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-2024-00296

July 16, 2024

Vanessa Pepi
Acting Chief, Planning, Environmental and Cultural Resources Branch
U.S. Army Corps of Engineers, Seattle District
4735 East Marginal Way South, BLDG 1202
Seattle, Washington 98134-2388

Re: Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Mud Mountain Dam Crane Pad Improvements and Emergency Temporary Bridge Pier Repair Project.

Dear Ms. Pepi:

This letter responds to your February 14, 2024, 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 all required information on, and analysis of, your proposed action and its potential effects to listed species and designated critical habitat.

We reviewed the Mud Mountain Dam (MMD) Crane Pad Improvements Project 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. We adopt by reference sections of the "U.S. Army Corps of Engineers (Corps) Biological Assessment for the MMD Crane Pad Improvement" (BA) as follows:

- Section 2 for the proposed action;
- Section 1.4 for the action area;
- Section 3 for the environmental baseline;
- Section 4 for the status of the species and critical habitat; and
- Section 5, 6 and 7 for the effects of the action on species and critical habitat.

In addition to Section 2 of the BA, we also adopt by reference additional information provided in a document titled "Updated Schedule and Species Effects" (from herein referred to as the Project Update 1) provided by the Corps on April 18, 2024. This provided details of proposed fish exclusion and removal, dimensions of structures being placed in the river that may displace habitat, updates on project timelines, and updated effects analyses and determinations. This information is adopted by reference for the description of the proposed action and effects of the action on species and critical habitat.

We also adopt by reference here sections of the "Update #2: Mud Mountain Dam Crane Pad Improvement and Emergency Temporary Bridge Pier Repair Projects Updates and Effects" document (dated May 17, 2024; from herein referred to as Project Update 2), which provide details regarding the proposed pier repair, as follows:

- Section 3 for the proposed action and environmental baseline;
- Section 4 and 5 for effects of the action on specie and critical habit.

Two emails from the Corps on April 29, 2024, one on May 3, 2024, and one on June 6, 2024, provided additional clarifying information regarding construction schedule, structural footprints and riparian habitat conditions. This information is adopted by reference for the description of the proposed action and the environmental baseline.

We note where we have supplemented information in the BA, emails or project updates from the Corps with our own information or data analysis. The BA will be included in the administrative record for this consultation and we will send it to readers of the biological opinion as an email reply attachment to requests sent to jeff.vanderpham@noaa.gov.

Updates to the regulations governing interagency consultation (50 CFR part 402) were effective on May 6, 2024 (89 Fed. Reg. 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 Act. 89 Fed. Reg. at 24268; 84 Fed. Reg. at 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.

Consultation History

We received a request for informal consultation from the Corps on February 14, 2024, which included the BA for the proposed action. Upon review, we identified effects of the proposed action that would be more than insignificant or discountable for PS Chinook salmon and PS steelhead, and their designated critical habitat. In a March 20, 2024, call between NMFS and the Corps, the Corps agreed to proceed with formal consultation for the proposed action. On April 18, 2024, the Corps provided additional information in the Project Update document regarding proposed fish exclusion and removal activities, and structural footprints. This document also provided updated analyses of effects and determinations, identifying that the proposed action may affect and is likely to adversely affect (LAA) PS Chinook salmon and PS steelhead, and their designated critical habitat. With this supplemental information we determined that we had all information necessary to complete consultation and formal consultation was initiated on April 18, 2024. Two emails from the Corps on April 29, 2024, provided additional clarifying information on construction timelines and structural footprints. In response to a May 2, 2024 NMFS request for additional information, the Corps provided details on in-water work area isolation, in-water structural footprints, and riparian habitat conditions at the project site on May 3, 2024. On May 17, the Corps provided NMFS with the "Update #2: Mud Mountain Dam Crane

Pad Improvement and Emergency Temporary Bridge Pier Repair Projects Updates and Effects" document, which provided details about the proposed pier repairs. On June 7, 2024, the Corps provided NMFS with structural footprints, including a site plan drawing, in response to a NMFS request for information sent on June 6, 2024.

We also concur with the Corps' not likely to adversely affect (NLAA) determination made in the BA for SRKW and their designated critical habitat, and our analyses off effects if provided in the Effects to Species and Critical Habitat Not Likely to Adversely Affect Determinations section of this biological opinion.

Proposed Action

The proposed action is to construct an improved crane pad at MMD and complete an emergency temporary bridge pier repair. The crane pad is located at the downstream side of the dam, adjacent to the 9-foot tunnel outlet. It sits on top of a series of reinforced concrete vaults as part of an originally planned fish trap facility that was never used. The fishway adjacent to the 9-foot tunnel was capped with a concrete pad and left in place. It has since been used as a crane pad for operation and maintenance at the MMD tailrace. Currently, voids beneath the crane pad make it unsafe for larger cranes and heavier loads. An upgraded crane pad would improve safety and efficiency of operation and maintenance activities at the 9-foot tunnel. Details of the proposed construction techniques, sequencing, materials and equipment, and impact avoidance and minimization measures are provided in section 2 of the BA, Project Update 1 and Project Update 2.

The proposed emergency temporary bridge pier repair would include a temporary measure to stabilize and prevent further damage to the maintenance bridge that provides access to the 23-foot tunnel at MMD. The pier for the bridge is located at the outlet of the 9-foot tunnel, immediately adjacent to and downstream of the crane pad. As described above, we adopt by reference the BA and project update documents, as well as information provided in emails from the Corps for the description of the proposed action.

BIOLOGICAL OPINION

Status of the Species and Critical Habitat

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. We also examined the condition of critical habitat throughout the designated area and discuss the function of the physical or biological features essential to the conservation of the species that create the conservation value of that habitat. We adopt by reference Section 4 of the BA for the status of listed species and critical habitat likely to occur in the action area, which includes Puget Sound (PS) Chinook salmon and PS steelhead, and their designated critical habitat. We supplement what is described in the BA, with the following information about the status of ESA-listed species and critical habitat.

Status of the Species

The 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. The species status section also helps to inform the description of the species' current "reproduction, numbers, or distribution" as described in 50 CFR 402.02. The opinion also examines the condition of critical habitat throughout the designated area, evaluates the conservation value of the various watersheds and coastal and marine environments that make up the designated area, and discusses the current function of the essential PBFs that help to form that conservation value.

One factor affecting the status of ESA-listed species considered in this opinion, and aquatic habitat at large, is climate change. Climate change is likely to play an increasingly important role in determining the abundance and distribution of ESA-listed species, and the conservation value of designated critical habitats, in the Pacific Northwest. These changes will not be spatially homogeneous across the Pacific Northwest. Major ecological realignments are already occurring in response to climate change (IPCC WGII 2022). Long-term trends in warming have continued at global, national and regional scales. Global surface temperatures in the last decade (2010s) were estimated to be 1.09 °C higher than the 1850-1900 baseline period, with larger increases over land ~1.6 °C compared to oceans ~0.88 (IPCC WGI 2021). The vast majority of this warming has been attributed to anthropogenic releases of greenhouse gases (IPCC WGI 2021). Globally, 2014-2018 were the 5 warmest years on record both on land and in the ocean (2018 was the 4th warmest) (NOAA NCEI 2022). Events such as the 2013-2016 marine heatwave (Jacox et al. 2018) have been attributed directly to anthropogenic warming in the annual special issue of Bulletin of the American Meteorological Society on extreme events (Herring et al. 2018). Global warming and anthropogenic 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 climate change are similar to or greater than previous projections (IPCC WGI 2021). NMFS is increasingly confident in our projections of changes to freshwater and marine systems because every year brings stronger validation of previous predictions in both physical and biological realms. Retaining and restoring habitat complexity, access to climate refuges (both flow and temperature) and improving growth opportunity in both freshwater and marine environments are strongly advocated in the recent literature (Siegel and Crozier 2020). Climate change is systemic, influencing freshwater, estuarine, and marine conditions. Other systems are also being influenced by changing climatic conditions. Literature reviews on the impacts of climate change on Pacific salmon (Crozier 2015, 2016, 2017; Crozier and Siegel 2018; Siegel and Crozier 2019, 2020) have collected hundreds of papers documenting the major themes relevant for salmon. Here we describe habitat changes relevant to Pacific salmon and steelhead, prior to describing how these changes result in the varied specific mechanisms impacting these species in subsequent sections.

Forests

Climate change will impact forests of the western U.S., which dominate the landscape of many watersheds in the region. Forests are already showing evidence of increased drought severity, forest fire, and insect outbreak (Halofsky et al. 2020). Additionally, climate change will affect tree reproduction, growth, and phenology, which will lead to spatial shifts in vegetation. Halofsky et al. (2018) projected that the largest changes will occur at low- and high-elevation forests, with expansion of low-elevation dry forests and diminishing high-elevation cold forests and subalpine habitats.

Forest fires affect salmon streams by altering sediment load, channel structure, and stream temperature through the removal of canopy. Holden et al. (2018) examined environmental factors contributing to observed increases in the extent of forest fires throughout the western U.S. They found strong correlations between the number of dry-season rainy days and the annual extent of forest fires, as well as a significant decline in the number of dry-season rainy days over the study period (1984-2015). Consequently, predicted decreases in dry-season precipitation, combined with increases in air temperature, will likely contribute to the existing trend toward more extensive and severe forest fires and the continued expansion of fires into higher elevation and wetter forests (Alizedeh 2021).

Agne et al. (2018) reviewed literature on insect outbreaks and other pathogens affecting coastal Douglas-fir forests in the Pacific Northwest and examined how future climate change may influence disturbance ecology. They suggest that Douglas-fir beetle and black stain root disease could become more prevalent with climate change, while other pathogens will be more affected by management practices. Agne et al. (2018) also suggested that due to complex interacting effects of disturbance and disease, climate impacts will differ by region and forest type.

Freshwater Environments

The following is excerpted from Siegel and Crozier (2019), who present a review of recent scientific literature evaluating effects of climate change, describing the projected impacts of climate change on instream flows:

Cooper et al. (2018) examined whether the magnitude of low river flows in the western U.S., which generally occur in September or October, are driven more by summer conditions or the prior winter's precipitation. They found that while low flows were more sensitive to summer evaporative demand than to winter precipitation, interannual variability in winter precipitation was greater. Malek et al. (2018), predicted that summer evapotranspiration is likely to increase in conjunction with declines in snowpack and increased variability in winter precipitation. Their results suggest that low summer flows are likely to become lower, more variable, and less predictable.

The effect of climate change on ground water availability is likely to be uneven. Sridhar et al. (2018) coupled a surface-flow model with a ground-flow model to improve predictions of surface water availability with climate change in the Snake River Basin. Projections using RCP

4.5 and 8.5 emission scenarios suggested an increase in water table heights in downstream areas of the basin and a decrease in upstream areas.

As cited in Siegel and Crozier (2019), Isaak et al. (2018), examined recent trends in stream temperature across the Western U.S. using a large regional dataset. Stream warming trends paralleled changes in air temperature and were pervasive during the low-water warm seasons of 1996-2015 (0.18-0.35°C/decade) and 1976-2015 (0.14-0.27°C/decade). Their results show how continued warming will likely affect the cumulative temperature exposure of migrating sockeye salmon *O. nerka* and the availability of suitable habitat for brown trout *Salmo trutta* and rainbow trout *O. mykiss*. Isaak et al. (2018) concluded that most stream habitats will likely remain suitable for salmonids in the near future, with some becoming too warm. However, in cases where habitat access is currently restricted by dams and other barriers salmon and steelhead will be confined to downstream reaches typically most at risk of rising temperatures unless passage is restored (FitzGerald et al. 2020, Myers et al. 2018).

Streams with intact riparian corridors and that lie in mountainous terrain are likely to be more resilient to changes in air temperature. These areas may provide refuge from climate change for a number of species, including Pacific salmon. Krosby et al. (2018), identified potential stream refugia throughout the Pacific Northwest based on a suite of features thought to reflect the ability of streams to serve as such refuges. Analyzed features include large temperature gradients, high canopy cover, large relative stream width, low exposure to solar radiation, and low levels of human modification. They created an index of refuge potential for all streams in the region, with mountain area streams scoring highest. Flat lowland areas, which commonly contain migration corridors, were generally scored lowest, and thus were prioritized for conservation and restoration. However, forest fires can increase stream temperatures dramatically in short time-spans by removing riparian cover (Koontz et al. 2018), and streams that lose their snowpack with climate change may see the largest increases in stream temperature due to the removal of temperature buffering (Yan et al. 2021). These processes may threaten some habitats that are currently considered refugia.

Marine and Estuarine Environments

Along with warming stream temperatures and concerns about sufficient groundwater to recharge streams, a recent study projects nearly complete loss of existing tidal wetlands along the U.S. West Coast, due to sea level rise (Thorne et al. 2018). California and Oregon showed the greatest threat to tidal wetlands (100%), while 68% of Washington tidal wetlands are expected to be submerged. Coastal development and steep topography prevent horizontal migration of most wetlands, causing the net contraction of this crucial habitat.

Rising ocean temperatures, stratification, ocean acidity, hypoxia, algal toxins, and other oceanographic processes will alter the composition and abundance of a vast array of oceanic species. In particular, there will be dramatic changes in both predators and prey of Pacific salmon, salmon life history traits and relative abundance. Siegel and Crozier (2019) observe that changes in marine temperature are likely to have a number of physiological consequences on fishes themselves. For example, in a study of small planktivorous fish, Gliwicz et al. (2018) found that higher ambient temperatures increased the distance at which fish reacted to prey.

Numerous fish species (including many tuna and sharks) demonstrate regional endothermy, which in many cases augments eyesight by warming the retinas. However, Gliwicz et al. (2018) suggest that ambient temperatures can have a similar effect on fish that do not demonstrate this trait. Climate change is likely to reduce the availability of biologically essential omega-3 fatty acids produced by phytoplankton in marine ecosystems. Loss of these lipids may induce cascading trophic effects, with distinct impacts on different species depending on compensatory mechanisms (Gourtay et al. 2018). Reproduction rates of many marine fish species are also likely to be altered with temperature (Veilleux et al. 2018). The ecological consequences of these effects and their interactions add complexity to predictions of climate change impacts in marine ecosystems.

Perhaps the most dramatic change in physical ocean conditions will occur through ocean acidification and deoxygenation. It is unclear how sensitive salmon and steelhead might be to the direct effects of ocean acidification because of their tolerance of a wide pH range in freshwater (although see Ou et al. 2015 and Williams et al. 2019), however, impacts of ocean acidification and hypoxia on sensitive species (e.g., plankton, crabs, rockfish, groundfish) will likely affect salmon indirectly through their interactions as predators and prey. Similarly, increasing frequency and duration of harmful algal blooms may affect salmon directly, depending on the toxin (e.g., saxitoxin vs domoic acid), but will also affect their predators (seabirds and mammals). The full effects of these ecosystem dynamics are not known but will be complex. Within the historical range of climate variability, less suitable conditions for salmonids (e.g., warmer temperatures, lower streamflows) have been associated with detectable declines in many of these listed units, highlighting how sensitive they are to climate drivers (Ford 2022; Lindley et al. 2009; Williams et al. 2016; Ward et al. 2015). In some cases, the combined and potentially additive effects of poorer climate conditions for fish and intense anthropogenic impacts caused the population declines that led to these population groups being listed under the ESA (Crozier et al. 2019).

Climate change effects on salmon and steelhead

In freshwater, year-round increases in stream temperature and changes in flow will affect physiological, behavioral, and demographic processes in salmon, and change the species with which they interact. For example, as stream temperatures increase, many native salmonids face increased competition with more warm-water tolerant invasive species. Changing freshwater temperatures are likely to affect incubation and emergence timing for eggs, and in locations where the greatest warming occurs may affect egg survival, although several factors impact intergravel temperature and oxygen (e.g., groundwater influence) as well as sensitivity of eggs to thermal stress (Crozier et al. 2021). Changes in temperature and flow regimes may alter the amount of habitat and food available for juvenile rearing, and this in turn could lead to a restriction in the distribution of juveniles, further decreasing productivity through density dependence. For migrating adults, predicted changes in freshwater flows and temperatures will likely increase exposure to stressful temperatures for many salmon and steelhead populations, and alter migration travel times and increase thermal stress accumulation for evolutionary significant units (ESUs) or distinct population segments (DPSs) with early-returning (i.e. spring- and summer-run) phenotypes associated with longer freshwater holding times (Crozier et al. 2020, FitzGerald et al. 2020). Rising river temperatures increase the energetic cost of migration and the risk of *en route* or pre-spawning mortality of adults with long freshwater migrations,

although populations of some ESA-listed salmon and steelhead may be able to make use of cool-water refuges and run-timing plasticity to reduce thermal exposure (Keefer et al. 2018, Barnett et al. 2020).

Marine survival of salmonids is affected by a complex array of factors including prey abundance, predator interactions, the physical condition of salmon within the marine environment, and carryover effects from the freshwater experience (Holsman et al. 2012, Burke et al. 2013). It is generally accepted that salmon marine survival is size-dependent, and thus larger and faster growing fish are more likely to survive (Gosselin et al. 2021). Furthermore, early arrival timing in the marine environment is generally considered advantageous for populations migrating through the Columbia River. However, the optimal day of arrival varies across years, depending on the seasonal development of productivity in the California Current, which affects prey available to salmon and the risk of predation (Chasco et al. 2021). Siegel and Crozier (2019) point out the concern that for some salmon populations, climate change may drive mismatches between juvenile arrival timing and prey availability in the marine environment. However, phenological diversity can contribute to metapopulation-level resilience by reducing the risk of a complete mismatch. Carr-Harris et al. (2018), explored phenological diversity of marine migration timing in relation to zooplankton prey for sockeye salmon (*O. nerka*) from the Skeena River of Canada. They found that sockeye migrated over a period of more than 50 days, and populations from higher elevation and further inland streams arrived in the estuary later, with different populations encountering distinct prey fields. Carr-Harris et al. (2018) recommended that managers maintain and augment such life-history diversity.

Synchrony between terrestrial and marine environmental conditions (e.g., coastal upwelling, precipitation and river discharge) has increased in spatial scale causing the highest levels of synchrony in the last 250 years (Black et al. 2018). A more synchronized climate combined with simplified habitats and reduced genetic diversity may be leading to more synchrony in the productivity of populations across the range of salmon (Braun et al. 2016). For example, salmon productivity (recruits/spawner) has also become more synchronized across Chinook populations from Oregon to the Yukon (Dorner et al. 2018; Kilduff et al. 2014). In addition, Chinook salmon have become smaller and younger at maturation across their range (Ohlberger 2018). Other Pacific salmon species (Stachura el al. 2014) and Atlantic salmon (Olmos et al. 2020) also have demonstrated synchrony in productivity across a broad latitudinal range.

At the individual scale, climate impacts on salmon in one life stage generally affect body size or timing in the next life stage and negative impacts can accumulate across multiple life stages (Healey 2011; Wainwright and Weitkamp 2013; Gosselin et al. 2021). Changes in winter precipitation will likely affect incubation and/or rearing stages of most populations. Changes in the intensity of cool season precipitation, snow accumulation, and runoff could influence migration cues for fall, winter and spring adult migrants, such as coho and steelhead. Egg survival rates may suffer from more intense flooding that scours or buries redds. Changes in hydrological regime, such as a shift from mostly snow to more rain, could drive changes in life history, potentially threatening diversity within an ESU (Beechie et al. 2006). Changes in summer temperature and flow will affect both juvenile and adult stages in some populations, especially those with yearling life histories and summer migration patterns (Crozier and Zabel 2006; Crozier et al. 2010; Crozier et al. 2019).

At the population level, the ability of organisms to genetically adapt to climate change depends on how much genetic variation currently exists within salmon populations, as well as how selection on multiple traits interact, and whether those traits are linked genetically. While genetic diversity may help populations respond to climate change, the remaining genetic diversity of many populations is highly reduced compared to historic levels. For example, Johnson et al. (2018), compared genetic variation in Chinook salmon from the Columbia River Basin between contemporary and ancient samples. A total of 84 samples determined to be Chinook salmon were collected from vertebrae found in ancient middens and compared to 379 contemporary samples. Results suggest a decline in genetic diversity, as demonstrated by a loss of mitochondrial haplotypes as well as reductions in haplotype and nucleotide diversity. Genetic losses in this comparison appeared larger for Chinook from the mid-Columbia than those from the Snake River Basin. In addition to other stressors, modified habitats and flow regimes may create unnatural selection pressures that reduce the diversity of functional behaviors (Sturrock et al. 2020). Managing to conserve and augment existing genetic diversity may be increasingly important with more extreme environmental change (Anderson et al. 2015), though the low levels of remaining diversity present challenges to this effort (Freshwater 2019). Salmon historically maintained relatively consistent returns across variation in annual weather through the portfolio effect (Schindler et al. 2015), in which different populations are sensitive to different climate drivers. Applying this concept to climate change, Anderson et al (2015) emphasized the additional need for populations with different physiological tolerances. Loss of the portfolio increases volatility in fisheries, as well as ecological systems, as demonstrated for Fraser River and Sacramento River stock complexes (Freshwater et al. 2019, Munsch et al. 2022).

Table 1, below 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), ICTRT (Interior Columbia Technical Recovery Team), MPG (Multiple Population Grouping), NWFSC (Northwest Fisheries Science Center), TRT (Technical Recovery Team), and VSP (Viable Salmonid Population).

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 steelhead	Threatened 5/11/07	NMFS 2019	NMFS 2017; 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
Puget Sound Chinook salmon	Threatened 6/28/05 (70 FR 37159)	Shared Strategy for Puget Sound 2007 NMFS 2006	NMFS 2016; 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

Status of the Critical Habitat

This section describes the status of designated critical habitat affected by the proposed action by examining the condition and trends of the essential physical and biological features of that habitat throughout the designated areas. These features are essential to the conservation of the 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).

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 ESA-listed species that they support (NOAA 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 relationship of the area compared to other areas within the species' range, and the significance to the species of the population occupying that area. 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 the population it served, or is serving another important role.

Critical habitat for PS Chinook salmon was designated on September 2, 2005 (70 FR 52630) and 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. Within the action are, PS Chinook salmon critical habitat is designated in Lake Cushman. Critical habitat is not designated for PS steelhead in the action area.

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). We adopt by reference Section 1.4 of the BA for the action area, which includes an aquatic action area extending from the project site downstream 0.5 miles to account for effects associated with construction noise, vibration and in-water work.

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 consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are

not within the agency's discretion to modify are part of the environmental baseline (50 CFR 402.02). We adopt by reference section 3 of the BA, section 3 of Project Update 2, and details about site conditions provided in emails from the Corps, as described above, for the environmental baseline.

Effects of the Action

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 (see 50 CFR 402.17). In our analysis, which describes the effects of the proposed action, we considered 50 CFR 402.17(a) and (b).

The BA (section 5) and Project Update 2 (sections 4 and 5) provide detailed discussions and a comprehensive assessment of the effects of the proposed action in Section 5, and is adopted here (50 CFR 402.14(h)(3)). The Project Update document provides further detail of the potential effects of the proposed fish isolation and removal, which is also adopted here. NMFS has evaluated this information and after our independent, science-based evaluation determined it meets our regulatory and scientific standards. However, we do not agree with the Corps' determination that the proposed action is not likely to adversely affect (NLAA) PS Chinook salmon, and PS steelhead, and their designated critical habitat. We expect that some effects would be more than insignificant or discountable, and have determined that effects would be likely to adversely affect (LAA) both of these species and their designated critical habitat. We supplement the information on effects provided in the BA, Project Update 1, and Project Update 2 with the following.

The Corps proposes the construction of a replacement MMD crane pad, sealing off of the unused fishway, and adding reinforcement to allow the new crane pad to support larger cranes and heavier loads. The Corps also proposes to complete an emergency temporary repair of the bridge pier by excavating at the base of the pier and reinforcing with rebar, metal sheeting and concrete. The temporary and long-term effects of this proposed action are:

- Temporary disturbance by turbidity, underwater sound, vibrations and equipment and crew presence, including habitat displacement and behavioral changes, caused by in-water and immediately adjacent (along adjacent river banks) construction activity;
- Disturbance and handling of fish during fishway isolation and fish removal; and
- Habitat displacement and degradation by the continued presence of the proposed crane pad and pier (and the bridge it supports), as well as a slight increase the size of the crane pad structures (panels to seal fishway, and larger pier circumference) within the White River.

A very small area of PS Chinook salmon and PS steelhead critical habitat would be affected by the proposed action. Any increased turbidity caused by in-water construction activity would be very short-term, minor and localized. and may not be noticeable above background conditions, as

described in the BA. The proposed construction activity is timed to occur when sustained flows are typically at their lowest (September and October) in the White River, minimizing the amount of work that would occur in-water, and the potential for exposure of PS Chinook salmon and steelhead to construction effects. With the proposed BMPs, including measures to minimize and monitor turbidity, the localized area of habitat disturbance, and the short duration of in-water construction activities, we do not anticipate construction activities to reduce the conservation value of critical habitat.

The slight permanent displacement of habitat resulting from the proposed crane pad reconstruction and reinforcement, and bridge pier repair would affect a very small area of critical habitat. The existing and reconstructed/reinforced crane pad, and the pier and bridge it supports encompasses a very small portion of critical habitat relative to available critical habitat within the White River, and otherwise available to the affected populations.

Furthermore, construction/reinforcement of the crane pad and pier repair would occur within the existing footprint with the exception of panels to block the unused fishway and the larger pier circumference where materials have been eroded away, which would result in a very small additional displacement of habitat. The continued presence of the permanent structures would result in continued degraded riparian habitat conditions within the crane pad structural footprints, which in turn would result in minor, localized reduced forage (Fischenich and Copeland 2001; Naiman et al. 2002; Florsheim et al. 2008) and cover (e.g. see; Bisson et al. 1987; Shirvell 1990; Fausch 1993; Roni and Quinn 2001; McPhail 2007). As described in the BA, Project Update 1 and Project Update 2, it is unlikely that the area around the project is used for spawning or rearing for PS Chinook salmon or PS steelhead, and the proposed action would not result in any barriers to migration and would be unlikely to impact other habitat features that support juvenile and adult mobility and survival. Short-term construction and long-term structural effects of the proposed action on PS Chinook salmon and PS steelhead critical habitat would result in an incremental diminishment of habitat availability and forage that, while spatially limited, would be persistent and thus could slightly reduce the survival, growth, development and maturation of exposed fish.

White River Chinook salmon of the PS ESU, and White River steelhead of the PS DPS of the Central and South Puget Sound major population groups occur in the White River portion of the action area. With the proposed project timed to coincide with low flows, we expect that few fish would be exposed to effects of construction activities. Given the mobility of salmonids and the availability of suitable habitat adjacent to the action area that provide necessary cover and forage opportunities, we expect that any exposure would be brief and we consider it to be extremely unlikely to have any effects on survival, growth, maturation or reproduction of individual fish.

We expect that only a very small number of fish would potentially be injured or killed by fish removal and handling. Over the life of the proposed permanent structures (estimated to be 50 years), the habitat displacement and reduced riparian habitat quality would result in a highly localized and a minor reduction in habitat quality and availability, which could result in a very small decrease in fitness and growth of some individual fish.

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 and 402.17(a)). 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.

Some continuing non-federal activities are reasonably certain to contribute to climate effects within the action area. However, it is difficult if not impossible to distinguish between the action area's future environmental conditions caused by global climate change that are properly part of the environmental baseline vs. cumulative effects. Therefore, while relevant future climate-related environmental conditions in the action area are described in the status of species and critical habitat section in this biological opinion, we reiterate some effects of climate change here.

Anticipated climate effects on abundance and distribution of PS Chinook salmon and PS steelhead include a wide variety of climate impacts. Within the action area, rising temperatures during late spring and summer may impact Chinook salmon and steelhead juveniles. Increasing shifts in water chemistry and water temperatures are also expected with climate change, though the degree of these changes is difficult to predict. These shifting conditions are likely to modify prey communities and food web interactions over time.

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.

Species: Both PS Chinook salmon and PS steelhead are threatened species under the ESA. This status is based on low abundance relative to historic numbers, with reduced productivity, spatial structure, and diversity. This depressed condition is a function of many factors, including reductions in the amount or quality of habitat throughout their range, and overharvest in previous years. Baseline conditions in the White River portion of the action area, described earlier in this document, reflect habitat modification and degradation primarily related to the structures and operations of MMD. To this status, we add the species' response to project effects. Most of the effects of the proposed action are spatially very constrained (i.e. crane pad structures and bridge pier) with minor, localized effects on listed species.

PS Chinook salmon are currently listed as threatened with generally negative recent trends in status. Widespread negative trends in natural-origin spawner abundance across the ESU have

been observed since 1980. Productivity remains low in most populations, and hatchery-origin spawners are present in high fractions in most populations outside of the Skagit watershed. Although most populations have increased somewhat in abundance since the last status review in 2016, they still have small negative trends over the past 15 years, with productivity remaining low in most populations (Ford 2022). All PS Chinook salmon populations continue to remain well below the TRT planning ranges for recovery escapement levels, and that most populations remain consistently below the spawner-recruit levels identified by the TRT as necessary for recovery.

The most recently completed 5-year review (NMFS 2017) for Pacific salmon and steelhead noted some signs of modest improvement in PS steelhead productivity since the previous review in 2011, at least for some populations, especially in the Hood Canal and SJDF MPG. However, several populations were still showing dismal productivity. The 2022 biological viability assessment (Ford 2022) identified a slight improvement in the viability of the PS steelhead DPS since the PS steelhead technical review team concluded that the DPS was at very low viability in 2015, as were all three of its constituent MPGs, and many of its 32 DIPs (Hard et al. 2015). Ford (2022) reported observed increases in spawner abundance in a number of populations over the last five years, which were disproportionately found within the South and Central PS, SJDF and Hood Canal MPGs, and primarily among smaller populations. The viability assessment concluded that recovery efforts in conjunction with improved ocean and climatic conditions have resulted in an increasing viability trend for the PS steelhead DPS, although the extinction risk remains moderate (Ford 2022).

When we evaluate the cumulative effects in the action area on these species, we anticipate additional stress added to existing stressors in the baseline in both fresh and marine environments from anthropogenic changes in habitat and increasingly modified conditions related to climate change (e.g. warmer temperatures, and more variable volume and velocities in freshwater, changing temperature, pH, and salinity in marine waters). All of these are likely to exert negative pressure on population abundance and productivity. In this context we add the effects of the proposed action. Even considered over multiple years, with highly variable ocean conditions and climate change stressors, only a small number of fish relative to the affected ESU/DPS would be killed or injured by the effects that result from the proposed action, so that the reductions in abundance would not rise to create effects on productivity, diversity and spatial structure at discernible levels. Therefore, the proposed action is unlikely to alter the current or future trends for PS Chinook salmon or PS steelhead population viability even when cumulative effects and baseline conditions are added to the effects of the proposed action.

In other words, we expect that the total effects of the action on individual fish identified in this opinion would be indiscernible at the population level because, although these species are currently well below historic levels, they are distributed widely enough and are presently at high enough abundance levels that the loss of individual fish resulting from the action would not alter their spatial structure, productivity, or diversity. Therefore, when considered in light of species status and existing risk, baseline effects, and cumulative effects, the proposed action (and those caused by it) itself does not increase risk to the affected populations to a level that would reduce appreciably the likelihood for survival or recovery of PS Chinook salmon or PS steelhead.

Critical Habitat: Within the White River portion of the action area, critical habitat is designated for PS Chinook salmon and PS steelhead. Throughout the designated critical habitat areas of PS Chinook salmon and PS steelhead, multiple features of habitat are degraded, but despite such degradation, many accessible areas remain ranked with high conservation value because of the important life history role it plays.

Limiting factors (impaired or insufficient PBFs) for PS Chinook salmon and PS steelhead are summarized in Table 1 and include degraded freshwater, riparian and nearshore habitat conditions. Current state and local regulations do not prevent much of the development that degrades the quality of critical habitat. There is no indication these regulations are reasonably certain to change in the foreseeable future. Given the rate of expected population growth in the Puget Sound region, cumulative effects are expected to result in mostly negative impacts on critical habitat quality for PS Chinook salmon and PS steelhead. While habitat restoration and advances in best management practices for activities that affect critical habitat could lead to some improvement of PBFs, adverse impacts created by the intense demand for future development is likely to outpace any improvements.

Based on the best available information, the scale of the proposed action's effects, when considered in combination with the degraded baseline, cumulative effects, and the effects of climate change, habitat degradation would reduce the potential for the habitat in the action area to support recovery, but the proposed project effects themselves would be too small to attribute to that reduction. Despite adverse effects to features of critical habitat, the conservation value of the critical habitat for PS Chinook salmon and PS steelhead is largely retained. Therefore, the overall effect of the project on critical habitat, while adverse and chronic, cannot be considered to be of sufficient intensity to reduce the conservation potential of critical habitat in the action area.

Conclusion

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, nor 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). "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 harm of adult and juvenile PS Chinook salmon and PS steelhead in the action area as follows:

- Injury or death from handling of fish during fish removal activities for the isolation of the fishway;
- Reduced fitness and growth from long-term habitat displacement and habitat degradation caused by the presence of permanent in-water structures (crane pad and associated structures, and pier and bridge).

Any adult or juvenile PS Chinook salmon and PS steelhead exposed to exclusion and removal activities could be injured or killed. As described in the BA and Project Update, and summarized in this biological opinion, due to uncertainty of the potential presence of fish within the fishway needing to be removed, for conservative purposes, we based our analysis on a maximum of number of 10 juvenile and 5 adult PS Chinook salmon, and 10 juvenile and 5 adult PS steelhead that would be captured and handled during the work area isolation. If the number of PS Chinook salmon or PS steelhead captured and handled exceeds these values, then the amount of take would be exceeded, and the reinitiation provisions of this opinion would be triggered.

The NMFS cannot predict with meaningful accuracy the number of PS Chinook salmon or PS steelhead that are reasonably certain to be harmed by exposure to habitat displacement and habitat degradation (i.e. reduced cover and forage from reduced riparian habitat quality) caused by permanent structures. Over the life of the permanent proposed structures we anticipate regular, but brief exposure to reduced and degraded habitat conditions near the structures while fish migrate through the action area. The distribution and abundance of the fish that occur within an action area are affected by habitat quality, competition, predation, and the interaction of processes that influence genetic, population, and environmental characteristics. These biotic and environmental 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.

The distribution and abundance of fish within the action area cannot be attributed entirely to habitat conditions, nor can the NMFS precisely predict the number of fish that are reasonably certain to be harmed if their habitat is modified or degraded by the proposed action. Additionally, the NMFS knows of no device or practicable technique that would yield reliable counts of individuals that may experience these impacts. In such circumstances, the NMFS uses the causal link established between the activity (structures) and the likely extent and duration of habitat quality degradation and displacement to describe the extent of take as a numerical level of habitat quality degradation and displacement. The most appropriate surrogates for take are action-related parameters that are directly related to the magnitude of expected take. In this case, a surrogate for take resulting from habitat quality degradation and displacement caused by

permanent structures is the footprint of those structures. As described in the BA, Project Update1, Project Update 2, and the June 7, 2024 email, the total crane pad footprint, including all proposed new, repaired, reinforced or replaced structures is approximately 2,932 square feet. The total footprint of the repaired bridge pier would be approximately 10 square feet. Take would be exceeded if the footprint of these structures is larger. This surrogate for take is causally linked to take resulting from displacement and degradation of habitat conditions by permanent structures because habitat availability and quality is reduced as the size of the structural footprint increases.

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" are measures that are necessary or appropriate to minimize the impact of the amount or extent of incidental take (50 CFR 402.02).

The Corps shall:

1. Ensure completion of monitoring and reporting of incidental take to ensure take identified in the ITS is not exceeded.

No additional reasonable and prudent measures were identified to minimize the impact of incidental take.

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 [name Federal agency] 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. The following terms and conditions implement reasonable and prudent measure 1:

   The Corps shall provide to NMFS (projectreports.wcr@noaa.gov and jeff.vanderpham@noaa.gov; use subject line "Attn: WCRO-2024-00296") within 90 days of completion of the proposed action a report that provides the following:
   a. The total number of days and dates of in-water work (below the OHWM);
   b. The total number of adult and juvenile PS Chinook salmon and PS steelhead handled during work area isolation; and

c. The footprint (surface area in square feet) of all new, replaced, repaired or reinforced structures (i.e. fishway isolation steel plates, crane pad and associated structures, and bridge pier).

Not Likely to Adversely Affect Determinations

When evaluating whether the proposed action is not likely to adversely affect listed species or critical habitat, NMFS considers whether the effects are expected to be completely beneficial, insignificant, or discountable. Completely beneficial effects are contemporaneous positive effects without any adverse effects to the species or critical habitat. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Effects are considered discountable if they are extremely unlikely to occur. When effects are beneficial, insignificant and/or discountable, these species are not likely to be adversely affected by the proposed action and we present our justification for that determination separately from the biological opinion since no take, jeopardy, or adverse modification of critical habitat would reasonably be expected to occur.

We concur with the Corps' NLAA determinations for Southern Resident killer whale (SRKW) and their designated critical habitat. We adopt by reference sections 5 and 6 of the BA for the description of effects on SRKW and their designated critical habitat, and summarize and supplement this information with the following.

SRKW was listed as endangered on November 18, 2005 (70 FR69903) and critical habitat was designated on November 29, 2006 (71 FR 69054) and expanded on August 2, 2021 (86 FR 41668). A 5-year review under the ESA completed in 2021 concluded that SRKWs should remain listed as endangered and includes recent information on the population, threats, and new research results and publications (NMFS 2021). At the time of the 5-year review, in 2021 there were 73 whales in the population.

As described in the BA, SRKW and their designated critical habitat do not occur within the action area, and effects of the action would have no population level effects on SRKW prey species. We do not anticipate the very small effect the proposed action on PS Chinook salmon, the preferred prey of SRKW, or on other fish species, to affect pretty quality or availability for SRKW. Therefore, it would be an insignificant reduction of the prey PBF of SRKW critical habitat. Therefore, the action's effects on SRKW and their designated critical habitat are expected to be insignificant.

Reinitiation of Consultation

Reinitiation of ESA consultation is required and shall be requested by the Corps or by NMFS, where discretionary Federal involvement or control over the action has been retained or is authorized by law and (1) the amount or extent of incidental taking specified in the ITS is exceeded, (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) 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 this biological opinion; or if (4) a new species is listed or critical habitat designated that may be affected by the identified action.

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). To address degraded riparian habitat conditions caused by the proposed action, we recommend that the Corps develop and implement riparian restoration projects within the action area or adjacent reaches of the river that control invasive species and establish native plants.

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. We have concluded that the action would adversely affect EFH designated under the Pacific Coast salmon Fishery Management Plan.

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

The proposed project occurs within EFH for various federally managed fish species within the Pacific Coast Salmon FMP.

Adverse Effects on EFH

NMFS determined the proposed action would adversely affect EFH as follows. We adopt by references Section 8 of the BA for the description of effects to EFH and supplement it with the following. Effects on EFH include temporary habitat disturbance and displacement by construction activities, and long-term habitat displacement and degradation caused by permanent structures.

Essential Fish Habitat Conservation Recommendations

NMFS determined that the following conservation recommendations are necessary to avoid, minimize, mitigate, or otherwise offset the impact of the proposed action on EFH. We recommend that the Corps:

1. Minimize short-term habitat displacement and fish disturbance by minimizing the duration of in-water construction activity to the maximum extent possible; and
2. Develop and implement riparian restoration projects within the action area or adjacent reaches of the river that control invasive species and establish native plants.

Statutory Response Requirement

As required by section 305(b)(4)(B) of the MSA, the Corps must provide a detailed response in writing to NMFS within 30 days after receiving an EFH conservation recommendation. Such a response must be provided at least 10 days prior to final approval of the action if the response is inconsistent with any of NMFS' EFH conservation recommendations unless NMFS and the federal agency have agreed to use alternative time frames for the federal agency response. The response must include a description of the measures proposed by the agency for avoiding, minimizing, mitigating, or otherwise offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations, the federal agency must explain its reasons for not following the recommendations, including the scientific justification for any disagreements with NMFS over the anticipated effects of the action and the measures needed to avoid, minimize, mitigate, or offset such effects (50 CFR 600.920(k)(1)).

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. A complete record of this consultation is on file at the Lacey, Washington office.

Please direct questions regarding this letter to Dr. Jeff Vanderpham, consulting biologist at the Lacey, Washington office, at jeff.vanderpham@noaa.gov; or (562) 619-5700.

Sincerely,

Kim W. Kratz, Ph.D
Assistant Regional Administrator
Oregon Washington Coastal Office

cc: Zachary Wilson, Corps Project Manager

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