UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
650 Capitol Mall, Suite 5-100
Sacramento, California 95814-4700

Refer to NMFS ECO #: WCR-2023-01945

December 20, 2023

Hillary Regnart
Project Manager, CA North Section
U.S. Army Corps of Engineers
1325 J Street
Sacramento, CA 95814-2922

Re: Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Del Rio Residence Rock Slope Protection Project

Dear Hillary:

This letter responds to your July 14, 2023, request for initiation of consultation with NOAA's 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 U.S. Army Corps of Engineers' (USACE) 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 here USACE's consultation request letter and the biological assessment as specified in the status of the species, action area, environmental baseline, effects, and cumulative effects sections below.

On July 14, 2023, NMFS' CCVO received a consultation initiation request letter (USACE 2023b) and biological assessment (BA) (USACE 2023a) from the U.S. Army Corps of Engineers (USACE) for the effects of the Del Rio Residence Rock Slope Protection Project on Sacramento River winter-run Chinook salmon evolutionarily significant unit (ESU), Central Valley (CV) spring-run Chinook salmon ESU, California Central Valley (CCV) steelhead distinct population segment (DPS), southern DPS of North American green sturgeon (sDPS green sturgeon), associated critical habitat for those listed species, and essential fish habitat (EFH) for Pacific salmon. Formal consultation was initiated on July 14, 2023. NMFS requested a due date extension on November 22, 2023. USACE agreed on November 29, 2023 to extend the due date to December 31, 2023.

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. On November 14, 2022, the Northern District of California issued an order granting the government's request for voluntary remand without vacating the 2019 regulations. The District Court issued a slightly amended order two days later on November 16, 2022. As a result, the 2019 regulations remain in effect, and we are applying the 2019 regulations here. For purposes of this consultation and in an abundance of caution, we considered whether the substantive analysis and conclusions articulated in the biological 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.

USACE proposes to issue a permit for the Del Rio Residence Rock Slope Protection Project. The project is located on the Sacramento River, Latitude 40.55798°, Longitude -122.37359°, within the City of Redding, Shasta County, California. The applicant is proposing to place rock slope protection (RSP) to protect against future erosion and prevent property loss. Approximately 145 cubic yards of RSP would be placed below the ordinary high-water mark (OHWM) of the Sacramento River. RSP would be placed to form a 1:1 slope on the bank of the river. At the southern end of the RSP placement area, a 60-inch-wide pedestrian path with rock steps would be constructed to provide river access. The proposed project's action area is 0.77 acres. There is approximately 0.45 acres of critical habitat for listed species within the action area. The project would require the removal of existing vegetation (0.02 acres) along the bank of the Sacramento River including herbaceous vegetation, shrubs, and young trees. Equipment required to complete the work would include trucks to haul and export material and an excavator with thumb attachment. The proposed project would permanently impact approximately 0.01 acres of the Sacramento River. The project is expected to take up to 15 workdays to complete. Work would occur as soon as authorized and when flows in the Sacramento River are low enough that the work area is naturally de-watered between October 1 to May 15.

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 value of that habitat. Section 4.6 of the BA is adopted here by reference and describes the status of the species and critical habitat for Sacramento River winter-run Chinook salmon, CV spring-run Chinook salmon, and sDPS green sturgeon. NMFS provides the following additional information regarding the status of the species. Further, NMFS also considered the species recovery plans (NMFS 2014, 2018).

Table 1. Description of species, current ESA listing classifications, and summary of species status

Species	Listing Classification and Federal Register Notice	Status Summary
Sacramento River winter-run Chinook salmon evolutionarily significant unit (ESU)	Endangered, 70 FR 37160; June 28, 2005	According to the NMFS 5-year species status review (NMFS 2016c), the status of the winter-run Chinook salmon ESU, the extinction risk has increased from moderate risk to high risk of extinction since the 2007 and 2010 assessments. Based on the Lindley et al. (2007) criteria, the population is at high extinction risk in 2019. High extinction risk for the population was triggered by the hatchery influence criterion, with a mean of 66 percent hatchery origin spawners from 2016 through 2018. Several listing factors have contributed to the recent decline, including drought, poor ocean conditions, and hatchery influence. Thus, large-scale fish passage and habitat restoration actions are necessary for improving the winter-run Chinook salmon ESU viability. The overall status of the SR winter-run Chinook salmon ESU likely has declined since the 2015 viability assessment (Williams et al. 2016) due to the recent increase in hatchery influence. Viability information since the 2015 viability assessment (SWFSC 2023) has been incorporated into the analysis of this consultation and will be reflected in the updated status review in 2024.

Species	Listing Classification and Federal Register Notice	Status Summary
Central Valley (CV) spring-run Chinook salmon ESU	Threatened, 70 FR 37160; June 28, 2005	According to the NMFS 5-year species status review (NMFS 2016b), the status of the CV spring-run Chinook salmon ESU, until 2015, has improved since the 2010 5-year species status review. The improved status is due to extensive restoration, and increases in spatial structure with historically extirpated populations (Battle and Clear Creeks) trending in the positive direction. Recent declines of many of the dependent populations, high pre-spawn and egg mortality during the 2012 to 2016 drought, uncertain juvenile survival during the drought are likely increasing the ESU's extinction risk (Williams et al. 2016). Monitoring data showed sharp declines in adult returns from 2014 through 2022 (CDFW 2023). Viability information since the 2015 viability assessment (SWFSC 2023) has been incorporated into the analysis of this consultation and will be reflected in an updated status review in 2022.

Species	Listing Classification and Federal Register Notice	Status Summary
California Central Valley (CCV) steelhead distinct population segment (DPS)	Threatened, 71 FR 834; January 5, 2006	According to the NMFS 5-year species status review (NMFS 2016a), the status of CCV steelhead appears to have remained unchanged since the 2011 status review that concluded that the DPS was in danger of extinction. Most natural-origin CCV populations are very small, are not monitored, and may lack the resiliency to persist for protracted periods if subjected to additional stressors, particularly widespread stressors such as climate change. The genetic diversity of CCV steelhead has likely been impacted by low population sizes and high numbers of hatchery fish relative to natural-origin fish. The life-history diversity of the DPS is mostly unknown, as very few studies have been published on traits such as age structure, size at age, or growth rates in CCV steelhead. While updated data on steelhead in the American River is mostly based on hatchery returns, natural spawning populations within the Sacramento tributaries have fluctuated, but showed a steady decline in the past 10 years (SWFSC 2023). Viability information since the 2015 viability assessment (Williams et al. 2016) has been incorporated into the analysis of this consultation (SWFSC 2023) and will be reflected in an updated status review in 2022.

Species	Listing Classification and Federal Register Notice	Status Summary
Southern DPS (sDPS) of North American green sturgeon	Threatened, 71 FR 17757; April 7, 2006	According to the NMFS 5-year species status review (NMFS 2015) and the 2018 final recovery plan (NMFS 2018), some threats to the species have recently been eliminated, such as take from commercial fisheries and removal of some passage barriers. Also, several habitat restoration actions have occurred in the Sacramento River Basin, and spawning was documented on the Feather River. However, the species viability continues to face a moderate risk of extinction because many threats have not been addressed, and the majority of spawning occurs in a single reach of the main stem Sacramento River. Current threats include poaching and habitat degradation. A recent method has been developed to estimate the annual spawning run and population size in the upper Sacramento River so species can be evaluated relative to recovery criteria (Mora et al. 2018). Although passage improvements have occurred at Fremont Weir and spawning events have been documented in the Feather and Yuba Rivers, no changes to the species status or threats are evident since the last review (NMFS 2021).

Table 2. Description of critical habitat, listing, and status summary.

Critical Habitat	Designation Date and Federal Register Notice	Description
Sacramento River winter-run (SR winter-run) critical habitat	June 16, 1993; 58 FR 33212	Designated critical habitat includes the Sacramento River from Keswick Dam (RM 302) to Chipps Island (RM 0) at the westward margin of the Sacramento-San Joaquin Delta (Delta); all waters from Chipps Island westward to the Carquinez Bridge, including Honker Bay, Grizzly Bay, Suisun Bay, and the Carquinez Strait; all waters of San Pablo Bay westward of the Carquinez Bridge; and all waters of San Francisco Bay north of the San Francisco-Oakland Bay Bridge from San Pablo Bay to the Golden Gate Bridge. The designation includes the river water, river bottom and adjacent riparian zones used by fry and juveniles for rearing. PBFs considered essential to the conservation of the species include: Access from the Pacific Ocean to spawning areas; availability of clean gravel for spawning substrate; adequate river flows for successful spawning, Incubation of eggs, fry development and emergence, and downstream transport of juveniles; water temperatures at 5.8–14.1°C (42.5–57.5°F) for successful spawning, egg incubation, and fry development; riparian and floodplain habitat that provides for successful juvenile development and survival; and access to downstream areas so that juveniles can migrate from spawning grounds to the San Francisco Bay and the Pacific Ocean. Although the current conditions of PBFs for SR winter-run critical habitat in the Sacramento River are significantly limited and degraded, the habitat remaining is considered highly valuable.

Critical Habitat	Designation Date and Federal Register Notice	Description
Central Valley spring-run Chinook salmon (CV spring-run) critical habitat	September 2, 2005; 70 FR 52488	Critical habitat for CV spring-run Chinook salmon includes stream reaches of the Feather, Yuba and American rivers, Big Chico, Butte, Deer, Mill, Battle, Antelope, and Clear creeks, the Sacramento River, as well as portions of the northern Delta. Critical habitat includes the stream channels in the designated stream reaches and the lateral extent as defined by the ordinary high-water line. In areas where the ordinary high-water line has not been defined, the lateral extent will be defined by the bankfull elevation. PBFs considered essential to the conservation of the species include: Spawning habitat; freshwater rearing habitat; freshwater migration corridors; and estuarine areas. Although the current conditions of PBFs for CV spring-run Chinook salmon critical habitat in the Central Valley are significantly limited and degraded, the habitat remaining is considered highly valuable.

Critical Habitat	Designation Date and Federal Register Notice	Description
California Central Valley steelhead (CCV steelhead) critical habitat	September 2, 2005; 70 FR 52488	Critical habitat for CCV steelhead includes stream reaches of the Feather, Yuba and American rivers, Big Chico, Butte, Deer, Mill, Battle, Antelope, and Clear creeks, the Sacramento River, as well as portions of the northern Delta. Critical habitat includes the stream channels in the designated stream reaches and the lateral extent as defined by the ordinary high-water line. In areas where the ordinary high-water line has not been defined, the lateral extent will be defined by the bankfull elevation. PBFs considered essential to the conservation of the species include: spawning habitat; freshwater rearing habitat; freshwater migration corridors; and estuarine areas. Although the current conditions of PBFs for CCV steelhead critical habitat in the Central Valley are significantly limited and degraded, the habitat remaining is considered highly valuable.

Critical Habitat	Designation Date and Federal Register Notice	Description
Southern distinct population segment of North American green sturgeon	October 9, 2009; 74 FR 52300	Critical habitat includes the stream channels and waterways in the Delta to the ordinary high water line. Critical habitat also includes the main stem Sacramento River upstream from the I Street Bridge to Keswick Dam, the Feather River upstream to the fish barrier dam adjacent to the Feather River Fish Hatchery, and the Yuba River upstream to Daguerre Dam. Critical habitat in coastal marine areas include waters out to a depth of 60 fathoms, from Monterey Bay in California, to the Strait of Juan de Fuca in Washington. Coastal estuaries designated as critical habitat include San Francisco Bay, Suisun Bay, San Pablo Bay, and the lower Columbia River estuary. Certain coastal bays and estuaries in California (Humboldt Bay), Oregon (Coos Bay, Winchester Bay, Yaquina Bay, and Nehalem Bay), and Washington (Willapa Bay and Grays Harbor) are included as critical habitat for sDPS green sturgeon. PBFs considered essential to the conservation of the species for freshwater and estuarine habitats include: food resources, substrate type or size, water flow, water quality, migration corridor; water depth, sediment quality. In addition, PBFs include migratory corridor, water quality, and food resources in nearshore coastal marine areas. Although the current conditions of PBFs for sDPS green sturgeon critical habitat in the Central Valley are significantly limited and degraded, the habitat remaining is considered highly valuable.

"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). USACE's consultation request letter describes the action area and is adopted here. NMFS provides the following additional information regarding the action area: the action area includes 100 feet beyond the construction footprint in all directions on the river side of the project.

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). Pages 2-3 of USACE'S consultation request letter describe the environmental baseline and is adopted here. NMFS provides the following additional information regarding the environmental baseline. In the NMFS recovery plan, the mainstem Sacramento River is classified as a core 1 population for winter-run Chinook salmon (possesses the known ability or potential to support a viable population), a core 2 population for CV spring-run Chinook salmon, and CCV steelhead (having a secondary potential to support recovery, relative to Core 1 populations), and represents the main spawning population for sDPS green sturgeon (NMFS 2014, 2018). The action area contains PBFs that support rearing and migration for Chinook salmon, steelhead, and sturgeon. Some spawning habitat may occur in the action area, though higher-quality spawning habitat is found further upstream for winter-run Chinook salmon and sDPS green sturgeon and in upper Sacramento River tributaries for CV spring-run Chinook salmon and CCV steelhead. The upper Sacramento River has a high value for the conservation of the species, because it supports several life stage functions for each of the four listed species.

Under the ESA, "effects of the action" are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (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 biological assessment provides a detailed discussion and comprehensive assessment of the effects of the proposed action to listed salmonids, critical habitat, and essential fish habitat in Section 5 of the initiation package, 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.

"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. Section 5.3 of the BA describes cumulative effects and is adopted here by reference.

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.

One major factor affecting threatened and endangered anadromous fish in the Central Valley and aquatic habitat at large is climate change. Central California has shown trends toward warmer winters since the 1940s (Dettinger and Cayan 1995). Projected warming is expected to affect Central Valley Chinook salmon, because the runs are restricted to low elevations as a result of impassable rim dams. Chinook salmon in the Central Valley are at the southern limit of their range, and warming will shorten the period in which the low elevation habitats used by naturally producing fall-run Chinook salmon are thermally acceptable. This would particularly affect fish that emigrate as fingerlings, mainly in May and June.

For winter-run Chinook salmon, the embryonic and larval life stages that are most vulnerable to warmer water temperatures occur during the summer, so this run is particularly at risk from climate warming. The only remaining population of winter-run Chinook salmon relies on the cold water pool in Shasta Reservoir, which buffers the effects of warm temperatures in most years. The exception occurs during drought years, which are predicted to occur more often with climate change (Yates et al. 2008). It is imperative for additional populations of winter-run Chinook salmon to be re-established into historical habitat in Battle Creek and above Shasta Dam for long-term viability of the ESU (NMFS 2014b).

Spring-run Chinook salmon adults are vulnerable to climate change, because they over-summer in freshwater streams before spawning in autumn (Thompson et al. 2011). Spring-run Chinook salmon spawn primarily in tributaries to the Sacramento River, and those tributaries without cold water refugia, usually provided by springs, will be more susceptible to impacts of climate change. In years of extended drought and warming water temperatures, unsuitable conditions may occur even in tributaries with cool water springs. Additionally, juveniles often rear in the natal stream for one to two summers prior to emigrating and would be susceptible to warming water temperatures.

Although steelhead will experience similar effects of climate change to Chinook salmon, as they are also blocked from the vast majority of their historic spawning and rearing habitat, the effects may be even greater in some cases, as juvenile steelhead need to rear in the stream for one to two summers prior to emigrating as smolts. In the Central Valley, summer and fall temperatures below the dams in many streams already exceed the recommended temperatures for optimal growth of juvenile steelhead. As stream temperatures warm due to climate change, the growth rates of juvenile steelhead could increase in some systems that are currently relatively cold, but potentially at the expense of decreased survival due to higher metabolic demands and greater presence and activity of predators. Stream temperatures that are currently marginal for spawning and rearing may become too warm to support wild steelhead populations.

Green sturgeon spawn primarily in the Sacramento River in the spring and summer. The Anderson-Cottonwood Irrigation District Dam (ACID) is considered the upriver extent of green sturgeon passage in the Sacramento River. The upriver extent of green sturgeon spawning, however, is approximately 30 kilometers downriver of ACID where water temperatures are

higher than at ACID during late spring and summer. Thus, if water temperatures increase with climate change, temperatures adjacent to ACID may remain within tolerable levels for the embryonic and larval life stages of green sturgeon, but temperatures at spawning locations lower in the river may be more affected. It is uncertain, however, if green sturgeon spawning habitat exists closer to ACID, which could allow spawning to shift upstream in response to climate change effects. Successful spawning of green sturgeon in other accessible habitats in the Central Valley (*i.e.,* the Feather and Yuba Rivers) is limited, in part, by late spring and summer water temperatures. Similar to salmonids in the Central Valley, green sturgeon spawning in the major lower river tributaries to the Sacramento River are likely to be further limited if water temperatures increase and suitable spawning habitat remains inaccessible.

In summary, observed and predicted climate change effects are generally detrimental to listed fish species (McClure 2011, Wade et al. 2013), so unless offset by improvements in other factors, the status of the species and critical habitat is likely to decline over time. The climate change projections referenced above cover the time period between the present and approximately 2100. While there is uncertainty associated with projections, which increases over time, the direction of change is relatively certain (McClure et al. 2013).

Sacramento River winter-run Chinook salmon ESU, CV spring-run Chinook salmon ESU, CCV steelhead DPS, and sDPS green sturgeon have experienced significant declines in abundance and available habitat in the California Central Valley relative to historical conditions. The status of the species details the current range-wide status of these ESUs and DPSs and their critical habitat. The environmental baseline describes the current baseline conditions found in the Sacramento River, where the proposed action is to occur. The beginning of the integration and synthesis section discusses the vulnerability of listed species and critical habitat to climate change projections in the California Central Valley and specifically in the Sacramento River. Reduced summer flows and increased water temperatures will likely be exacerbated by increasing surface temperatures in the Sacramento River. The Sacramento River is a highly manipulated system with flow and temperature regimes that differ drastically from their historical condition. Cumulative effects are likely to include decreased water flow, increased river traffic, and increased stormwater runoff from increased urbanization and from concurrent state and local projects in the action area.

Effects of the proposed action during construction to listed species and critical habitat are expected to be minimal, since work will occur when the area is naturally dewatered. Small numbers of listed fish are expected to be injured or killed if RSP falls as part of the placement process. Listed fish and critical habitat will be adversely affected due to the temporary and permanent impacts of 0.45 acres of critical habitat.

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 Sacramento River winter-run Chinook salmon, CV spring-run Chinook salmon, CCV steelhead, sDPS green sturgeon or destroy or adversely modify designated critical habitat.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. “Take” is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. “Harm” is further defined by regulation to include significant habitat modification or degradation that actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 222.102). “Harass” is further defined by 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 incidental take statement (ITS).

Amount or Extent of Take

In the biological opinion, NMFS determined that incidental take is reasonably certain to occur as follows: NMFS anticipates incidental take of adult and juvenile winter-run Chinook salmon, adult and juvenile CV spring-run Chinook salmon, adult and juvenile CCV steelhead, and adult and sub-adult sDPS green sturgeon as a result of the Del Rio Residence Rock Slope Protection Project. NMFS anticipates that listed fish will be harassed, harmed, or killed due to impacts directly related to increased sedimentation and turbidity, construction-related effects (machinery), and long-term permanent impacts from the riparian loss and placement of RSP.

Incidental take is expected to occur in the form of harassment, harm, or death. NMFS cannot precisely quantify and track the amount or number of individuals per species that are expected to be taken incidentally as a result of the proposed project. This is due to the variability and uncertainty associated with the response of listed species to the effects of the proposed action, the varying population size of each species, annual variations in the timing of migration, individual habitat use within the action area, and difficulty in observing injured or dead fishes. However, it is possible to estimate the extent of incidental take by designating as ecological surrogates, those elements of the project that are expected to result in incidental take. Ecological surrogates are more predictable and/or measurable and monitoring those surrogates will determine the extent to which incidental take is occurring. The most appropriate thresholds for incidental take are ecological surrogates of temporary and permanent habitat disturbance during the project construction activities.

(1) Harassment, harm, or death during construction 100 feet beyond the construction footprint in all directions on the river side of the project, including moving, removal, or addition of material into the active channel during prepping of the site and placement of RSP. Fish present in the action area would startle and move to adjacent deeper water resulting in increased predation and reduced survival. Small numbers of each species present and unable to avoid the construction site activities would be crushed and killed.

(2) Harm from temporary and permanent physical disturbance to a total area of 0.45 acres of critical habitat for listed species. Removal of vegetation is reasonably certain to result in harm to the species through modification or degradation of the PBFs for rearing and migration that will result in temporary displacement of individuals, permanent loss of cover, increased predation, and reduced growth due to decreased food inputs.

If any specific parameter of these ecological surrogates is exceeded, the anticipated incidental take levels described are also exceeded, triggering the need to reinitiate consultation.

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).

(1) USACE shall include the following in the permit:
    a. Measures shall be taken by the applicant to minimize impacts to riparian vegetation in the action area and its direct and indirect effects to critical habitat.

    b. Measures shall be taken by the applicant to ensure that contractors, construction workers, and all other parties involved with the project implement the BMPs as detailed in the BA and this opinion.

(2) Measures shall be taken by the applicant to monitor and provide NMFS with a report associated with the proposed action.

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. USACE 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(a):
    a. Equipment used for the project shall be thoroughly cleaned off-site to remove any invasive plant material or invasive aquatic biota prior to use in the action area.

b. Environmentally sensitive areas, sensitive plant species, and wetland areas shall be avoided during project activities to the maximum extent practicable. High visibility fencing shall be placed around these areas to minimize disturbance.

c. Soil and excavated material and/or fill material shall be stockpiled in existing clearings when possible.

d. Stockpiles shall be covered prior to a rain event or when there is a greater than 50 percent possibility of rain forecasted by the National Weather Service during the next 24 hours.

(2) The following terms and conditions implement reasonable and prudent measure 1(b):

a. USACE and the applicant shall provide a copy of this biological opinion to the construction crew, making them responsible for implementing all requirements and obligations included in this document and for educating and informing all other contractors involved in the project as to the requirements of this opinion. A notification that the construction crew have been supplied with this information shall be provided to the reporting email address below. A copy of this opinion shall be available on-site at all times during work activity.

(3) The following terms and conditions implement reasonable and prudent measure 2:

a. The applicant shall submit to NMFS an annual report describing the incidental take resulting from the proposed project. This shall include any fishes known to have been killed or injured during project activities. This report shall be filed no later than June 30th following the construction window. The report should be submitted, preferably by email, to the following:

Email: ccvo.consultationrequests@noaa.gov
Cathy Marcinkevage
Assistant Regional Administrator
California Central Valley Office
National Marine Fisheries Service
650 Capitol Mall, Suite 5-100
Sacramento CA 95814
Phone: (916) 930-3600
FAX: (916) 930-3629

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) USACE should encourage their applicants to minimize any potential take whenever possible, and implement practices that avoid or minimize negative impacts to salmon, steelhead, sturgeon, and their critical habitat.

(2) USACE and the applicant should support and promote aquatic and riparian habitat restoration within the Sacramento River and other watersheds, especially those with listed aquatic species. Practices that avoid or minimize negative impacts to listed species should be encouraged.
(3) USACE should require the purchase of mitigation credits for permanent impacts to critical habitat.

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."

NMFS also reviewed the proposed action for potential effects on essential fish habitat (EFH) designated under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), including conservation measures and any determination you made regarding the potential effects of the action. This review was conducted pursuant to section 305(b) of the MSA, implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation. 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)).

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

We conclude that the following adverse effects on EFH designated for Pacific Coast Salmon are reasonably certain to occur (affected habitat areas of particular concern (HAPCs) are indicated by number: (1) complex channels and floodplain habitats, (2) thermal refugia, and (3) spawning habitat.).

(1) Physical Disturbance Effects
    a. Reduced habitat complexity (1)
    b. Degraded water quality (1, 2, 3)
(2) Disturbance to Riparian Vegetation
    a. Reduced shade (2, 3)
    b. Reduced supply of terrestrial food resources (1)
    c. Reduced supply of LWM (1)
(3) Disturbance to Riverine Habitat
    a. Reduced habitat complexity (1)
    b. Degraded water quality (1, 2, 3)
    c. Reduction in aquatic macroinvertebrate production (1)

NMFS determined that the following conservation recommendations are necessary to avoid, minimize, mitigate, or otherwise offsets the impact of the proposed action on EFH.

(1) To protect HAPC #1 (complex channels and floodplain habitats), NMFS recommends that USACE and the applicant adopt term and condition 1.
(2) To protect HAPC #2 (thermal refugia), NMFS recommends that USACE and the applicant adopt term and condition 1.
(3) To protect HAPC #3 (spawning habitat), NMFS recommends that USACE and the applicant adopt term and condition 1.
(4) NMFS recommends that USACE and the applicant should adopt the ESA section 7(a)(1) conservation recommendations suggested above to protect HAPCs 1-3.
(5) NMFS recommends that the applicant purchase riparian and/or riverine mitigation credits at a NMFS-approved conservation bank to offset impacts to HAPCs 1-3. NMFS recommends purchasing mitigation credits at a ratio of 1:1 for the 0.45 acres of temporary impacts to critical habitat and a ratio of 3:1 for the 0.01 acres of permanent impacts to riverine habitat.

As required by section 305(b)(4)(B) of the MSA, USACE 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)).

USACE 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 concludes the MSA consultation.

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/). A complete record of this consultation is on file at the NMFS California Central Valley Office, in Sacramento, California.

Please direct questions regarding this letter to Neal McIntosh in the California Central Valley Office at neal.mcintosh@noaa.gov or 916-930-5647.

Sincerely,

A. Catherine Marcinkevage

Cathy Marcinkevage
Assistant Regional Administrator for
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Enclosure

cc: ARN 151422-2023-SA00041
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