channel bed from 1972-1991. Long term effects of this removal include reduced spawning potential, due to lack of spawning appropriate gravel, and severe channel incision requiring bank armoring (Mathias Kondolf et al. 2002).

To accommodate the growing urban population, a city water treatment plant resides near RM 26.4 of the Pilchuck River. In addition to water withdrawals for the water treatment plant, agriculture, irrigation, and other urban uses have lowered flows (Environmental Science Associates 2017).

In addition to gravel and water withdrawals, Environmental Science Associates (2017) identifies diking, armoring, and removal of native riparian vegetation as the current major processes modifying the Pilchuck River. Side channels in the lower Pilchuck River have been reduced from 13.56 km to 0.21 km, a 98% decrease (Beechie et al. 2023). Upstream of the project, in the upper reaches of the Pilchuck River, a large woody debris project already occurred and more are recommended to address lack of vegetation (Breda 2025).

Chemically, the Pilchuck River shows signs of degradation due to urbanization in ways similar to other river systems in western Washington. Washington Department of Ecology's Water Quality Assessment results are summarized in Figure 1 (WDOE 2025).

Figure 1. Washington Department of Ecology Water Quality Assessments in the lower Pilchuck River.

Year	Category	Parameter
2018	4A	Bacteria Temperature DO
	2	pH
	1	Zinc
2012	5	Temperature DO pH
	4A	Bacteria
2010	4A	Bacteria
	3	DO
	2	Temperature
	1	pH
2008	4A	Bacteria
	3	DO
	2	Temperature
	1	pH
2004	4A	Bacteria
	2	Temperature pH
	1	DO

Effects to Critical Habitat and Species

Under the ESA, "effects of the action" are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are

caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action.

Sections 2.4: *Spill Prevention, Contaminants, and Control Plan, Fish exclusion and relocation*, and 5.2: *Freshwater spawning sites* of the BA are adopted by reference for a detailed discussion and comprehensive assessment of the effects of the proposed action. NMFS has evaluated this section and, after our independent, science-based evaluation, determined it meets our regulatory and scientific standards.

We supplement information from the BA with consideration of the effects by critical habitat and species affected below.

Effects to Critical Habitat

Effects to PS Chinook and PS steelhead critical habitat are described below.

1. Freshwater spawning sites: Given the small portion of the channel that would be disturbed during the dewatering for construction, and the small portion of the channel that the bank stabilization would intrude on during the lifespan of the structure, the effects of the proposed action on adult spawning, embryo incubation, and alevin growth and development is expected to be negligible.

2. Freshwater rearing sites:

    a. Water quality would be affected in the short term when flow returns to the construction area after the new structure is in place. Sediment disturbed during construction and dusting all the placed large woody debris would be easily suspended by flow returning to the area. The suspended sediment would affect water quality, degrading physical habitat conditions required to support fry/parr/smolt growth and development of both PS Chinook salmon and PS steelhead.

    b. The disruption of the river bed by the dewatering (exposing the bed to air) and addition of the structure to the channel (digging up the bed and placing objects in the bed) would disrupt existing forage. Given the small area where forage would be disturbed, the effects of the disturbance on forage are expected to be negligible.

    c. The addition of the structure, constructed of large woody debris, would add natural cover currently lacking from the system and required for fry/parr/smolt growth and development.

    d. Adequate water quantity, floodplain connectivity, beaver dams, large rocks, boulders, side channels, and undercut banks are unlikely to be affected by the proposed action.

3. Freshwater migration corridors:

    a. The area of channel that would be de-watered would create a small reduction in the available channel for migrating PS Chinook salmon and PS steelhead. As this reduction takes up a relatively small proportion of the channel, and would likely be dry at the time of construction, the effects of this loss of channel are likely to be negligible.

    b. As described above, the suspended sediment would affect water quality, degrading physical habitat conditions required to support fry/parr/smolt growth and development of PS Chinook salmon.

    c. As described above, natural cover required to support PS Chinook salmon adult sexual maturation and upstream migration and holding and fry/parr/smolt growth, development, and seaward migration, would benefit from the proposed action.

    d. Adequate water quantity, undercut banks, navigable channels free of obstructions, large rocks and boulders, and side channels supporting juvenile and adult mobility and survival are unlikely to be affected by the proposed action.

4. Estuarine areas: Outside of the expected range of detectable effects.

5. Nearshore marine areas: Outside of the expected range of detectable effects.

6. Offshore marine areas: Outside of the expected range of detectable effects.

Effects to Species

Effects to species can be separated into two categories: ephemeral (those lasting hours to a few days) and short term (those lasting for a few weeks to months).

Likely ephemeral effects are as follows:

Dewatering and Fish Handling

We adopt by reference details about dewatering from section 2.4: *Fish Exclusion and Relocation*, and supplement as follows:

If work could not occur in the dry, dewatering would be accomplished via dams and screened gravity flow or pump bypasses. If possible, work would wait for fish to leave the work zone on their own volition. If that is not possible, individuals would be herded out of the work zone with beach seine nets. Electrofishing to capture and remove fish would be used as a last resort. Depending on the invasiveness of the fish removal method, effects can range from mild stress/behavioral changes to death (in the case of electrofishing).

Equipment Related Pollution

The effects of potential equipment related spills very widely depending on the toxin released, ranging from behavioral changes to physical effects. Spill minimization methods are adopted by

reference from section 2.4: *Spill Prevention, Containment, and Control Plan* of the BE. Given these measures, effects from equipment related pollution are expected to be negligible.

Likely short-term effects are as follows:

Prey Disruption

The proposed action would add logs and root wads to the channel bellow the ordinary high-water mark. The large woody debris would cover and disturb any prey on the sediment within the construction zone, and sediment in the water column once the water returns to the construction zone could blanket prey on the channel bottom as the sediment settles. As both of these avenues for effect would be relatively small (by area and time of effect, respectively), we expect effects to be negligible.

Increased Turbidity

The effects of increased turbidity are adopted by reference from section 5.2: *Freshwater Spawning Sites* of the BE. Best management practices include silt fencing and turbidity curtains as a method to reduce potential sediment in the channel. While work would be conducted either in the dry or in dewatered channel, turbidity is expected from the installation of the dam for dewatering and when water returns and interacts with the placed logs.

Above-water Noise

As the construction site will be de-watered, the only noise anticipated would be above water. In fish, the effects of noise exposure vary with the hearing characteristics of the fish, the frequency, intensity, and duration of the exposure, and the context under which the exposure occurs. NMFS uses two metrics to estimate the onset of injury for fish exposed to high intensity impulsive sounds (Stadler and Woodbury 2009). The metrics are based on exposure to peak sound level and sound exposure level (SEL). Both are expressed in decibels (dB). The metrics are: 1) exposure to 206 dBpeak; and 2) exposure to 187 dB cumulative sound exposure level (SELcum) for fish two grams or larger, or 183 dB SELcum for fish under two grams. Further, any received level (RL) below 150 dBSEL is considered "Effective Quiet". The loudest equipment that would be used in the proposed action are dump trucks (91dBA), excavators (87dBA), and front-end loaders (81dBA). Therefore, we expect effects to PS Chinook or PS steelhead due to work-related noise to be negligible.

Cumulative Effects

"Cumulative effects" are those effects of future state or private activities, not involving federal activities, that are reasonably certain to occur within the action area of the federal action subject to consultation (50 CFR 402.02). Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

NMFS analyses the effects of the structure with the expected lifespan. The effects of any maintenance and/or activities that extend the lifespan of the structure are not assessed. We could expect over the lifetime of the proposed action that some weather effects described in the baseline, such as warming water temperatures or increasing variability of river flow volume

become more pronounced. These effects could increase food web disruptions, migration success, or other stresses on any or all of the listed species that rely on the action area.

We are unaware of any specific future, non-federal activities that are reasonably certain to affect the action area. However, we are reasonably certain that future non-federal actions similar to the previously mentioned activities are all likely to continue, and increase, in the future as the human population continues to grow across the region and development is reasonably certain to occur within the action area. Continued habitat loss and degradation of water quality from development and chronic input from point- and non-point pollutant sources will likely continue and increase into the future. Recreational and commercial use of the waters within the action area are also likely to increase as the human population grows. These effects will be incrementally negative over time.

The intensity of these influences depends on many social and economic factors and, therefore, is difficult to predict. Further, the adoption of more environmentally acceptable practices and standards may gradually reduce some negative environmental impacts over time. Interest in restoration activities has increased as environmental awareness rises among the public. State, tribal, and local governments have developed plans and initiatives to benefit ESA-listed PS Chinook salmon and PS steelhead. However, the implementation of plans, initiatives, and specific restoration projects are often subject to political, legislative, and fiscal challenges that increase the uncertainty of their success.

Integration and Synthesis

The Integration and Synthesis section is the final step in our assessment of the risk posed to species and critical habitat as a result of implementing the proposed action. In this section, we add the effects of the action to the environmental baseline and the cumulative effects, taking into account the status of the species and critical habitat, to formulate the agency's biological opinion as to whether the proposed action is likely to: (1) Reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing its numbers, reproduction, or distribution; or (2) appreciably diminish the value of designated or proposed critical habitat as a whole for the conservation of the species.

The two ESA-listed salmonids that reside in the action area are PS Chinook salmon and PS steelhead. Both species are listed as threatened (Table 1), based on a combination of low abundance, productivity, spatial structure, and diversity. Limiting factors for both ESA listed species include loss of large woody debris (LWD) and log jams, substrate that can support spawning, and altered flow regimes from bank revetments, culverts, anthropogenically driven weather variations, and other activities that create obstacles to flow and cut off access to floodplains and side channels (Table 1).

All of these specific factors of decline are part of the systematic degradation of habitat features across the habitat for these ESA listed species, including in the action area. In the action area, each species has a DIP affected by the action. The specific DIPs affected are not identified as priority populations in the delisting scenarios by each respective recovery plans, but no population or subpopulation's extirpation is supported by either recovery plan.

Large scale processes, mainly environmental variation, will likely increasingly affect the abundance and distribution, as well as the PBFs of designated critical habitats of the ESA-listed species considered in this opinion. While the precise effects of environmental variation are uncertain and spatially variable, they are likely to degrade freshwater and coastal ecosystems through reduced flows, rising temperatures, and intensified weather events. Compounding these threats, the adaptive capacity of listed species is expected to be compromised by existing reductions in population size, habitat availability, and genetic diversity. The addition of bank stabilization to the system would affect the large-scale riverine process by reducing further erosion and reducing the velocity of flow around both the bend where the structure is installed and the following bend as well. Large wood structures are more resilient to floods, therefore adding resiliency to environmental variation discussed above, and helps to ameliorate a limiting factor contributing to the current status of the species identified in Table 1.

The proposed action causes direct and indirect effects on the ESA-listed species and critical habitats; however, these effects on water quality, substrate, and the biological environment are expected to be temporary. Moreover, the addition of LWD to the currently eroding bank would have a number of benefits to individual PS Chinook salmon and PS steelhead, as well as their critical habitat, for the lifespan of the proposed bank stabilization structure. A more detailed description of benefits is adopted by reference from section 5.2 of the BE.

Even given the current status and the degraded environmental baseline within the action area, the annual reduction in the number of PS Chinook salmon and PS steelhead caused by the proposed action is likely to be very small. Effects are so minimal in terms of abundance changes that we do not expect the distribution, diversity, or productivity of the ESA-listed species would be impaired, even when cumulative effects are considered.

After reviewing and analyzing the current status of the listed species and critical habitat, the environmental baseline within the action area, the effects of the proposed action, the effects of other activities caused by the proposed action, and cumulative effects, it is NMFS' biological opinion that the proposed action is not likely to jeopardize the continued existence of PS Chinook salmon or PS steelhead, or destroy or adversely modify their designated critical habitat.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined by regulation to include significant habitat modification or degradation that actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 222.102). "Harass" is further defined by guidance as to "create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering." "Incidental take" is defined by regulation as takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the federal agency or applicant (50 CFR 402.02). Section 7(b)(4) and section 7(o)(2) provide that taking that is

incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA if that action is performed in compliance with the terms and conditions of this ITS.

Amount or Extent of Take

In the biological opinion, NMFS determined that incidental take is reasonably certain to occur as follows:

Harm of PS Chinook salmon and PS steelhead from exposure to:

1. Suspended turbidity that would add harmful particulates to the water column that can have behavioral, physical, and chemical effects to species in residence at the time of effect; and,
2. Fish handling during dewatering.

We cannot predict with meaningful accuracy the number of PS Chinook salmon and PS steelhead that are reasonably certain to be injured or killed annually by exposure to any of these stressors, aside from the potential fish handling.

The distribution and abundance of the listed fish that occur within the action area are affected by numerous biotic and environmental processes, such as timing in relation to the life stage and typical behaviors of the species under consideration, intra- and inter-specific interactions such as competition and predation, habitat quality, and the interaction of processes that influence genetic, population, and environmental characteristics. These processes interact in ways that may be random or directional, and may operate across far broader temporal and spatial scales than are affected by the proposed action. Therefore, the distribution and abundance of listed fish in any given area are likely to vary greatly, and somewhat randomly, over time. Further, we know of no device or practicable technique that would yield reliable counts of individuals that may be injured or killed annually by exposure to the proposed action's impacts. In such circumstances, we use the causal link established between an activity and the likely extent and duration of changes in habitat conditions as surrogates to describe the extent of take as a numerical level of habitat disturbance. The most appropriate surrogates for take are action-related parameters that are directly related to the magnitude of the expected take. For this action,

- The volume of fill/structure that resides bellow the OHW (336 cubic yards) is an appropriate surrogate for take as a result of turbidity, as the effects are directly related to the area of structure that water will interact with.

Exceedance of any of the exposure limits described above would constitute an exceedance of authorized take that would trigger the need to reinitiate consultation.

Although this take surrogate could be construed as partially coextensive with the proposed action, they nevertheless function as effective reinitiation triggers. If the size and configuration of the houseboat exceeds the proposed characteristics, it could still meaningfully trigger reinitiation because the Corps has authority to conduct compliance inspections and to take actions to address non-compliance, including post-construction (33 CFR 326.4).

Effect of the Take

In the biological opinion, NMFS determined that the amount or extent of anticipated take, coupled with other effects of the proposed action, is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

Reasonable and Prudent Measures

"Reasonable and prudent measures" refer to those actions the Director considers necessary or appropriate to minimize the impact of the incidental take on the species (50 CFR 402.02).

The Corps shall require the applicant to:

1. Implement monitoring and reporting to confirm that the take exemption for the proposed action is not exceeded.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the federal action agency must comply (or must ensure that any applicant complies) with the following terms and conditions. The Corps or any applicant has a continuing duty to monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this ITS (50 CFR 402.14). If the entity to whom a term and condition is directed does not comply with the following terms and conditions, protective coverage for the proposed action would likely lapse.

1. To implement RPM Number 1, the Corps shall require the applicants to develop and implement plans to collect and report details about construction and structures, to then share that information with NMFS. Those plans shall:
    a. Require the contractors to maintain and submit records to verify that all take indicators are monitored and reported. Minimally, the records shall include:
        i. Documentation of the final dimensions of the fill under the ordinary highwater mark; and
        ii. Documentation of any fish handled.
    b. Require the applicant to establish procedures for the submission of the construction records and other materials to the appropriate Corps office; and
    c. Require the Corps to submit an electronic post-construction report to NMFS within six months of project completion. Send the reports to: projectreports.wcr@noaa.gov. Be sure to include Attn: WCRO-2025-02359.

Conservation Recommendations

Section 7(a)(1) of the ESA directs federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Specifically, conservation recommendations are suggestions regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information (50 CFR 402.02).

1. Remove invasive species from the construction area.
2. Maintain plants from the restoration plan by:

a. Prohibiting trimming or mowing of the planting plan vegetation, to allow natural development and maximum overhang over the structure and water;
b. Replacing plants that die with an appropriate replacement plant type (i.e. tree for tree, shrub for shrub, or two shrubs for a tree), and;
c. Completing planting during the fall and winter (October through March) for best plant survival.

Reinitiation of Consultation

Under 50 CFR 402.16(a): "Reinitiation of consultation is required and shall be requested by the federal agency where discretionary federal involvement or control over the action has been retained or is authorized by law and: (1) If the amount or extent of taking specified in the incidental take statement is exceeded; (2) If new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion or written concurrence; or (4) If a new species is listed or critical habitat designated that may be affected by the identified action."

ESSENTIAL FISH HABITAT RESPONSE

Thank you also for your request for essential fish habitat (EFH) consultation. NMFS reviewed the proposed action for potential effects on EFH pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation.

NMFS also reviewed the proposed action for potential effects on essential fish habitat (EFH) designated under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. 1855(b)). This review was pursuant to section 305(b) of the MSA, implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation. NMFS concluded that the action would adversely affect EFH designated under the Pacific Coast Salmon FMP. Therefore, we have included the results of that review in this document.

Magnuson-Stevens Fishery Conservation and Management Act

Section 305(b) of the MSA directs federal agencies to consult with NMFS on all actions or proposed actions that may adversely affect EFH. Under the MSA, this consultation is intended to promote the conservation of EFH as necessary to support sustainable fisheries and the managed species' contribution to a healthy ecosystem. For the purposes of the MSA, EFH means "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity", and includes the associated physical, chemical, and biological properties that are used by fish (50 CFR 600.10). Adverse effect means any impact that reduces quality or quantity of EFH, and may include direct or indirect physical, chemical, or biological alteration of the waters or substrate and loss of (or injury to) benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects may result from actions occurring within EFH or outside of it and may include direct, indirect, site-

specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) of the MSA also requires NMFS to recommend measures that can be taken by the action agency to conserve EFH. Such recommendations may include measures to avoid, minimize, mitigate, or otherwise offset the adverse effects of the action on EFH (50 CFR 600.905(b)).

EFH Affected by the Proposed Action

Pacific coast salmon EFH includes those waters and substrate necessary for salmon production needed to support a long-term sustainable salmon fishery and salmon contributions to a healthy ecosystem. Out of the five FMP designated habitat areas of particular concern (HAPCs), two are likely to be affected by the proposed action:

1. Thermal refugia; and
2. Spawning habitat.

HAPCs are described in the regulations as subsets of EFH which are rare, particularly susceptible to human-induced degradation, especially ecologically important, or located in an environmentally stressed area. Designated HAPC are not afforded any additional regulatory protection under the MSA; however, federal projects with potential adverse impacts on HAPC would be more carefully scrutinized during the consultation process.

Adverse Effects on EFH

NMFS determined the proposed action would adversely affect EFH as follows:

Under the Pacific Coast Salmon FMP, the following HAPCs would be affected:

1. Thermal refugia would be temporarily increased with the suspension of sediment in the channel. It is likely that, once the sediment attenuates, the addition of root wads and large woody debris to the bank would increase shade, therefore reducing temperatures in the channel.
2. Spawning habitat would be minimally affected due to temporarily increased sediment in the water column and a reduction the addition of the structure in the channel, taking up space on the river bed for the lifespan of the structure.

Supplemental Consultation

The Corps must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600. 920(l)).

This letter underwent pre-dissemination review using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The biological opinion will be available through NOAA Institutional Repository https://repository.library.noaa.gov/welcome. A complete record of this consultation is on file at Oregon, Washington Coastal Office.

Please direct questions regarding this letter to Colleen McGee in the Lacey Field Office at Colleen.McGee@noaa.gov or (206) 526–4103.

Sincerely,

Kathleen Wells
Assistant Regional Administrator
Oregon-Washington Coastal Office

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