UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
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June 30, 2023

Lt. Col. ShaiLin KingSlack
U.S. Army Corps of Engineers
Walla Walla District
201 N. Third Avenue
Walla Walla, Washington 99362

Re: Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson–Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Carmen and North Fork River Access Sites Maintenance, Lemhi County, Idaho

Dear Lt. Col. KingSlack:

This letter responds to your February 21, 2023, email request for initiation of consultation with NOAA's National Marine Fisheries Service (NMFS) pursuant to Section 7 of the Endangered Species Act of 1973 (ESA) (16 U.S.C. 1531 et seq.) for the Idaho Department of Fish and Game's (IDFG) Carmen and North Fork River Access Sites Maintenance projects. You also requested consultation pursuant to the essential fish habitat (EFH) provisions in Section 305(b) of the Magnuson–Stevens Fishery Conservation and Management Act (MSA) [16 U.S.C. 1855(b)] for this action.

We reviewed the U.S. Army's Corps of Engineers (COE) consultation request and related initiation package. This review was conducted pursuant to Section 7(b) of the ESA of 1973 (16 U.S.C. 1531 et seq.) and its implementing regulations at 50 CFR 402; Section 305(b) of the MSA and implementing regulations at 50 CFR 600.920; and agency guidance for use of the ESA consultation process to complete EFH consultation. Your request qualified for our expedited review and analysis because it met our screening criteria and contained the required information on, and analysis of, your proposed action and its potential effects to listed species, designated critical habitat, and EFH. 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. The parts of the documents we are incorporating by reference are explicitly stated in the sections below, where appropriate. The documents are filed in our Snake Basin Branch Office and are available upon request.

On July 5, 2022, the U.S. District Court for the Northern District of California issued an order vacating the 2019 regulations that were revised or added to 50 CFR part 402 in 2019 ("2019 Regulations," see 84 FR 44976, August 27, 2019) without making a finding on the merits. On September 21, 2022, the U.S. Court of Appeals for the Ninth Circuit granted a temporary stay of

the district court's July 5 order. As a result, the 2019 regulations are once again in effect, and we are applying the 2019 regulations here. For purposes of this consultation, we considered whether the substantive analysis and conclusions articulated in the biological opinion (opinion) and incidental take statement would be any different under the pre-2019 regulations. We have determined that our analysis and conclusions would not be any different.

The project applicant (IDFG) contacted NMFS by phone on November 30, 2021, briefing us on the proposed actions and discussing the best manner to complete ESA consultation. During this call, NMFS recommended batching the two boat ramp maintenance actions into one biological assessment (BA) given the similarity in work at the two sites and relatively close geographic proximity. NMFS received a draft BA to review on June 30, 2022, and we returned comments by email on July 7, 2022, including edits to qualify for our expedited review process. IDFG and NMFS discussed the edits and necessary content by phone on July 12, 2022. NMFS shared multiple citations on the effects of riprap with the BA author on July 14, 2022. NMFS staff shared additional citations and had a few phone calls with the BA author up to July 25, 2022. The final BA was received from the BA author on August 11, 2022, but the COE did not formally request consultation until August 17, 2022, consultation was first initiated at that time. IDFG withdrew the consultation request on November 2, 2022. IDFG met with NMFS on March 22, 2023, to discuss revised construction plans for the North Fork Site and to discuss consultation procedures. On March 30, 2023, NMFS received a summary of the proposed project changes from IDFG. IDFG then shared a revised 404 permit application with the COE and NMFS on May 18, 2023. The COE subsequently emailed a formal request to initiate ESA consultation on June 5, 2023. Consultation was initiated at that time.

Proposed Action. The proposed Federal actions are the COE proposed authorization of the IDFG's proposed maintenance activities at two angler access areas on the Salmon River, located in Lemhi County, Idaho. The COE's authorization would include permits under: (1) Section 404 of the Clean Water Act (CWA); and (2) Section 10 of the Rivers and Harbors Act (33 U.S.C. § 403). Detailed description of the IDFG's proposed work at each site are provided on pages 18–28 of the IDFG Carmen and North Fork River Access Sites Maintenance Biological Assessment (Littlejohn 2022), and the March 30, 2023, BA amendment (two pages), which are incorporated to this document by reference. The IDFG intends to maintain the IDFG Carmen Bridge Americans with Disabilities Act (ADA) accessible fishing platform and boat ramp (Site 1) and the IDFG's North Fork Access Site (Site 2). For Site 1, additional riprap will be installed to protect the existing ADA fishing platform and boat ramp. For Site 2, concrete will be pumped under the North Fork boat ramp to strengthen it, and eroding banks on either side of the boat ramp will be sloped back from the existing toe (70 feet total), planted with willow clumps, and armored with riprap. Site 1 work will occur sometime between September 1 and November 30 (probably 2023). Site 2 work will occur between August 1 and October 8, 2023, to reduce impacts to fall migrating fish. These windows overlap with seasonal low flows and are within the locally recommended instream work area for both sites (USBWP 2005). Site 1 work, including partial dewatering and all in-water work, is expected to take 2 to 4 days to complete. Work at Site 2 is expected to take 9 to 14 days to complete. Instream work areas will be partially isolated with temporary cofferdams and any fish present will be hazed away or salvaged and relocated using electrofishing (NMFS 2000). Riprap will be large, contain ample interstitial space for future fish use, and willow transplants will be installed to provide overhead cover and minor

quantities of stream shade and forage. All other design criteria and best management practices (BMPs) are described in Littlejohn (2022), and have been adopted by reference.

We also considered whether or not the proposed actions would cause any additional activities that may generate other impacts on the species or critical habitats being assessed. Boat ramps exist upstream and downstream of each site and recreational floating and fishing will likely persist regardless of the actions. Similarly, recreational developments at Site 1 and housing and business developments at Site 2 already exist. Stabilizing the fishing access site, boat ramps, and streambank will not cause additional development at either site. Consistent with Littlejohn (2022), we did not identify any other potential activities the proposed action would cause.

Site 1 is located approximately 4.0 river miles downstream from downtown Salmon, Idaho and 3.5 river miles downstream of the Lemhi River confluence. This site is just upstream of a U.S. Highway 93 bridge and the mouth of Carmen Creek (45º 13’ 48.1” N, 113º 53’ 33.9” W; Figure 1). Site 2 is located on the Salmon River, immediately downstream of the North Fork Salmon River confluence and approximately 18 miles downstream of Site 1, behind the North Fork General Store (45º 24’ 19.9” N, 113º 59’ 42.4” W; Figure 2).

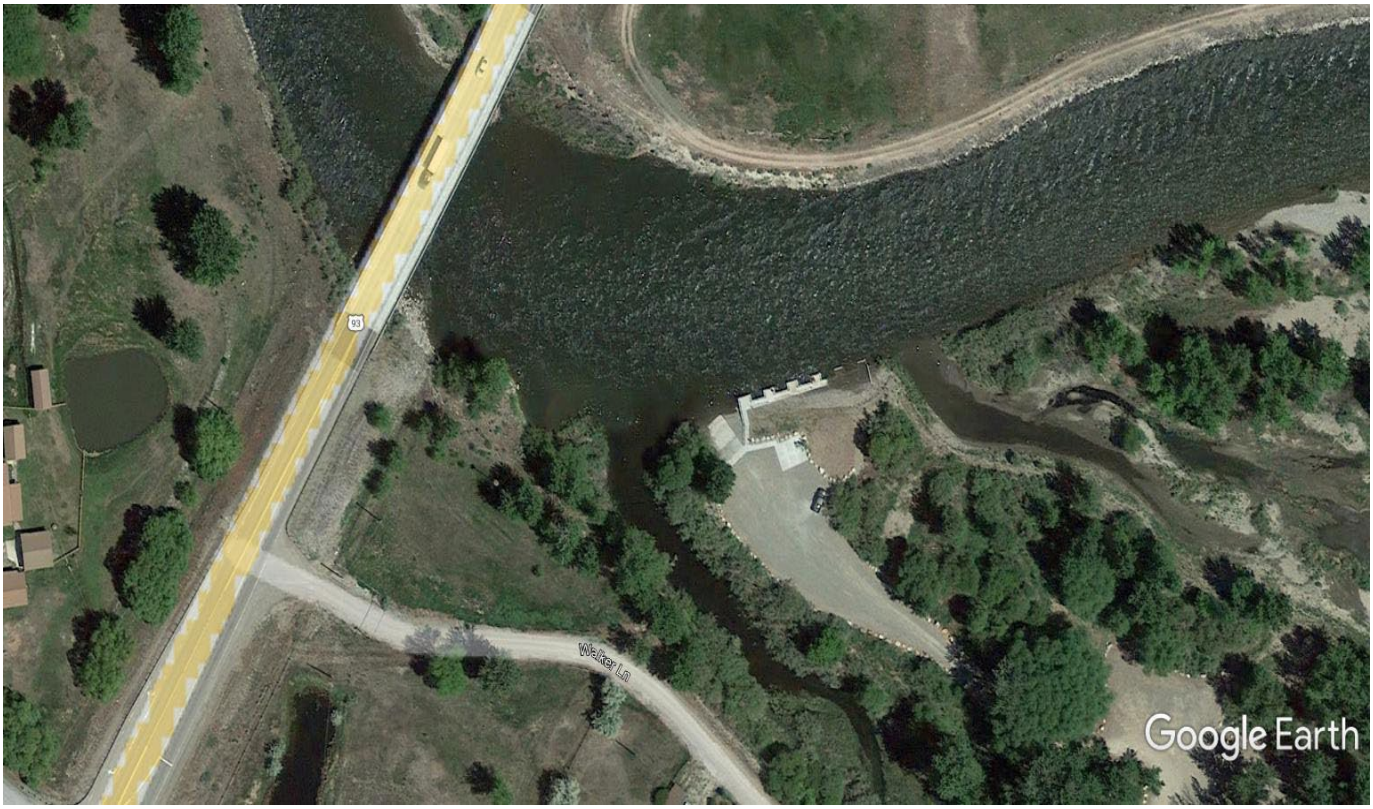

Figure 1. Site 1–IDFG Carmen ADA fishing platform and boat ramp on the south bank of the Salmon River, center of photo. The upstream end of platform is under water. The historic floodplain on the north bank is disconnected from the river by a COE levee (Google Earth 6/30/2014).

Figure 2. The IDFG North Fork boat ramp on the Salmon River just downstream of the confluence of the North Fork Salmon River. The yellow roadway is U.S. Highway 93 North (Google Earth July 2016).

Status of Species and Designated 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 (PBFs) essential to the conservation of the species that create the conservation value of that critical habitat. Littlejohn (2022) included detailed description and photos of baseline conditions at and near each project site (pages 28-40) but did not address the status of the species and designated critical habitat. We have augmented the BA with that information below.

This opinion examines the status of each species that is likely to be adversely affected by the proposed action. 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, 5-year 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' "reproduction, numbers, or distribution" for the jeopardy analysis.

This opinion considers the status of the Snake River (SR) spring/summer Chinook salmon evolutionarily significant unit (ESU), the SR Basin steelhead distinct population segment (DPS), and the SR sockeye salmon ESU. The SR Chinook spring/summer salmon ESU and the steelhead DPS are composed of multiple populations, which spawn and rear in different watersheds across the SR basin. Having multiple viable populations makes an ESU or DPS less

likely to become extinct from a single catastrophic event (ICTRT 2010). The SR sockeye salmon ESU primarily consists of the Redfish Lake population, which is being used, through hatchery practices, to establish self-sustaining populations in Alturas and Pettit Lakes (NMFS 2015; NMFS 2022c). NMFS expresses the status of an ESU or DPS in terms of the status and extinction risk of its individual populations, relying on McElhaney et al.'s (2000) description of a viable salmonid population (VSP). The four parameters of a VSP are abundance, productivity, spatial structure, and diversity. NMFS' recovery plans for SR Chinook salmon and SR steelhead (NMFS 2017) and SR sockeye salmon (NMFS 2015) describe these four parameters in detail and the parameter values needed for persistence of individual populations and for recovery of the ESU and the DPS.

Table 1 summarizes the status and available information on each species, based on the detailed information on the status of individual populations, and the species as a whole provided by the ESA Recovery Plan for Snake River Spring/Summer Chinook Salmon and Snake River Basin Steelhead (NMFS 2017), ESA Recovery Plan for Snake River Sockeye Salmon (NMFS 2015), Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest (Ford 2022), and the 2022 5-year status review documents for each species (NMFS 2022a, 2022b, 2022c). These six documents are incorporated by reference here. Ford (2022) represents the best scientific and commercial data available on the current VSP risk levels and is summarized in the following sections. SR spring/summer Chinook and SR Basin steelhead remain threatened with extinction due to many individual populations not meeting recovery plan abundance and/or productivity targets (NMFS 2022a, 2022b). SR sockeye salmon remain endangered (NMFS 2022c).

Table 1. Most recent listing classification and date, status summary (including recovery plan reference and most recent 5-year review), and limiting factors for species considered in this opinion.

Species	Listing Status	Status Summary	Limiting Factors
Snake River Spring/summer Chinook Salmon	Threatened 6/28/05	This ESU comprises 28 extant and four extirpated populations, organized into five major population groups (MPGs), none of which are meeting the viability goals laid out in the recovery plan (NMFS 2017). All except three extant populations (Minam, Marsh Creek, and Bear Valley Creek) are at high risk of extinction (Ford 2022). Most populations will need to see increases in abundance and productivity in order for the ESU to recover. Adult returns declined dramatically across the ESU between 2015 and 2019, compared to the five preceding return years (Ford 2022). Only three populations (Minam, Bear Valley, and Marsh Creek) exhibit an increasing abundance when evaluating returns over periods of 10 to 20-years and these are the only populations currently expected to be meeting VSP criteria for a maintained status (Ford 2022). Ocean conditions appear to be a major recent contributor to the recent 5-year sharp decline in abundance (Ford 2022).	• Reduced flow levels and elevated water temperatures (climate change and hydro/water user management). • Altered migration conditions, delayed passage, and reduced survival because of Columbia River hydrosystem. • Impaired habitat-forming processes from roads and floodplain development. • Loss of access to historical above-dam habitat. • Introgression or competition from hatchery releases. • Pinniped predation. • Ocean survival (dramatic biological response at all trophic levels—from primary producers to marine mammals and seabirds—to the marine heatwaves has spread across the northeastern Pacific Ocean since 2014 and continued into 2020. These ecosystem changes have had large effects (both positive and negative) on Pacific salmon returns around the Pacific Rim.

Species	Listing Status	Status Summary	Limiting Factors
Snake River Basin Steelhead	Threatened 1/5/06	This DPS includes 24 populations organized into five MPGs. In 2022, four populations were tentatively rated at high risk of extinction, 14 populations were rated at moderate risk of extinction, six populations were viable, and one population was highly viable (Ford 2022). Ford (2022) reported that none of the five MPGs are meeting the population viability goals laid out in the recovery plan (NMFS 2017). Since 2015, adult abundance has decreased for all populations except one (range -30 percent to -71 percent) (Ford 2022). The Wallowa River population is an outlier, displaying a 72 percent abundance increase since 2015. Currently, just two of the five MPGs (Clearwater River and Grand Ronde) meet criteria for "maintained" status (Ford 2022), but more populations and MPGs need to improve to a viable condition for the DPS to recover. The relative proportion of hatchery fish spawning in natural spawning areas near major hatchery release sites remains uncertain and may need to be reduced (Ford 2022).	• Climate change and effects on rearing juvenile survival and constriction of suitable tributary habitat. • Impairment of tributary habitat-forming processes and functions. In particular any actions, development, or regulatory mechanisms that reduce, or hinder restoration of, floodplain connectivity. • Irrigation diversions causing altered hydrology, reduced flow levels, elevated water temperatures, and juvenile impingement or entrainment. • Impaired fish passage causing a loss of historical habitat. • Altered conditions and delayed migration through the hydrosystem. • Avian and pinniped predation, and a growing threat from predatory fish. • Ongoing development of low-elevation habitats in private ownership. • Mining – historical legacy impacts and potential future impacts.

Species	Listing Status	Status Summary	Limiting Factors
Snake River Sockeye Salmon	Endangered 6/28/05	The ESU includes all naturally spawned anadromous and residual sockeye salmon originating from the SR basin. Also, sockeye salmon from the Redfish Lake Captive Broodstock Program and the SR Sockeye Salmon Hatchery Program (85 FR 81822). This ESU consists of five populations within one MPG. Redfish Lake is the only extant population and has been utilized to try to establish populations in Pettit and Alturas Lakes, consistent with the recovery plan (NMFS 2015). Adult returns declined precipitously from 2015-2019, dropping about 89 percent from the prior 5-year period (Ford 2022). Natural production remains limited to extremely low levels from Redfish Lake and just a few thousand juvenile outmigrants from Alturas and Pettit Lakes (Ford 2022). The ESU is currently conserved by the captive broodstock program. Recent assessments of the species' susceptibility to climate change suggests adult survival through the mainstem migration corridor could decrease by up to 80 percent from the current low levels (Crozier et al. 2020). Due to extreme low abundance and productivity, continued dependence on the captive bloodstock program, and climate-related risks to the species persistence, the ESU remains at high risk of extinction (Ford 2022; NMFS 2022C).	• Climate change, along with human-influenced water temperature and flow modifications are substantially influencing adult survival through the freshwater migration corridor and is a substantial threat to the species existence. • Low juvenile survival through the migration corridor upstream of the Columbia River System. • Pinniped predation of adult sockeye in the Columbia River. • Transported fish continue to have lower adult survival during upstream hydrosystem migrations than non-transported fish, particularly between Bonneville and McNary Dams, for unexplained reasons. • Large-scale hatchery releases across the North Pacific Ocean may be reducing SR sockeye survival through competition for resources, likely exacerbated by variable ocean productivity under a changing climate.

Site 1 is located within the Salmon River Lower Mainstem SR Chinook and Lemhi River SR Basin steelhead population boundaries. Site 2 is located within the North Fork Salmon River Chinook and steelhead populations' boundaries. Both sites occur in the migratory corridor for the SR sockeye ESU. SR sockeye, and all upstream populations within the Upper Salmon River MPG (SR Chinook) and Salmon River MPG (SR Basin steelhead) could be affected. The action area serves as migratory adult and juvenile rearing/overwintering and migratory habitat for all upstream populations for all three species.

Current viability status, applying Interior Columbia Technical Recovery Team (ICTRT) (2007) criteria, for each SR Chinook and SR steelhead population affected by the actions is displayed in Table 2 and Table 3 along with the populations' life history type, population size class, and its role in NMFS' example recovery scenarios (NMFS 2017). It is important to note that all populations must meet criteria for a maintained status – less than 25 percent chance of extinction in 100 years – to maintain options for a viable major population group (MPG) and the species recovery (ICTRT 2007). For SR sockeye salmon, only the Redfish Lake population is extant and it is at high risk of extinction and the population is key to the species survival.

The Upper Salmon River SR Chinook MPG contains a total of eight extant populations and one functionally extirpated population (i.e., Panther Creek). Five populations must meet viable status with the appropriate representation of population size, life history, and spatial distribution to meet MPG viability criteria. The ICTRT example recovery scenario for this MPG includes the Pahsimeroi River (summer Chinook life history); the Lemhi River and Upper Salmon Mainstem (very large size category); East Fork Salmon River (large size category), and Valley Creek. The Lower Mainstem population, which primarily exhibits summer run timing and has lagged behind other populations in total abundance, is not currently identified in NMFS' example recovery scenario for this MPG (Ford 2022), but the population is one of two very large size populations in the MPG and could be used to satisfy viability criteria in lieu of other populations. The North Fork Salmon population is a basic sized population that needs to meet criteria for maintained status. Specific effects are discussed in Section 2.4.

For SR Chinook, abundance and productivity have declined across the affected MPG and individual populations since our 2015 5-year review and are approaching levels reported when the species were first listed (Ford 2022). During this time, observations of coastal ocean conditions suggested that the 2015-2017 out-migrant year classes experienced below average ocean survival during a marine heatwave and its lingering effects. This led researchers to predict a corresponding drop in adult returns through 2019 (Werner et al. 2017). In fact, the best scientific and commercial data available with respect to the adult abundance of all populations in and upstream of the action area indicate a substantial downward trend in abundance and productivity when comparing returns from 2010-2014 to 2015-2019. Over this period, declines ranged from 9 percent in the Lemhi (where extensive habitat improvements targeting SR Chinook have been accruing) to 87 percent in the Yankee Fork population. Due to declining abundance and productivity NMFS' most recent 5-year review (NMFS 2022a) concluded all these populations remain at high-risk and the species status as Threatened should be retained.

Table 2. Preliminary SR Chinook abundance (most recent 10-year geometric mean (range) and viability ratings (Ford 2022) and recovery plan role (NMFS 2017) for populations potentially affected by the proposed actions considered in this opinion.

Population[a] *(run timing)*	**Abundance/Productivity Metrics**				**Integrated Spatial Structure and Diversity Risk Rating**	**Overall Risk Rating**	**Identified for viable status in ICTRT Recovery Scenario?[c]**
	ICTRT Threshold[b]	***Natural Spawning***	***ICTRT Productivity***	***Integrated A/P Risk***			
Upper Salmon River MPG Populations Affected by the Proposed Actions							
North Fork Salmon River *(spring)*	500[b]	Insufficient Data	Insufficient Data	—	Low	High	No
Salmon Lower Main *(spring/summer)*	2,000[a]	71 (sd 87)	1.30 (0.23 20/20)	High	Low	High	No
Salmon Upper Main *(spring/summer)*	1,000[b]	326 (sd 270)	1.13 (0.31 18/20)	High	Low	High	Yes
Pahsimeroi River *(summer)*	1,000	218 (sd 168)	1.26 (0.20 20/20)	High	High	High	Yes
Lemhi River *(spring/summer)*	2,000	250 (sd 159)	1.63 (0.28 19/20)	High	High	High	Yes
Valley Creek *(spring/summer)*	500[c]	113 (sd 100)	1.63 (0.26 17/20)	High	Moderate	High	Yes
Salmon East Fork *(spring/summer)*	1,000	288 (sd 291)	2.00 (0.28 17/20)	High	high	High	Yes
Yankee Fork *(spring/summer)*	500	62 (sd 139)	0.99 (0.51 17/20)	High	High	High	No

[a]The Panther Creek population is not displayed since it is located downstream of the action area and those fish do not migrate through it.

[b] ICTRT threshold establish the population size class as follows: 2,000 = Very Large; 1,000 = Large; 750 = Intermediate; and 500 = Basic.

[c] Populations marked 'yes' must be viable, which is defined as having a 5 percent or less risk of extinction over 100 years. One of the five populations must by highly viable (i.e., less than 1 percent risk of extinction in 100 years). All populations in the MPG must meet criteria for maintained status for the MPG to be viable. Maintained populations have a less than 25 percent chance of extinction in 100 years.

For steelhead, all affected populations belong to the Salmon River MPG, which includes a total of 12 populations. Six of those populations must be viable, with the appropriate representation of population size, life history, and spatial distribution to meet MPG viability criteria. The recovery plan's example recovery scenario for this MPG identifies two Middle Fork populations, the South Fork Salmon River, Chamberlain Creek, Panther Creek, and the North Fork Salmon River populations. This scenario meets the ICTRT (2007) criteria. Site 2 occurs in the North Fork population boundary and all upstream populations potentially affected must improve to a maintained status for the MPG to be viable. NMFS' recent 5-year review (2022b) and accompanying viability assessment (Ford 2022) found the affected populations are currently meeting criteria for maintained status.

At the MPG scale, 5-year geometric mean SR Basin steelhead natural adult abundance declined an average of 54 percent across the MPG (range 31 to 71 percent) when comparing return years 2010-2014 to 2015-2019 (Ford 2022). There is a great deal of uncertainty with individual population abundances in this MPG given estimates are generated from aggregate Lower Granite

Dam returns and then parsed into similar genetic stock groupings. Data are still not available for individual populations and the values remain unconfirmed estimates and are applied with caution. The data are however, the best current information and represent an improvement from previous estimate methodologies, which were based solely on aggregate dam counts.

Table 3. Preliminary estimated SR steelhead abundance (most recent 10-year geometric mean [range]) and viability ratings (Ford 2022) and recovery plan role (NMFS 2017) for populations potentially affected by the proposed actions considered in this opinion.

Population	Abundance/Productivity Metrics [a]				*Integrated Spatial Structure and Diversity Risk*	Overall Risk Rating	Identified for viable status in ICTRT Recovery Scenario?[b]
	ICTRT Minimum Threshold	*Natural Spawning Abundance*	*ICTRT Productivity*	*Integrated A/P Risk*			
Salmon River MPG Populations Affected by Proposed Actions							
North Fork Salmon R.	500	3,502 (sd 2,562)	1.88 (0.17 16/20)	Moderate	Moderate	Maintained	Yes
Lemhi R.	1,000			Moderate	Moderate	Maintained	No
Pahsimeroi R.	1,000			Moderate	Moderate	Maintained	No
East Fork Salmon R.	1,000			Moderate	Moderate	Maintained	No
Up Main. Salmon R.	1,000			Moderate	Moderate	Maintained	No

[a] Abundance and productivity values are generated from aggregate steelhead counts at Lower Granite Dam that are subsequently partitioned into four subgroups based on genetic stock identification. The Upper Salmon River stock group includes six populations. The displayed abundance and productivity values are for the entire subgroup, not just the five populations shown.
[b] Populations marked 'Yes' must be viable, which is defined as having a 5 percent or less risk of extinction over 100 years. All populations in the MPG must meet criteria for maintained status for the MPG to be viable. Maintained populations have a less than 25 percent chance of extinction in 100 years.

Climate Change Implications for ESA-listed Species. One factor affecting the rangewide status of SR Chinook, SR sockeye, SR Basin steelhead, and aquatic habitat at large, is climate change. The 2018 U.S. Global Change Research Program (USGCRP 2018) reports average warming in the Pacific Northwest of about 1.3ºF from 1895 to 2011, and projects an increase in average annual temperature of 3.3ºF to 9.7ºF by 2070 to 2099 (compared to the period 1970 to 1999), depending largely on total global emissions of heat-trapping gases (predictions based on a variety of emission scenarios including B1, RCP4.5, A1B, A2, A1FI, and RCP8.5 scenarios). The increases are projected to be largest in summer (Melillo et al. 2014, USGCRP 2018). The five warmest years in the 1880 to 2019 record have all occurred since 2015, while 9 of the 10 warmest years have occurred since 2005 (Lindsey and Dahlman 2020).

Several studies have revealed that climate change has the potential to affect ecosystems in nearly all tributaries throughout the SR (Battin et al. 2007; ISAB 2007). While the intensity of effects will vary by region (ISAB 2007), climate change is generally expected to alter aquatic habitat (water yield, peak flows, and stream temperature). As climate change alters the structure and distribution of rainfall, snowpack, and glaciations, each factor will in turn alter riverine hydrographs. Given the increasing certainty that climate change is occurring and is accelerating (Battin et al. 2007), NMFS anticipates salmonid habitats will be affected. Climate and hydrology models project significant reductions in both total snow pack and low-elevation snow pack in the Pacific Northwest over the next 50 years (Mote and Salathé 2009). These changes will shrink the

extent of the snowmelt-dominated habitat available to salmon and may restrict our ability to conserve diverse salmon life histories.

In the Pacific Northwest, most models project warmer air temperatures, increases in winter precipitation, and decreases in summer precipitation. Average temperatures in the Pacific Northwest are predicted to increase by 0.1 to 0.6°C (0.2°F to 1.0°F) per decade (Mote and Salathé 2009). Warmer air temperatures will lead to more precipitation falling as rain rather than snow. As the snow pack diminishes, seasonal hydrology will shift to more frequent and severe early large storms, changing stream flow timing, which may limit salmon survival (Mantua et al. 2009). The largest driver of climate-induced decline in salmon populations is projected to be the impact of increased winter peak flows, which scour the streambed and destroy salmon eggs (Battin et al. 2007).

Higher water temperatures and lower spawning flows, together with increased magnitude of winter peak flows are all likely to increase salmon mortality. The Independent Scientific Advisory Board (ISAB) (2007) found that higher ambient air temperatures will likely cause water temperatures to rise. Salmon and steelhead require cold water for spawning and incubation. As climate change progresses and stream temperatures warm, thermal refugia will be essential to persistence of many salmonid populations. Thermal refugia are important for providing salmon and steelhead with patches of suitable habitat while allowing them to undertake migrations through or to make foraging forays into areas with greater than optimal temperatures. To avoid waters above summer maximum temperatures, juvenile rearing may be increasingly found only in the confluence of colder tributaries or other areas of cold-water refugia (Mantua et al. 2009).

Likely changes in temperature, precipitation, wind patterns, and sea-level height have implications for survival of SR Chinook, SR sockeye, and SR Basin steelhead in their freshwater and marine habitats. Climate change is expected to make recovery targets for salmon more difficult to achieve (Crozier et al. 2019; Crozier et al. 2020). Climate change is expected to alter critical habitat by generally increasing temperature and peak flows and decreasing baseflows. Although changes will not be spatially homogenous, effects of climate change are expected to decrease the capacity of critical habitat to support successful spawning, rearing, and migration. Habitat improvement actions can help address the adverse impacts of climate change on salmon and are recommended in recovery plans (NMFS 2015; NMFS 2017) and recent 5-year reviews (NMFS 2022a; NMFS 2022b; NMFS 2022c). Examples of recommendations include restoring connections to historical floodplains and freshwater and estuarine habitats to provide fish refugia and areas to store excess floodwaters, protecting and restoring riparian vegetation to ameliorate stream temperature increases, and purchasing or applying easements to lands that provide important cold water or refuge habitat.

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). Littlejohn (2022) described the action area for each site on page 12. That description is adopted here, with the only clarification being the inclusion of the existing access routes to each boat ramp and any staging areas used during construction.

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 reviewed and have adopted the Environmental Baseline section (pages 28-40) from Littlejohn (2022) as it provides a robust description of the current habitat conditions in the action area. In summary, the action area's habitat has been degraded from channelization (e.g., dikes, urbanization, highway encroachment, etc.), loss of riparian vegetation, reduced water quantity from irrigation and other impacts. Heavy winter ice buildup frequently occurs at both sites, frequently contributing to winter flooding and channel avulsion and bank instability where armoring and riparian vegetation are absent. Summer water temperatures exceed desired conditions for salmonids, rendering summer rearing use by the species considered to almost non-existent levels and none of the three species spawn in the action area of either site. Juveniles and adults of all three species migrate through both sites. Site 2 is just downstream of the North Fork Salmon River confluence, which is colder and may provide a beneficial local summer water temperature refugia for migrating adults and some juveniles (Curet et al. 2009). Littlejohn (2022, pages 13–16) also described how and when each species utilizes the action area habitat – which we have also reviewed and adopted. Above, in the status of the species section, we discuss in detail how the affected populations fit in the species-specific recovery plans. In regard to critical habitat, the action area provides key migratory habitat for all three species and that habitat is critical to their recovery and survival in the future. Action area riparian habitat and floodplain connectivity are also important to facilitate natural channel forming processes that create habitat suitable to migrating adult and juvenile salmonids now and into the future. Recovery plans for each species (NMFS 2015 and NMFS 2017) as well as our most recent 5-year reviews (NMFS 2022a, 2022b, 2022c) also recommend conserving and where possible restoring riparian and floodplain function in rearing and migratory habitat to improve species recovery potential and habitat's resiliency to climate change.

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's Analysis of Effects section (pages 41–62) provides a detailed discussion and comprehensive assessment of the effects of the proposed action and is adopted here

[50 CFR 402.14(h)(3)]. NMFS has evaluated this section and after our independent, science-based evaluation, we determined it meets our regulatory and scientific standards. As detailed in the BA, the following effects of the action are anticipated:

1. Juvenile Harassment and Death – Installation of cofferdams (e.g., bulk bags) to dewater the project work areas, excavation, and riprap placement, including required fish salvage and hazing, may disturb, crush, or result in handling of small numbers of juvenile SR Chinook salmon and SR Basin steelhead at both sites. Summer (Site 2) or fall (Site 1) work windows and low juvenile fish densities, along with staged drawdowns, and use of qualified biologists to haze and salvage fish are expected to avoid harming most fish and minimize the harm for the few juvenile fish expected to be handled/hazed.

   Fish salvage data from recent (i.e., September 2022) dewatering activities associated with the Salmon Whitewater Park project being completed in similar habitat and near the proposed work areas can be used to inform the number of fish salvaged. In that project, which dewatered and salvaged approximately 226,000 square feet of the Salmon River, only seven juvenile steelhead and three juvenile Chinook were salvaged. The number of salvaged fish was much lower than our opinion's (NMFS 2022d) estimate for that project, which was already based on very low fish densities and reasonable volitional movement during staged dewatering (NMFS 2022d). These projects will dewater and salvage a total area of approximately 1,798 square feet (Site 1 – 70' long x 10' wide = 700 square feet (BA page 24); Site 2 – 1,098 square feet (BA amendment), an area roughly 126 times smaller than the area salvaged for the Whitewater Park. At most, the two actions considered here may salvage a similar number of fish as the Whitewater park salvage – three juvenile SR Chinook salmon and seven juvenile SR Basin steelhead. Although no mortalities were observed during Whitewater park salvage, up to five percent of handled fish could die (McMichael et al. 1998). Given the small number of fish expected to be handled, no more than one mortality from either species can reasonably be expected.

   Juvenile fish could potentially avoid capture during salvage and seek refuge in river substrates where they could ultimately be crushed during riprap placement or excavation. Although the likelihood of crushing/excavating fish appears to be low due to the proposed clearing of work areas and salvage methods, we assume a worst-case scenario that no more than one juvenile SR Chinook and one juvenile SR Basin steelhead may be killed in this fashion. It is acknowledged there is no way to reasonably measure the number of fish not salvaged and subsequently killed by the proposed in-water work. We apply this number principally in recognition of the possibility of the identified take pathway materializing and in order to quantify it for purposes of our analysis on VSP parameters.

2. Adult Steelhead Displacement – Site 1 work will occur during the fall, when adult SR Basin steelhead are known to be in the action area as they migrate upstream or overwinter. Dewatering efforts and work in and adjacent to the channel could temporarily displace some adult steelhead. Site 2 work will occur between August 1 and October 8, when adult steelhead are extremely unlikely to be present. Fish passage will be retained

past the near-shore work areas for the duration of each site's work and work will be limited to daylight hours and last just 2-4 days at Site 1 and 9-14 days at Site 2. As discussed in the BA (Page 44), the small area of stream affected by the work and limited time work will occur, combined with type of disturbance are expected to expose few fish to potential displacement, and disturbed fish are expected to experience only minor behavioral modifications that do not rise to the level of harm.

3. Juvenile SR Chinook and SR Basin Steelhead disturbance – Work may overlap with some juveniles of each species as they migrate downstream for overwintering. Migrating juveniles are moving substantial distances daily and the minor disturbance from low level noise and streamside machinery activity will have minor behavioral effects on exposed fish that do not rise to the level of harm. Summer work at Site 2 will likely occur when water temperatures are too warm to support juveniles and thus is likely to avoid disturbing juveniles. If Site 2 work extends into October, similar effects to Site 1 are expected.

4. Turbidity Effects on Fish – Monitoring and project management will limit turbidity to State of Idaho standards (i.e., ≤50 Nephelometric Turbidity Units (NTUs) over background) at the measurement points established 600-feet downstream of Sites 1 and 2. Project timing and location avoids effects to embryos/fry of all species. A limited number of juvenile SR Chinook and SR Basin steelhead may be exposed to slightly higher turbidity levels within the 600-foot compliance distance. Those fish could experience a range of minor sublethal effects and/or displacement that is likely to reduce to reduce fitness of exposed fish Adult steelhead could experience similar exposure and effects. Turbidity plumes are expected to hug the streambank where work is occurring, slowly increasing in cross section with increasing downstream distance. Substantial opportunities exist for fish to avoid the plumes at each project site and effects to exposed fish will be temporary and limited to the plume between instream work and the measurement point. Effects below 600 feet are expected to be limited to increased foraging caused by turbidity levels less than 50 NTU above background. These behavioral changes are expected to be too small to harm individual fish.

5. Temporary Habitat Loss – Small amounts of habitat will be unavailable during construction (i.e., 2-4 days at Site 1; 9-14 days at Site 2). Juvenile fish likely to be present during the work window are transient and moving downstream for more suitable (i.e., ice-free) overwintering habitat (BA page 46). The temporary and brief loss of habitat at each worksite will have essentially no biologically meaningful impact on juveniles given their migratory status and ability to exploit other habitat niches as they actively migrate past the work sites.

6. Effects of Riprap – Short segments of bank at each site will be converted or returned to riprap with small quantities of woody vegetation also incorporated. Migrating fish (all three species) utilizing the action area for the future lifespan of each structure (several decades) will experience reduced habitat quality relative to native banks, although available literature suggests benefits of riprap for fish in some instances (see BA pages 46-47) from increased interstitial space and cover relative to unnaturally eroding banks.

Riprap will likely also result in reduced floodplain connectivity, which is expected to have similar effects as described for riprap and migrating adults and juveniles (SR Chinook salmon, SR sockeye salmon, and SR Basin steelhead) will likely be affected for up to 30 years. Additional discussion on habitat effects are provided in the next bullet. Assuming habitat quality is reduced, this could manifest in: reduced growth (juveniles) from lower quality foraging areas; increased predation (juveniles) from reduced complex cover; or reduced use of thermal refugia at Site 2 due to sustained low habitat complexity. These effects could be realized by SR Chinook salmon, SR sockeye salmon, and SR Basin steelhead. The small scale of the treatments (i.e., ~100 feet at Site 1 and 70 feet at Site 2) and brief periods of time migrating fish utilize the affected habitat (likely minutes) suggests impacts on growth and survival will be minor, but they will persist for approximately 30 years, the assumed life-expectancy of the bank treatments. Incorporating large rocks with ample interstitial spaces and willow transplants will also provide some additional cover where none-currently exists. Regardless, we conclude the effects to each of the three species considered are adverse, albeit minor.

7. Floodplain Connectivity – Stabilizing the banks at both sites will continue to maintain reduced floodplain connectivity and riparian processes for the lifespan of the proposed project – about 30 years. All the species' recovery plans and 5-year review documents recommend conserving floodplain processes and restoring them where possible. Since this action will maintain and likely cause a minor extension in the time period of reduced floodplain function and riparian process, these PBFs and those influenced (e.g., water temperature, natural cover, and space are likely to be maintained in an impaired condition. As discussed in the BA (Page 47), it is improbable that landowners at either site would remove the other structures (i.e., dikes, boat ramps, buildings, etc.) that also reduce floodplain connectivity and riparian processes in the action area and thus full expression of floodplain connectivity and riparian processes are likely to be impaired at these sites indefinitely, with or without the actions currently proposed. The scale of the impact is small, affecting approximately 200 linear feet of bank/floodplain at Site 1 and about 86 feet at Site 2 (BA page 47). Regardless, we conclude the effects will have minor adverse effects on the identified PBFs for designated critical habitat of all three species considered.

8. Upstream and downstream fish passage will be unaffected by the short-term duration of project construction and small scale of the isolated work areas. Fish using the action area are primarily migrating (BA pages 49-50) and will be able to safely navigate both directions in the unaffected river corridor at each site.

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. Littlejohn (2022) addressed cumulative effects on page 58, which we have adopted. There are no reasonably foreseeable State or private activities anticipated in the action area. Future dike or highway maintenance would likely require Federal permitting, triggering the need for additional Section 7 consultation.

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.

SR Chinook salmon, SR sockeye salmon, and SR Basin steelhead abundance experienced population increases, relative to time of ESA listing, through the mid-2000s. During the past six years, abundance has dropped, with many populations nearing levels observed when the species were listed. Observed declines have been similar for all populations in the ESUs and DPS and declines are believed to be tied to recent ocean conditions (Ford 2022). Action area conditions, namely bank condition, degraded at the site scale following the 2017 peak flow event and is the reason the actions are being proposed. The recent change in baseline condition has likely had little to no influence on recent productivity trends since fish migration is the principle use within the action area for all species and duration of use is very short for all individuals. In addition to abundance and productivity concerns for these species, climate factors will likely make it more challenging to increase abundance and recover the species (NMFS 2017; Crozier et al. 2019). All individual populations, including those affected by this action, are still at high risk of extinction and remain far below recovery plan abundance and productivity targets. As a result, SR Basin steelhead and SR spring/summer Chinook salmon remain threatened with extinction and SR sockeye salmon remain endangered.

Due to the anticipated effectiveness of proposed BMPs and due to the limited use of the action area by ESA-listed fish during the summer/fall construction, adverse effects caused by construction are expected to be limited to those caused by dewatering (including crushing) and associated fish salvage work, and brief turbidity exposure causing potential stress to fish between work sites and the measurement compliance point (600 feet). SR sockeye salmon will not be directly affected by construction work. Our analysis estimated that up to seven juvenile steelhead and three juvenile Chinook salmon may be captured. Each of these fish would experience varying levels of elevated stress and potentially harm, with a minor potential for up to one fish of each species dying from the exposure to electrofishing and handling.

Stranding/crushing of fish could occur but is unlikely given the proposed dewatering plan and fish salvage methods. We assumed no more than one individual juvenile Chinook salmon and steelhead could be killed via this pathway. Adverse effects from turbidity exposure will be limited to brief exposure to turbidities higher than 50 NTUs. Turbidity plumes will affect a small cross section of the river and extend just 600 feet downstream from each worksite. Because fish present during the late fall work window are likely to be actively migrating downstream to overwintering habitat, adverse effects are expected to be very minor, both because of short exposure and minor levels of elevated turbidity. Post-construction, the continued presence of artificially stabilized banks at both sites could have a minor negative impact on juveniles migrating downstream by maintaining existing degraded floodplain and riparian functionality.

These impacts are also expected to be very small given the short distances of bank influenced by the actions at each site (i.e., ~200 feet at site 1 and ~ 86 feet at site 2).

Direct juvenile fish mortalities occurring during construction can be used to estimate the total number of adult equivalents potentially removed from the pool of affected populations. We estimate that construction-related mortality will be so small (i.e., less than two juveniles of each species) and thus the actions are unlikely to result in even one fewer adult SR Chinook salmon and SR steelhead from one brood. Sockeye salmon will be absent during construction and not directly affected. Because the action area is principally a migratory corridor for all upstream populations, fish affected by construction could belong to many different populations of SR Chinook salmon (up to seven populations) and SR steelhead (up to four populations) (see Table 2 and Table 3). For this reason, the minor salvage related harm and/or potential crushing caused by the action will be spread across multiple populations and the worst-case scenario of losing one adult equivalent from one brood year is too small to have significant impacts on any population's abundance or productivity.

Sublethal effects of temporary turbidity exposure are expected for a small number of migrating fish (SR Chinook salmon and SR Basin steelhead) at each site during construction. Juveniles are migrating substantial distances daily during the fall and exposure times are expected to be brief, both due to short time fish use the affected habitat and the short duration of construction-related turbidity plumes exceeding 50 NTUs above background within the 600-foot mixing zones. Fish will easily be able to move into unaffected adjacent habitat, reducing or potentially avoiding the impacts altogether. The minor levels of stress and behavioral modification experienced by exposed fish is not anticipated to have long-term effects on individual fish's survival and therefore impacts on individual populations, MPGs, or ESU/DPS are not expected from this effect pathway.

The described impacts on habitat (in above opinion and in Littlejohn 2022) may have very small impacts on growth and survival of some individual juvenile SR Chinook salmon, SR sockeye salmon, and SR Basin steelhead for the 30-year lifespan of the stabilized bank area. Effects stem from reduced floodplain connectivity, maintaining reduced riparian function, and presence of riprap along short segments of bank. Because the affected area is small (280 feet in total) and migrating fish are moving quickly, the actual impact on growth and survival of individual fish is expected to be minor, and unlikely to influence the abundance or productivity of any individual population of SR Chinook salmon, SR sockeye salmon, or SR Basin steelhead. Adult fish are not expected to be affected by the long-term effects to habitat in the action area.

Overall, the action has been designed and timed to minimize the impacts of construction and long-term influence on ESA-listed fish. Construction is unlikely to kill any fish. However, even when considering the worst-case potential for the loss of up to two juvenile SR Chinook and SR Basin steelhead (from salvage and crushing), overall direct impacts on fish should result in the loss of less than one adult equivalent SR Chinook salmon and SR steelhead from just one brood year. Because the action area is a migratory corridor, the loss could be from any one of the six upstream SR Chinook salmon or five upstream SR Basin steelhead populations that use the action area. Habitat impacts will be limited to no more than 286 linear feet of river and will essentially maintain the current condition. Although some juvenile migrants (SR Chinook

salmon, SR sockeye salmon, and SR Basin steelhead) could experience very small levels of reduced growth from the loss of future riparian/floodplain connectivity and installation of riprap banks, the scale of the action's effects relative to the total quantity of habitat designated for each species is too small to expect meaningful risks to the species' survival or recovery.

The loss of the small number of fish and minor impacts on growth are determined to be too small to influence overall population, MPG, or ESU/DPS productivity or abundance. Each species' individual populations experience substantial annual variation in both metrics and the project-related impacts are not expected to be meaningful at any of these scales. Adding the projected impacts to the continued effects of State and private actions already occurring in the action area, as well as with existing environmental baseline conditions in the action area, does not result in additional risks for the affected populations. Considering climate change impacts on available habitat and SR Chinook salmon, SR sockeye salmon, and SR Basin steelhead over the next 30 years, conservation of floodplain connectivity and riparian process will likely increase in importance, but State and private influences in these action areas are expected to result in maintenance of similar habitat conditions with or without these proposed actions. We conclude the actions' effects are expected to be minor, be distributed across multiple populations of each affected MPG when they do occur, and the magnitude of effects will likely become reduced over time as vegetation establishes in the treated banks at Site 2. For these reasons, the action is not expected to appreciably reduce the abundance and productivity of any of the affected populations. Because we do not anticipate the action to cause a change in the viability metric at any population level, we also find that the action will not likely affect the survival of the affected MPGs, nor the affected ESUs or DPS. Similarly, the minor severity of the described adverse effects should not affect the species' probability of recovery over the structure's 30-year life span.

Critical habitat in the action area has been degraded over time, resulting in primarily migratory use by all three species. Existing human development at both work sites (i.e., houses, dikes, businesses, boat ramps, campgrounds, etc.) likely precludes future opportunities for restoring floodplain connectivity and natural channel processes to either site. It is reasonable to expect future repair of existing dikes and riprap bank, which will be covered by future COE permitting. Landowners' desire to maintain the existing developments likely precludes implementing the recovery plan recommendation (NMFS 2015 and 2017) for restoring floodplain access at these sites at any time in the future. The proposed treatments will maintain (in part) the reduced floodplain connectivity and riparian processes at approximately 200 feet and 86 feet of bank[1] at Sites 1 and 2, respectively. The reduction will last for the life of the stabilization, about 30 years. Floodplain and riparian processes are important aspects of critical habitat for all three species. The proposed action will maintain the current condition of the migratory habitat physical and biological features (PBFs) in the action area. Because of existing land use and other human impacts, it is unlikely that the PBFs will be restored in the action area. Installing large rock with ample interstitial spaces and incorporating coyote willow into the stabilized banks will both increase cover and space for fish relative to current conditions and for the 30-year lifespan of the structure. This minor, increase in habitat condition, will likely benefit some juvenile fish into the future, but is not considered an offset in any way. We conclude that stabilizing 170 feet of bank

[1] These distances are the bank lengths estimated to be protected by the stabilization work completed. Actual stabilized bank lengths are ~100 feet at Site 1 and 70 feet at Site 2.

and retaining degraded floodplain connectivity and riparian processes on 286 linear feet of bank, will have small adverse effects on designated critical habitat for all three species at the scale of the action area. However, when considered at the scale of the designation of the critical habitat, this impact is not expected to affect the conservation value of the designated critical habitat for each species.

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 SR spring/summer Chinook salmon, SR sockeye salmon, SR Basin steelhead or destroy or adversely modify their designated critical habitats.

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 interim 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:

1. Juvenile SR Chinook salmon and juvenile SR Basin steelhead are likely to be harmed, harassed, handled, and or killed during dewatering and salvage of the proposed work sites. Fish salvage efforts will likely capture and safely release fish that do not volitionally move out of coffer-dammed areas. We anticipate up to three juvenile SR Chinook salmon and seven juvenile steelhead may be captured and handled and no more than one of each species would be killed during fish salvage efforts. Exceeding either the total number of fish handled and/or the stated number of mortalities would exceed the amount of take identified in this consultation.

2. Dewatering efforts could potentially result in stranding or crushing of up to one juvenile SR Chinook salmon and one juvenile SR Basin steelhead. If fish are stranded or crushed, they will be buried in substrates and impossible to quantify or otherwise measure. In these instances, NMFS uses a surrogate to describe the extent of incidental take, pursuant

to 50 CFR 402.14[I]. In this case, we use the total dewatered/salvage area as a surrogate for the amount of take. Although the area dewatered is somewhat coextensive with the proposed action, is directly related to this take pathway, the area can be readily measured, and it thus serves as a reasonable trigger to reinitiate consultation if exceeded. For this reason, no more than 2,500 square feet[2] of the Salmon River shall be dewatered/salvaged between the two sites and exceeding this limit will trigger the reinitiation provisions of this opinion.

3. Migrating juvenile SR Chinook salmon and SR Basin steelhead may experience minor sublethal adverse effects from exposure to turbidity levels higher than 50 NTUs above background. Due to monitoring, exposure to these levels will be limited to the 600-foot distance from the source of the turbidity downstream to the compliance measurement point. Because the number of fish exposed cannot be reasonably calculated or measured we describe the extent of take, pursuant to 50 CFR 402.14[I]. Exceeding the 50 NTUs at the measurement points, located 600 feet downstream of each work site, shall trigger the reinitiation provisions of this opinion.

4. Converting the eroded banks to rock riprap can reasonably be expected to degrade local habitat conditions by maintaining the restricted floodplain access and impaired riparian conditions. These habitat impacts can reasonably be expected to have a minor influence on future juvenile SR Chinook salmon, SR sockeye salmon, and SR Basin steelhead growth as they move through the action area. These impacts will likely persist for the life of the stabilization, approximately 30 years. There is no reasonable manner to evaluate the number of fish affected by this habitat-related impact nor the degree, to which individual fish are actually affected. Because the number of fish affected cannot be reasonably calculated or measured we describe the extent of take, pursuant to [50 CFR 402.14(I)]. For habitat-related take that may occur, the extent of take will be exceeded if the total linear feet of bank treated with riprap is more than 100 feet at Site 1 or more than 70 feet at Site 2. Exceeding either of these linear distances shall trigger the reinitiation provisions of this opinion. Distance of riprap bank is directly tied to the type of habitat-related effects on fish and thus is a suitable surrogate.

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. The "reasonable and prudent measures" listed below are measures that are necessary or appropriate to minimize and/or monitor the impact of the amount or extent of incidental take (50 CFR 402.02). We did not identify any additional measures to avoid or minimize incidental take that were not already incorporated into the proposed action during pre-consultation.

[2] This is slightly larger than estimates from Littlejohn 2022 and the BA amendment (1,798 square feet to allow for field fitting of the cofferdams that inevitably occur.

1. Ensure completion of a monitoring and reporting program to confirm that the terms and conditions in this ITS are effective in avoiding and minimizing incidental take from permitted activities and that the extent of take 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 COE or any applicant (i.e., IDFG) 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 # 1 the COE shall require the IDFG to:

    a. Maintain records of the number, species, and size of fish handled during any electrofishing event in order to verify the extent of take authorized by this opinion is not exceeded.

    b. If more than seven juvenile steelhead or three juvenile Chinook salmon are captured during construction-related fish salvage or if more than one juvenile of either species are killed during those activities, immediately stop work and contact NMFS to reinitiate ESA consultation.

    c. If more than 100 linear feet of bank are armored with riprap at Site 1 or more than 70 linear feet of bank are lined with riprap at Site 2, immediately stop work and contact NMFS to determine if reinitiation of consultation is required.

    d. Maintain records of turbidity monitoring data and in the event background turbidity at the measurement point exceeds 50 NTU over background, stabilize the site, stop turbidity producing work, and then immediately contact NMFS to determine how or if to proceed implementing the action.

    e. The IDFG, on behalf of the COE, shall submit a post-construction report to the Snake River Basin Office email (nmfswcr.srbo@noaa.gov) within four weeks of completing construction work at both sites (one report). The report will address the monitoring identified in the proposed action and terms and conditions relevant to ensuring the amount and/or extent of take is not exceeded.

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. The COE should notify future CWA applicants within the range of anadromous fish of the risks of development in floodplains and the potential for future property damage and environmental impacts, encouraging as little impact as possible in all cases.

2. The COE should request IDFG and the landowner of Site 2 plant as much native riparian vegetation as possible to provide for some form of ecological function important for the conservation and future recovery of anadromous salmonids.

3. The COE and IDFG are encouraged to consult existing recovery plans (NMFS 2015; NMFS 2017) and the most recent 5-year review documents (NMFS 2022a, 2022b, and 2022c) and identify and implement future actions that contribute to the species' recovery potential.

Reinitiation of Consultation. Under 50 CFR 402.16(a): "Reinitiation of consultation is required and shall be requested by the Federal agency or by the Service where discretionary Federal agency 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."

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 600.0-5(b)].

The action area, as described above, is also EFH for Chinook salmon (PFMC 2014). The Pacific Fishery Management Council (PFMC) designated the following five habitat types as habitat areas of particular concern (HAPCs) for salmon: complex channel and floodplain habitat,

spawning habitat, thermal refugia, estuaries, and submerged aquatic vegetation (PFMC 2014). The HAPCs present in the action area are floodplain habitat (both sites) and thermal refugia (Site 2 only).

The BA (Littlejohn 2022) provides a detailed discussion and comprehensive assessment of the effects of the proposed action on pages 41–62, and is adopted here [50 CFR 402.14(h)(3)]. NMFS has evaluated this section and after our independent, science-based evaluation determined it meets our regulatory and scientific standards. In this instance, critical habitat for ESA-listed species overlaps with EFH in its entirety and the effects to habitat described in the above opinion also address the anticipated effects to EFH. To summarize the adopted information, the actions will extend the period floodplain connectivity is reduced by about 30 years – the projected lifespan of the stabilized banks. Information in the BA suggests that floodplains would be unlikely to be reconnected even in the absence of these actions, given the presence of existing developments and the landowners' incentives to protect them. Maintaining reduced floodplain connectivity may have minor reductions in the complexity of habitat at the two work sites and there is some potential that the possible thermal refugia in the North Fork Salmon River's confluence plume (at Site 2) could be less complex with the action. The IDFG agreed to install willow plantings in the stabilized bank and the riprap will be large and placed to maximize interstitial space important for fish. These treatments are viewed as minor improvements over the eroding banks currently present and flat-graded riprap that provides very little space for fish.

Because the IDFG adopted NMFS' recommendations to make minor changes to the riprap treatment during pre-consultation NMFS determined that no Conservation Recommendations are necessary to avoid, minimize, or otherwise offset the impact of the proposed action on EFH. This concludes the MSA consultation.

The COE 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 NMFS' Snake River Basin Office.

You may contact Mr. Chad Fealko, Salmon Field Office at 208-768-7707 or chad.fealko@noaa.gov if you have any questions concerning this consultation, or if you require additional information.

Sincerely,

Nancy L Munn

Nancy L Munn
Acting Assistant Regional Administrator
Interior Columbia Basin Office

cc: J. Joyner – COE
E. Traher – USFWS
C. Colter – SBT
W. Schoby – IDFG
J. Richards – IDFG

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