UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
777 Sonoma Avenue, Room 325
Santa Rosa, California 95404-4731

November 30, 2023 **Refer to NMFS No:** WCR-2023-00856

Anthony S. Hammett, Colonel
U.S. Army Chief
G-9 Army National Guard
National Guard Bureau
111 South George Mason Drive
Arlington, Virginia 22204-1373

Re: Endangered Species Act Section 7(a)(2) Biological Opinion for the Camp Roberts High-Water Bridge Construction and Maintenance Project

Dear Colonel Hammett:

Thank you for your letter of June 2, 2023, requesting 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 Camp Roberts High-Water Bridge Construction and Maintenance Project (Project). This consultation was conducted in accordance with the 2019 revised regulations that implement section 7 of the ESA (50 CFR 402, 84 FR 45016).

In the enclosed biological opinion, NMFS concludes the proposed action is not likely to jeopardize the continued existence of threatened South-Central California Coast (S-CCC) steelhead. However, NMFS anticipates take of S-CCC steelhead will occur as a result of project activities. An incidental take statement with non-discretionary terms and conditions is included with the enclosed biological opinion.

Please contact Yvette Redler-Medina of the NMFS Central Coast Office in Santa Cruz, California at (916) 539-7066, or yvette.redler-medina@noaa.gov if you have any questions concerning this consultation, or if you require additional information.

Sincerely,

Alecia Van Atta
Assistant Regional Administrator
California Coastal Office

Enclosure

cc: Paige Ferrell, Senior Environmental Scientist, CA Army National Guard
paige.k.farrell.nfg@army.mil
e-file FRN 151422WCR2023SR00126

Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion

Camp Roberts High-Water Bridge Construction and Maintenance Project

NMFS Consultation Number: WCRO-2023-00856
Action Agency: Department of Defense, Army National Guard

Affected Species and NMFS' Determinations:

ESA-Listed Species	Status	Is Action Likely to Adversely Affect Species?	Is Action Likely to Jeopardize the Species?	Is Action Likely to Adversely Affect Critical Habitat?	Is Action Likely to Destroy or Adversely Modify Critical Habitat?
South-Central California Coast Steelhead (*Oncorhynchus mykiss*)	Threatened	Yes	No	N/A	N/A

Consultation Conducted By: National Marine Fisheries Service, West Coast Region

Issued By:

Alecia Van Atta
Assistant Regional Administrator
California Coastal Office

Date: November 30, 2023

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1. INTRODUCTION

This Introduction section provides information relevant to the other sections of this document and is incorporated by reference into Sections 2 and 3, below.

1.1. Background

NOAA's National Marine Fisheries Service (NMFS) prepared the biological opinion (opinion) and incidental take statement (ITS) portions of this document in accordance with section 7(b) of the Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531 et seq.), as amended, and implementing regulations at 50 CFR part 402.

We completed pre-dissemination review of this document using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (DQA) (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The document will be available within two weeks at the NOAA Library Institutional Repository [https://repository.library.noaa.gov/welcome]. A complete record of this consultation is on file at California Coastal NMFS office.

1.2. Consultation History

On June 2, 2023, NMFS received a request for formal consultation pursuant to section 7 of the ESA from the U.S. Department of Army National Guard Installations and Environment Directorate (ARNG G-9) for bridge work in an area where threatened South-Central California Coast (S-CCC) Distinct Population Segment (DPS) steelhead have been documented in the Nacimiento River on Camp Roberts, Monterey County, California. The consultation package included the Camp Roberts High Water Bridge Biological Assessment (BA) (Padre Associates 2023). In their request for consultation, ARNG G-9 designated the California Army National Guard (CA-ARNG) as the non-federal representative to conduct the consultation per 50 CFR §402.08 and acknowledged ultimate responsibility for compliance with section 7 of the ESA remains with ARNG G-9.

On June 9, 2023, NMFS requested more information by email to CA-ARNG on streamflows within the action area and project and restoration components. CA-ARNG responded to NMFS by email on July 18, 2023 and provided the draft Camp Roberts High Water Bridge Restoration Plan (Padre Associates 2023a). NMFS initiated formal consultation on July 18, 2023.

Between July 2023 and September 2023, NMFS and CA-ARNG corresponded on several aspects of the Project that involved status and distribution of S-CCC steelhead and suitable habitat in the action area and upper Nacimiento River. Supplemental material provided in the correspondence included a juvenile steelhead habitat availability and use report (Stillwater Sciences 2021).

Between November 6 through November 9, 2023, NMFS requested clarification from CA-ARNG regarding placement of large wood material and bank stabilization during the dewatering phase of construction activities.

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.

1.3. Proposed Federal Action

Under the ESA, "action" means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies (see 50 CFR 402.02).

The CA-ARNG proposes to conduct maintenance and repair activities at the High-Water Bridge (Bridge) on the lower Nacimiento River a tributary to the Salinas River located within the Camp Roberts Army Base. The Project consists of several distinct components including bridge bent foundation repairs and maintenance (to include river diversion and dewatering), access road construction (temporary and permanent), fire break establishment and annual vegetation maintenance. CA-ARNG also proposes to implement wetland mitigation to offset wetland impacts from road construction. The Project is needed to: restore structural integrity to the Bridge; provide permanent access roads for transport; and create fire breaks.

The Project will require two construction seasons in which dewatering and bent foundation repair activities will occur on opposite sides of the river in consecutive years and last approximately 3 months (90 days) during each construction window (June 15-October 15). Construction of the access road will take approximately 20 days during the first construction year only. The establishment of fire breaks will take approximately 10 days. Vegetation and maintenance activities, including fire break maintenance, would occur annually once the construction phase is complete.

1.3.1. Bridge Foundation Repairs.

Bridge foundation repairs are needed to maintain structural integrity. The foundations have been scoured from turbulent waters. In some locations, there is a three to five-foot gap between the underside of the bridge foundations and the streambed. Repair of the bent foundations would extend future use of the bridge for training activities and emergency response for Camp Roberts.

After diversion and dewatering activities, debris at the bridge bent foundations and within the dewatered area will be removed. The top two feet of the streambed (260 cubic yards) will be salvaged and stockpiled so it can be replaced once the repairs are complete. Approximately 3,250 cubic yards of non-structural, soft sediment will be excavated from areas upstream and downstream of the bridge footings. Once the material is removed, the bent foundation concrete

footing extensions will be formed, 300 cubic yards of concrete will be poured around the footing extensions, and then 3,900 cubic yards of rip rap will be placed for scour control. Finally, the native streambed material will be replaced and restored.

As stated above, the bent foundation repair is scheduled to be completed in two construction seasons. Each phase would include one month for dewatering staging and installation, one month for foundation repair and concrete curing, and one month to remove the diversion and to restore the site. Bridge foundation repairs would coincide with construction of the temporary and permanent access roads and initial establishment of fire break areas.

Maintenance activities include occasional debris removal from the bent footings. Debris accumulation is dependent on storm events and is likely to vary from year to year. To remove debris, hand crews will operate from existing platforms while the excavator will be operated near the road prism and bridge deck or from locations on the upper bank of the Nacimiento River, above ordinary high-water line. Various attachments (i.e., cables, straps, poles, hooks, chains) will be attached to an excavator arm to dislodge and lift logs. Logs located above water level will be directly lifted out using the excavator's bucket and thumb, if possible, and either dislodged so they may continue downstream or saved for future use. Debris removal will focus on the larger pieces that are not able to make their way through the bents of the bridge. Smaller debris is expected to be dislodged and then float downstream.

Equipment required to install dewatering and perform bent foundation repair and maintenance work would include, but not be limited to, an excavator/loader, dump truck, chain saws, vibratory compactor, concrete truck, and water truck for dust control up to the edge of the river.

1.3.2. Project Area Diversion/Dewatering.

Bent foundation repair would require a diversion to isolate the in-channel construction work from flowing or standing surface waters of the Nacimiento River. Approximately 175 linear feet would be dewatered on the eastern bank and 205 linear feet on the western bank. The Project is anticipated to incorporate an open channel, partial width, configuration where water is constrained to a portion of the existing river channel width while the remainder of the channel is kept dry for construction work. To minimize disturbance, the proposed diversion method would be limited to cofferdams, sheet-pile system, or a combination thereof to isolate the construction work area from the river (Figure 1).

The upstream section of the cofferdam would be constructed first and continuing towards the downstream end and will be installed to reduce sedimentation, siltation, or erosion upstream or downstream of the Project area. Plastic sheeting may be used to minimize water seepage into and out of the construction area and would be firmly anchored, using sandbags, to the riverbed. When possible, timing of the cofferdam installation would be coordinated with the Nacimiento Dam operations so that installation coincides with minimum water releases from the dam, and thus, lower streamflow conditions at the project site.

Once water diversion structures are in place, the contractor would install any necessary bank energy dissipators (i.e., riprap or other material to stabilize banks) to prevent erosion on the bank of the non-dewatered side of the river. Temporary erosion control material will be placed only on

the exposed bank outside of the river channel. The extent and type of erosion control will be dependent on the flow in the river at the time of construction. Dewatering pumps would then be used to dewater the enclosed construction area. Pump intakes would be fitted with fish screens to prevent accidental take of wildlife during dewatering operations. Appropriately sized pumps and piping would be used to remove any standing water left within the construction area after the diversion has been installed.

All water diversion cofferdams and dewatering pumps, piping, and tanks would remain in place and functional throughout the in-channel construction periods. When all work within the construction area is complete and no further access to the channel is required, the temporary water diversion and dewatering systems will be removed. This would occur prior to October 15 of each construction season. Prior to removal of cofferdams, all unnecessary equipment, material, and debris would be removed from the channel. Cofferdams would be removed using the least impactful equipment available to perform the task taking particular care to avoid introducing pollutants into the channel. The water diversion cofferdam would be removed starting with the downstream portion. The upstream portion of the cofferdam would be removed in such a way as to provide a gradual restoration of flow to the channel to avoid a surge of water that may cause erosion and scouring. The contractor will continually monitor water flow within the channel to ensure that no downstream scour or erosion takes place. Energy dissipation applied to the non-dewatered side of the river would be removed, and discharge locations would be restored to their pre-construction condition.

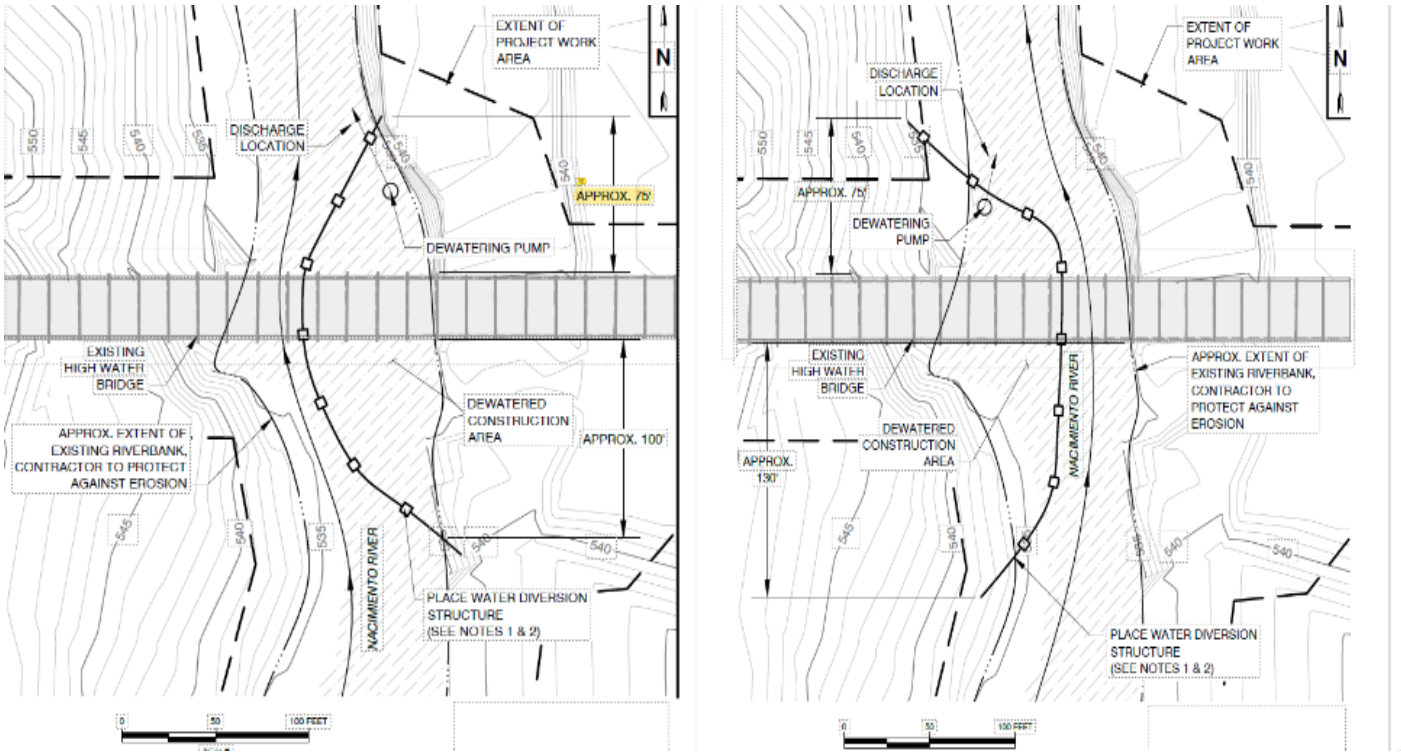

Figure 1. Eastern and Western Diversion and Dewatering Site Plans

1.3.3. Access Roads

1.3.3.1 Temporary Access Roads

A temporary dirt access road will be constructed to perform bridge bent foundation repairs on the western bank of the Nacimiento River. The temporary access road will be approximately 20 feet wide and extend from a permanent road (Tower Road) to the western bank of the river. The temporary access road is anticipated to be constructed by clearing and grubbing any existing vegetation within the area. Minor earth movement may be required to remove small holes or mounds to provide a smooth earthen travel surface for construction equipment into the bent foundation repair work area.

Equipment used to construct the temporary access road may include a bush hog to remove vegetation and a backhoe loader to define a smooth travel surface. The temporary access road would be returned to natural conditions after completion of Project activities.

1.3.3.2 Permanent Access Road

A permanent gravel access road would be constructed to provide access for bent foundation repairs and to facilitate debris removal and other future maintenance activities for the Bridge and adjacent embankments on the eastern bank of the Nacimiento River. The access road would be 330 feet long and 15 feet wide with a maximum turn-around radius of 10,600 square feet, for a total area of 15,550 square feet.

Construction of the access road would require 750 cubic yards of excavation to clear and grub the construction area of vegetation, debris, and rocks. A total of 850 cubic yards of fill material would be used to construct the access road, including 350 cubic yards of gravel base. The gravel base would consist of 6-inch thick 0.75-inch crushed rock with a minimum of 6-inch thick geocell. Construction of the access road would take approximately 20 days.

Equipment required to construct the access road would include, but not be limited to, a front-end loader to move soil, an excavator to pick up debris, a dump truck to haul off debris and import soil and gravel, compactor and/or roller, and use of a water truck for dust control.

The permanent access road would remain in place to provide equipment and vehicle access for future fire break vegetation removal and ongoing bridge maintenance activities. The permanent access road would result in loss of 0.24 acre of cottonwood habitat and 0.35 acre of sandbar willow riparian/wetland habitat and therefore the creation of new or restored habitat has been included in the Project to offset these impacts and is described below.

1.3.3.3 Fire Break Areas

Four distinct fire breaks would be established near the Bridge to reduce the vegetation fuels in the vicinity of the Bridge (Figure 2). Initial fire break establishment would consist of vegetation clearing during the Project and would continue annually as needed. The fire break areas would be maintained by hand or through use of a tracked excavator with a brush hog attachment and low impact road tracks. The tracked excavator would drive into the fire break areas on both sides of the Bridge and would grind/mulch the brush and trees in place down to a height of about four to six inches in order maintain the three-foot maximum height of vegetation. No disturbance to the roots is expected. Areas of the fire breaks that are not accessible to the excavator will be maintained with hand tools such as weed whips, chainsaws, and loppers. Vegetation maintenance would occur on an annual basis, in September or later, outside of nesting bird season (February 1 through August 31). The dimensions of the four fire breaks include:

- Northwest bank – 125 feet by 25 feet (3,125 square feet [sq.ft.], 0.072 acres [ac]),
- Southwest bank – 132 feet 7 inches by 25 feet (3,314.58 sq.ft., 0.076 ac),
- Northeast bank – 331 feet 6 inches by 25 feet (8,287.5 sq.ft., 0.190 ac),
- Southeast bank – 324 feet 6 inches by 25 feet (8,112.5 sq.ft., 0.186 ac).

1.3.4. Wetland Mitigation

The permanent gravel access road and routinely maintained fire breaks will permanently impact riparian and wetland vegetation communities and therefore re-establishment and creation of riparian and wetland habitat has been included in this Project to offset impacts. The mitigation plan goal is rehabilitation of plant communities at a 1:1 ratio to prevent loss of habitat from temporary impacts and re-establishment or creation of plant communities at a 2:1 (riparian) and 3:1 (wetland) replacement ratio to offset permanent impacts. The compensatory mitigation for the permanently impacted area will include lowering the elevation to create additional aquatic habitat and removal of man-made barriers, concrete fill, and debris within and adjacent to the Nacimiento River. This approach will result in approximately 1.31 acres of additional aquatic habitat located within the same watershed as the Project disturbance footprint. This habitat

conversion mitigation strategy will increase aquatic resource area and function within the Project vicinity (Figure 2).

The focus of this wetland mitigation is to restore areas temporarily disturbed by Project activities to pre-disturbance native habitat (Restoration Areas) and re-establish or create new areas of riparian and wetland habitat (Mitigation Areas). Restoration activities at the Restoration and Mitigation Areas will include erosion control including use of fiber rolls, silt fencing and ground mulch cover as needed. Additional activities include native seed application, installation of container stock/cuttings, irrigation, and non-native plant removal. A maintenance and monitoring program with performance criteria for successful establishment of native plantings will occur over five years. Additional details can be found in the draft mitigation plan (Padre Associates, 2023).

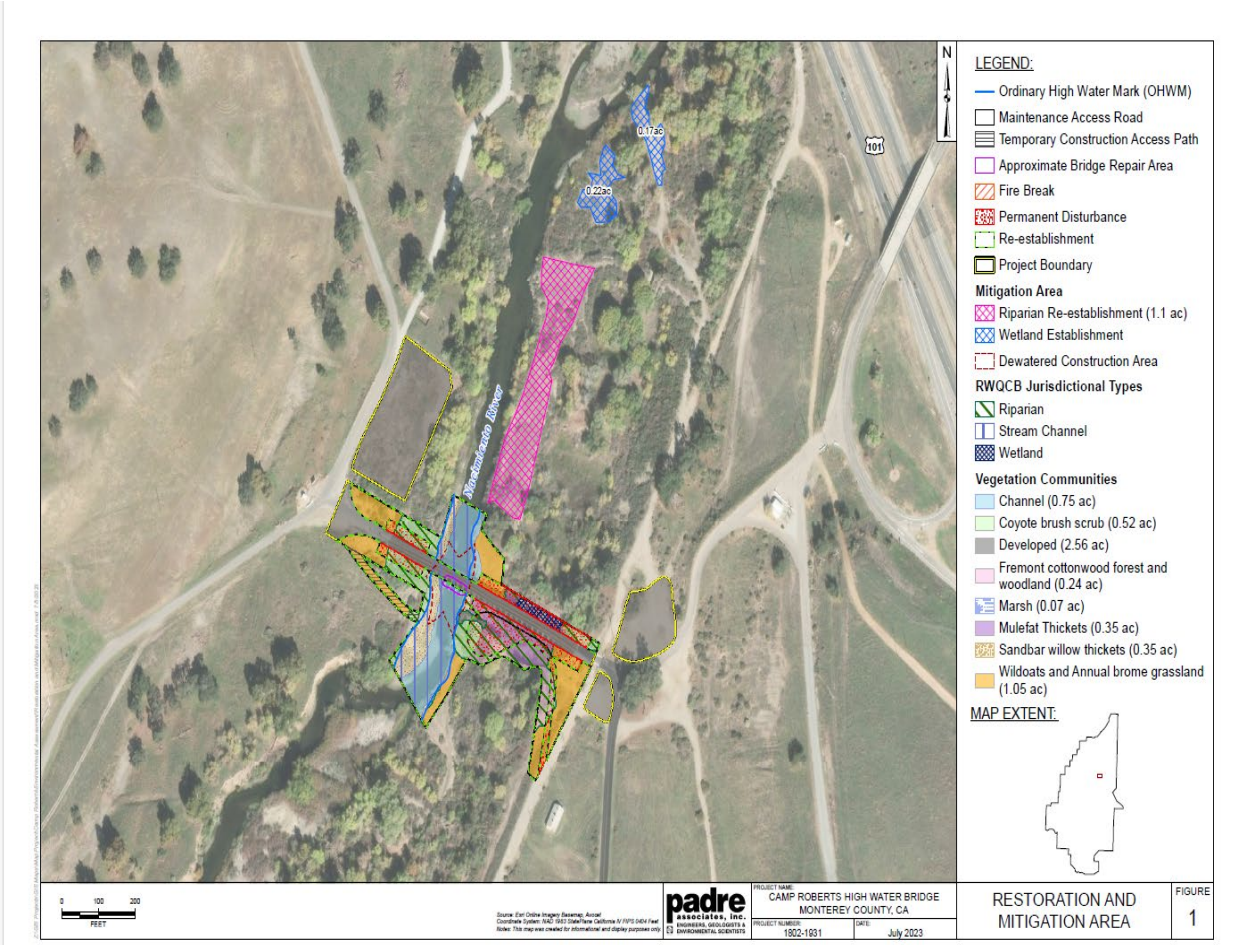

Figure 2. Construction, Restoration and Mitigation Area for the High-Water Bridge Project.

1.3.5. Avoidance and Minimization Measures (AMMs)

The Project includes several measures that are intended to avoid or minimize impact to S-CCC steelhead and associated habitat. Described below is the detailed steelhead relocation plan and general construction AMMs relevant to steelhead habitat.

1.3.5.1 Steelhead Relocation Plan

The following measures will be implemented to ensure timely and efficient capture and relocation of S-CCC steelhead during the Project diversion and dewatering period:

- Pre-activity snorkel and/or bank surveys of the riverine habitat within the project area shall be performed no more than 10 days prior to Project implementation. The survey area shall extend 50 feet upstream and downstream of temporary diversion dams, and along the bypass route for the purpose of identifying and quantifying steelhead presence in the project area. The pre-activity survey shall also include identification of plunge pools, scour pools, undercut banks, or other habitat features with potential to support steelhead. The survey would be performed by a qualified, NMFS-approved biologist;

- Prior to conducting diversion activities, suitable relocation pools upstream of the project area shall be identified by the qualified biologist. An appropriate number of relocation pools shall be identified based on the estimated number of steelhead to be relocated to avoid overcrowding and competition for resources. Relocation pools shall contain suitable depth, dissolved oxygen concentrations, temperature, and in-stream cover to promote survival;

- A qualified, NMFS-approved biologist will be present during the installation and removal of temporary dams, and all stream diversion-related activities to monitor streamflow and capture stranded steelhead or other native fish species. Temporary dams shall be installed with adequate freeboard height to avoid fish passage into the dewatered work area and limit nuisance water to the greatest extent practicable;

- Steelhead captured for relocation shall be held in aerated buckets filled immediately prior to capture. Holding time shall be minimized to the greatest extent practicable. Protocols for the capture, handling, and release of fish will be developed and approved in coordination with NMFS and CA ARNG prior to implementation. The qualified biologist will notify NMFS within 24 hours if any steelhead are found dead or injured. Relocated steelhead will be enumerated by quantity, size, and life stage;

- Non-native fish species and/or other invasive species captured during the dewatering operations will be removed from the project area and dispatched humanely to avoid attracting wildlife into the work area;

- Dewatering equipment such as intake hoses will be equipped with screens with a mesh size not to exceed 3/32 inch (2.38 millimeters);

- Appropriate modifications shall be made to the designated bypass route through minor grading, vegetation trimming, and debris removal to maintain adequate base flows and connectivity to the downstream section of river;

- The qualified, NMFS-approved biologist shall evaluate the river bypass route during modifications and recommend minor trimming or removal of vegetation which may be

impeding flows, fish passage, or the ability to adequately monitor the route for stranded fish;

- Prior to project implementation, CA ARNG will notify MCWRA of project activities and scheduling for diversion of the Nacimiento River to identify any anticipated changes in releases or other actions associated with the Nacimiento Lake Dam operation which may inhibit continual downstream flows in the project area;

- Prior to installing the upstream flow diversion, temporary sandbag berms and the downstream dam will be in place to minimize backwatering into the work area, interruption of normal downstream water flows, or reduction of downstream river volumes;

- Subject to the sufficiency of ambient conditions, fish passage shall be maintained by ensuring contiguous flows and water velocities during the duration of the diversion. The bypass route shall avoid creation of vertical drops more than 6 inches, or shallow areas less than ambient depth of the channel at the time of diversion installation;

- The qualified biologist shall have the ability to halt work and recommend measures for avoiding adverse effects to steelhead and their habitat throughout the duration of the project.

1.3.5.2 General construction AMMs relevant to steelhead habitat and water quality

- An environmental briefing outlining the biology and life history of steelhead will be provided to Camp Roberts' employees and contractors;

- Hand powered equipment (e.g., chainsaws) used near waterways will use vegetable-based lubricants or water as primary lubricant;

- Spill kits will be on-site during project activities and all workers will be briefed on appropriate spill containment procedures;

- Equipment will be inspected for leaks and excess dirt and debris will be removed from equipment prior to debris removal activities;

- Maintenance and fueling of construction equipment and vehicles will occur at least 15 meters from the ordinary high-water line or edge of sensitive habitats;

- Recovered large woody debris will be either dislodged and float downstream, or offered to other entities for use in mitigation restoration projects where practical. CA ARNG may also retain the large logs for possible utilization in future fish habitat restoration projects.

We considered, under the ESA, whether or not the proposed action would cause any other activities and determined that it would not.

2. ENDANGERED SPECIES ACT: BIOLOGICAL OPINION AND INCIDENTAL TAKE STATEMENT

The ESA establishes a national program for conserving threatened and endangered species of fish, wildlife, plants, and the habitat upon which they depend. As required by section 7(a)(2) of the ESA, each Federal agency must ensure that its actions are not likely to jeopardize the continued existence of endangered or threatened species or to adversely modify or destroy their designated critical habitat. Per the requirements of the ESA, Federal action agencies consult with NMFS, and section 7(b)(3) requires that, at the conclusion of consultation, NMFS provide an opinion stating how the agency's actions would affect listed species and their critical habitats. If incidental take is reasonably certain to occur, section 7(b)(4) requires NMFS to provide an ITS that specifies the impact of any incidental taking and includes reasonable and prudent measures (RPMs) and terms and conditions to minimize such impacts.

2.1. Analytical Approach

This biological opinion includes both a jeopardy analysis and an adverse modification analysis. The jeopardy analysis relies upon the regulatory definition of "jeopardize the continued existence of" a listed species, which is "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR 402.02). Therefore, the jeopardy analysis considers both survival and recovery of the species.

This biological opinion also relies on the regulatory definition of "destruction or adverse modification," which "means a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species" (50 CFR 402.02).

The designation(s) of critical habitat for S-CCC steelhead use(s) the term primary constituent element (PCE) or essential features. The 2016 final rule (81 FR 7414; February 11, 2016) that revised the critical habitat regulations (50 CFR 424.12) replaced this term with physical or biological features (PBFs). The shift in terminology does not change the approach used in conducting a "destruction or adverse modification" analysis, which is the same regardless of whether the original designation identified PCEs, PBFs, or essential features. In this biological opinion, we use the term PBF to mean PCE or essential feature, as appropriate for the specific critical habitat.

The ESA Section 7 implementing regulations define effects of the action using the term "consequences" (50 CFR 402.02). As explained in the preamble to the final rule revising the definition and adding this term (84 FR 44976, 44977; August 27, 2019), that revision does not change the scope of our analysis, and in this opinion we use the terms "effects" and "consequences" interchangeably.

We use the following approach to determine whether a proposed action is likely to jeopardize listed species or destroy or adversely modify critical habitat:

- Evaluate the rangewide status of the species and critical habitat expected to be adversely affected by the proposed action.
- Evaluate the environmental baseline of the species and critical habitat.
- Evaluate the effects of the proposed action on species and their critical habitat using an exposure–response approach.
- Evaluate cumulative effects.
- In the integration and synthesis, add the effects of the action and cumulative effects to the environmental baseline, and, in light of the status of the species and critical habitat, analyze whether the proposed action is likely to: (1) directly or indirectly reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species; or (2) directly or indirectly result in an alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species.
- If necessary, suggest a reasonable and prudent alternative to the proposed action.

2.2. Rangewide Status of the Species

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, 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. The opinion also examines the condition of critical habitat throughout the designated area, evaluates the conservation value of the various watersheds and coastal and marine environments that make up the designated area, and discusses the function of the PBFs that are essential for the conservation of the species.

2.2.1. Status of S-CCC steelhead DPS

Populations of S-CCC steelhead throughout the DPS have exhibited a long-term, negative trend since at least the mid-1960s when spawning populations were estimated at 17,750 individuals (Good et al. 2005). Available information shows S-CCC steelhead population abundance continued to decline from the 1970s to the 1990s (Busby et al. 1996), and more recent data indicate this trend continues (Good et al. 2005). Current S-CCC steelhead run-size estimates in the five largest systems of the DPS (Pajaro River, Salinas River, Carmel River, Little Sur River, and Big Sur River) are likely greatly reduced from 4,750 adults in 1965 (CDFG 1965). More recent estimates for total run-size do not exist for the S-CCC steelhead DPS (Good et al. 2005; Williams et al. 2016) as few comprehensive or population monitoring programs are in place.

Analyses conducted by the S-CCC steelhead Technical Review Team (TRT) indicate the S-CCC steelhead DPS consists of 12 discrete sub-populations representing localized groups of interbreeding individuals, and none of these sub-populations currently meet the definition of viable (Boughton et al. 2006; Boughton et al. 2007). Most of these sub-populations are characterized by low population abundance, variable or negative population growth rates, and reduced spatial structure and diversity. The Pajaro River and Salinas River populations are in particularly poor condition (relative to watershed size) and exhibit a greater lack of viability than many of the coastal subpopulations. Groundwater extraction and dam releases are primary

stressors to life history and habitat requirements particularly in agricultural areas of the Salinas and Pajaro watersheds (NMFS 2013). In the Carmel River there has been a variable but consistent decline in abundance of anadromous adults (Williams et al. 2016; Boughton 2017). The decline is somewhat unexpected because it coincides with a concentrated effort to restore the habitat in the Carmel River and to improve numbers through a rescue/captive rearing operation (Williams et al. 2016). This decline could indicate an increase in S-CCC steelhead DPS extinction risk (Williams et al. 2016).

Although steelhead are present in most streams in the S-CCC DPS (Good et al. 2005), their populations are small, fragmented, and unstable (more subject to stochastic events) (Boughton et al. 2006). In addition, severe habitat degradation and the compromised genetic integrity of some populations pose a serious risk to the survival and recovery of the S-CCC steelhead DPS (Good et al. 2005). NMFS' 2005 status review concluded S-CCC steelhead remain "likely to become endangered in the foreseeable future" (Good et al. 2005). NMFS confirmed the listing of the S-CCC steelhead DPS as threatened under the ESA on January 5, 2006 (January 5, 2006; 71 FR 834).

In the most recent status update (NMFS 2023), NMFS concluded there was no evidence to suggest the status of the S-CCC steelhead DPS has changed appreciably since the publication of the previous status review (Williams et al. 2016), therefore, the S-CCC steelhead DPS remains listed as threatened (NMFS 2023; 84 FR 53117).

Critical habitat for S-CCC steelhead is not designated in the Nacimiento River within the boundaries of Camp Roberts. Camp Roberts was exempted from the 2004 proposed steelhead Critical Habitat designation (71 Federal Register 52523 [02 September 2005]), in accordance with the ESA (16 U.S.C. § 4[a][3]) because Camp Roberts had prepared a qualifying Integrated Natural Resource Management Plan (INRMP) which guides steelhead management on the installation.

2.2.2. Global Climate Change

Another factor affecting the rangewide status of S-CCC steelhead and aquatic habitat at large is climate change. Impacts from global climate change are already occurring in California. For example, average annual air temperatures, heat extremes, and sea level have all increased in California over the last century (Kadir et al. 2013). While snow melt from the Sierra Nevada has declined, total annual precipitation amounts have shown no discernable change (Kadir et al. 2013). S-CCC steelhead may have already experienced some detrimental impacts from climate change. NMFS believes the impacts on listed salmonids to date are likely fairly minor because natural, and local, climate factors likely still drive most of the climatic conditions steelhead experience, and many of these factors have much less influence on steelhead abundance and distribution than human disturbance across the landscape. In addition, S-CCC steelhead are not dependent on snowmelt driven streams and thus not affected by declining snow packs.

The threat to S-CCC steelhead from global climate change will increase in the future. Modeling of climate change impacts in California suggests that average summer air temperatures are expected to continue to increase (Lindley et al. 2007; Moser et al. 2012). Heat waves are expected to occur more often, and heat wave temperatures are likely to be higher (Hayhoe et al.

2004; Moser et al. 2012; Kadir et al. 2013). Total precipitation in California may decline; critically dry years may increase (Lindley et al. 2007; Schneider 2007; Moser et al. 2012). Wildfires are expected to increase in frequency and magnitude (Westerling et al. 2011; Moser et al. 2012).

In the San Francisco Bay region, warm temperatures generally occur in July and August, but as climate change takes hold, the occurrences of these events will likely begin in June and could continue to occur in September (Cayan et al. 2012). Climate simulation models project that the San Francisco region will maintain its Mediterranean climate regime, but experience a higher degree of variability of annual precipitation during the next 50 years and years that are drier than the historical annual average during the middle and end of the twenty-first century. The greatest reduction in precipitation is projected to occur in March and April, with the core winter months remaining relatively unchanged (Cayan et al. 2012).

2.2.3. Life History of S-CCC Steelhead DPS

Steelhead are anadromous forms of *O. mykiss*, spending some time in both fresh- and saltwater. The older juvenile and adult life stages reside in the ocean, until the adults ascend freshwater streams to spawn. Unlike Pacific salmon, steelhead are iteroparous, or capable of spawning more than once before death (Busby et al. 1996; Moyle 2002). Although one-time spawners are the great majority, Shapovalov and Taft (1954) reported that repeat spawners are relatively numerous (17.2 percent) in California streams. Eggs (laid in gravel nests called redds), alevins (gravel dwelling hatchlings), fry (juveniles newly emerged from stream gravels), and other juvenile life stages all rear in freshwater until they migrate to the ocean where they reach maturity.

O. mykiss exhibit a variable life history. Coastal *O. mykiss* populations in central and southern California are classified into three principle life history strategies: fluvial-anadromous, lagoon anadromous, and freshwater resident or non-anadromous (Boughton et al. 2007). The anadromous forms of S-CCC steelhead are classified as “winter-run” steelhead because they emigrate from the ocean to their natal streams to spawn annually during the winter; although run times can extend into spring months (April and May) (Moyle 2002). Within the S-CCC steelhead DPS, adults typically enter freshwater between December and May, with peaks occurring in January through March (Wagner 1983; Fukushima and Lesh 1998). It is during this time that streamflow quantities (depths and velocities) are suitable for adults to successfully migrate to and from spawning grounds. The minimum stream depth necessary for successful upstream migration is about 13 centimeters (cm), although short sections with depths less than 13 cm are passable (Thompson 1972). More optimal water velocities for upstream migration are in the range of 40-90 cm/s, with a maximum velocity beyond which upstream migration is not likely to occur of 240 cm/s (Thompson 1972).

Redds are generally located in areas where the hydraulic conditions limit fine sediment accumulations. Reiser and Bjornn (1979) found that gravels of 1.3-11.7 cm in diameter were preferred by steelhead. Survival of embryos is reduced when fines smaller than 6.4 millimeters (mm) comprise 20 to 25 percent of the substrate. This is because, during the incubation period, the intragravel environment must permit a constant flow of water in order to deliver dissolved oxygen to and remove metabolic wastes. Studies have shown embryo survival is higher when

intragravel velocities exceed 20 cm/hr (Coble 1961; Phillips and Campbell 1961). The number of days required for steelhead eggs to hatch is inversely proportional to water temperature and varies from about 19 days at 15.6˚ degrees (°) Celsius (C) to about 80 days at 5.6˚ C. Fry typically emerge from the gravel two to three weeks after hatching (Barnhart 1986). Other intragravel parameters such as the organic material in the substrate effect the survival of eggs to fry emergence (Chapman 1988; Everest et al. 1987; Shapovalov and Taft 1954).

Once emerged from the gravel, steelhead fry rear in edgewater habitats along the stream and gradually move into pools and riffles as they grow larger. Cover, sediment, and water quality are important habitat components for juvenile steelhead. Cover in the form of woody debris, rocks, overhanging banks, and other in-water structures provide velocity refuge and a means of avoiding predation (Bjornn et al. 1991; Shirvell 1990). Steelhead, however, tend to use riffles and other habitats not strongly associated with cover during summer rearing more than other salmonids. In winter, juvenile steelhead become less active and hide in available cover, including gravel or woody debris. Young steelhead feed on a wide variety of aquatic and terrestrial insects, and emerging fry are sometimes preyed upon by older juveniles. Water temperature can influence the metabolic rate, distribution, abundance, and swimming ability of rearing juvenile steelhead (Barnhart 1986; Bjornn and Reiser 1991; Myrick and Cech 2005). Optimal temperatures for steelhead growth range between 10 and 20° C (Hokanson et al. 1977; Myrick and Cech 2005; Wurtsbaugh and Davis 1977). Fluctuating diurnal water temperatures are also important for the survival and growth of salmonids (Busby et al. 1996).

Although variation occurs, S-CCC juvenile steelhead that exhibit an anadromous life history strategy usually rear in freshwater for 1-2 years (NMFS 2013). S-CCC steelhead smolts emigrate episodically from freshwater in late winter and spring, with peak migrations occurring in April and May (Shapovalov and Taft 1954; Fukushima and Lesh 1998; Ohms et al. 2019). Steelhead smolts in California range in size from 120 to 280 mm (fork length) (Shapovalov and Taft 1954; Barnhart 1986). Smolts migrating from the freshwater environment may temporarily utilize the estuarine habitats for saltwater acclimation and feeding prior to entering the ocean.

Juvenile steelhead of the lagoon-anadromous life history rear in lagoons for extended periods (Smith 1990; Boughton et al. 2006; Hayes et al. 2008). Lagoons are a specific type of estuarine habitat where a seasonal impoundment of water develops after a sandbar forms at the mouth of the watershed, temporarily separating the fresh and marine environments (Smith 1990). Like other estuary types, bar-built lagoons can serve as important rearing areas for many fish and invertebrate species—including juvenile steelhead (Simenstad et al. 1982; Smith 1990; Robinson 1993; Martin 1995). Due to the combination of high prey abundance and seasonally warmer temperatures, juvenile steelhead that rear in lagoons have been found to achieve superior growth rates relative to upstream fish of the same cohort, and can therefore disproportionally represent future adult steelhead returns (Bond et al. 2008; Hayes et al. 2008). This is especially important considering that lagoon habitats often represent a fraction of the watershed area. For the S-CCC steelhead DPS, it is hypothesized that the most limiting habitat in terms of availability is over-summer rearing habitat, including functional lagoon habitats (Boughton et al. 2006).

2.3. 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).

The Project is located within Monterey County at Camp Roberts along the Nacimiento River at the High-Water Bridge (35°48'47.46"N, 120°45'31.23"W). The Nacimiento River generally runs year-round and flows through Camp Roberts toward the east and drains into the Salinas River. The Camp Roberts High Water Bridge crosses over the Nacimiento River approximately 1.5 miles south of the confluence with the Salinas River. The action area encompasses the Project component footprints (staging areas, access roads, fire breaks, bent foundation repair area) and the wetland mitigation. The Project component footprint (not including the wetland mitigation) is approximately 5.89 acres in size extending approximately 350 feet upstream and 150 feet downstream of the Bridge along the Nacimiento River. The wetland mitigation consisting of riparian and wetland restoration, is roughly 1.35 acres and extends approximately 500 feet beyond the Project component footprint on the eastern bank.

2.4. 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).

Camp Roberts, located in the southern end of the Salinas River Valley, supports several uses, including a large administrative area (approximately 2,500 acres are developed), maneuver training area, firing ranges, and a designated Impact Area (an area having designated boundaries within the limits of which all ordnance will detonate or impact). Camp Roberts is used for military training, livestock grazing, and some recreational activities.

The Monterey County Water Resources Agency (MCWRA) owns and operates Nacimiento Dam, located approximately 1.5 miles upstream of the Camp Roberts property line. The Nacimiento/Salinas River confluence is approximately 110 miles upstream from the Pacific Ocean. Habitat conditions and instream flows in the action area are primarily influenced by the MCWRA water releases from the Dam. The mean monthly discharge as measured below Nacimiento Dam (USGS 11149400) is typically higher in the summer months ranging from 282 cubic feet per second (cfs) to 327 cfs during June through August and typically below 200 cfs during the other months of the year.

Grassland and woodland plant communities are dominant at Camp Roberts. Camp Roberts lies within a Mediterranean climate zone characterized by hot, dry weather from late May through

September and cool, rainy weather (averaging approximately 12.5 inches of rain per year) from November through March.

2.4.1. Status of S-CCC Steelhead in the Action Area

S-CCC steelhead in the action area are part of the Interior Coast Range Biogeographic Population Group (BPG) which consists of two major watersheds, the Pajaro River and Salinas River, which flow into the Pacific Ocean at Monterey Bay. S-CCC Steelhead use the Salinas River as a migratory corridor to reach spawning grounds in the upper watershed including its major tributaries (Nacimiento, San Antonio and Arroyo Seco rivers). All S-CCC steelhead populations in the Salinas River watershed are considered Core 1 populations and receive highest priority consideration for recovery of this DPS (NMFS 2013). The populations of the Interior Coast Range are particularly important because they appear to have produced some of the largest run sizes in the S-CCC DPS during years of high rainfall and run-off (Boughton et al., 2006, Good et al., 2005). There is insufficient data to estimate adult steelhead population size in the Salinas River watershed and estimates of steelhead abundance and density in the action area are also lacking. Based on historic estimates, recent observations, and known impairments in the watershed, the Salinas River population is recognized as having experienced significant declines from historic conditions (NMFS 2013).

The Nacimiento River is one of three main anadromous tributaries to the Salinas River. The current steelhead population in the Nacimiento River is at very low abundance. Steelhead use the Nacimiento River for spawning, rearing, and migration. The ability to consistently spawn and complete their lifecycle in the Salinas watershed is impeded by ground water extractions, reservoir releases and seasonally dry reaches within the Salinas River (NMFS 2013). The estuary at the mouth of the Salinas River is over 100 miles from the Salinas/Nacimiento River confluence and in many years sufficient instream flow for adult or juvenile passage is not available.

Steelhead monitoring has been conducted within the action area by MCWRA from 2010 to 2017 (Cuthbert et al. 2018). Under MCWRA's monitoring program, steelhead abundance of different life stages was monitored within the action area with rotary screw traps, electrofishing, and or multiple pass snorkeling at index sites. Additionally, MCWRA operates a weir in the lower Salinas River (at approximately river mile 5) also as part of their monitoring program. The summarized results of the monitoring data (Cuthbert et al. 2018) are presented below.

Adult Escapement Monitoring: Between 2010 and 2017 (from December 1 through March 31, though dependent on river conditions), abundance of adult steelhead observed at the lower Salinas River weir ranged between zero (2013/2014, 2015/2016) and 43 (2012/2013) net upstream passages.

Juvenile Downstream Migration Monitoring: Juvenile downstream migration has occurred at three locations: the Salinas River mainstem just upstream of the confluence with the Nacimiento River; the Nacimiento River just upstream of the confluence with the Salinas River; and in the Arroyo Seco River (not discussed here because the Arroyo Seco—a tributary to the Salinas River at approximately river mile 45—is not near the action area).

Juvenile outmigration monitoring has revealed very limited production of steelhead in the mainstem Salinas River. Catches of steelhead ranged from 0 to 9 individuals (no sampling occurred from 2013 until 2016 due to low flows and/or lack of downstream connectivity). Similarly, steelhead production on the Nacimiento River is very limited, with catches ranging from 0 to 7 fish per monitoring season. No sampling occurred in 2015 or 2016 due to low flows and/or lack of downstream connectivity.

Nacimiento River Index Reach Monitoring: From 2010 through 2013, electrofishing was used to obtain estimates on fish community and abundance at the select index reaches. However, after 2014, CDFW no longer permitted sampling by electrofishing and as a consequence, direct observation surveys were conducted in 2014 and 2021 (due to low flow conditions in 2015 and 2016, no index reach monitoring occurred). Visual observations in 2014 documented steelhead at three of the four survey sites, but in very low densities (i.e., less than six steelhead per 100 meters of stream). In 2017, two young-of-the-year steelhead were observed at one site, approximately two miles downstream of Nacimiento Dam.

The most recent available data on steelhead presence in the Nacimiento River includes a resumption of electrofishing in 2022 (FishBio 2023) and a juvenile steelhead habitat assessment in 2020 (Stillwater Sciences 2021). In 2022, an electrofishing survey resulted in only one individual steelhead captured, totaling only 2 fish captured over the five years that electrofishing was conducted (2012, 2022). In July of 2020, snorkel surveys resulted in observation of 6 juvenile steelhead in side-channel habitat ranging in size from 50-150mm in length. Low visibility may have limited fish observations in locations with deep water or where instream cover was high.

2.4.2. Climate Change and the Action Area

The long-term effects of climate change have been presented in Section 2.2.2 Global Climate Change. These include air temperature and precipitation changes that may affect steelhead and critical habitat by changing water quality, streamflow, and steelhead migration opportunities.

The threat to S-CCC steelhead in the action area from climate change is likely going to mirror what is expected for the rest of Central California. NMFS expects that average summer air temperatures would increase, heat waves would become more extreme, and droughts and wildfire would occur more often (Hayhoe et al. 2004; Lindley et al. 2007; Schneider 2007; Westerling et al. 2011; Moser et al. 2012; Kadir et al. 2013). Many of these changes are likely to further degrade S-CCC habitat in the action area by reducing streamflow in the Salinas River and its tributaries.

2.4.3. Previous Section 7 Consultations in the Action Area

NMFS has conducted three formal consultations that include some actions that have not yet been implemented within the action area. Each consultation anticipated small amounts of incidental take that were unlikely to affect future steelhead returns and were found to not jeopardize the continued existence of S-CCC steelhead nor destroy or adversely modify its designated critical habitat. NMFS has also completed two informal consultations within the action area.

2.5. 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 (see 50 CFR 402.02). 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 the factors set forth in 50 CFR 402.17(a) and (b).

2.5.1. Bent Foundation Repair and Maintenance

Diversion and dewatering activities associated with the bent foundation repair has the potential to strand and cause mortality to S-CCC steelhead. In-channel work will require temporarily dewatering sections of the river up to 205 feet (62 meters) in length each construction season and rerouting streamflow around work locations. Dewatering of the Nacimiento River channel is estimated to affect streamflow and water quality up to approximately 350 feet (107 meters) in length.

To minimize adverse effects to S-CCC steelhead due to dewatering, a fish rescue and relocation plan will be developed in coordination with NMFS prior to implementation. Based on the low abundance of S-CCC steelhead in the Nacimiento River (less than six juveniles per 100 meters of stream), we expect six juvenile steelhead will be captured and relocated each construction season. However, based on similar projects in similar sites in central California streams, the anticipated number of fish caught is often underestimated. Therefore, we expect a total of 20 juvenile steelhead will be captured and relocated during the implementation of this Project.

Debris accumulated at bridge bents may provide habitat for steelhead and they may be harassed, injured or killed during initial debris removal and fish capture and relocation activities. Fish relocation activities pose a risk of injury or mortality to rearing juvenile salmonids. Any fish collecting gear, whether passive (Hubert 1996) or active (Hayes et al. 1996) has some associated risk to fish, including stress, disease transmission, injury, or death. The amount of unintentional injury and mortality attributable to fish capture varies widely, depending on the method used, the ambient conditions, and the expertise and experience of the field crew. Since we expect fish relocation activities will be conducted by qualified fisheries biologists, direct effects to and mortality of juvenile steelhead during capture will be minimized.

Relocated fish may have to contend with other fish causing increased competition for available resources such as food and habitat area. Frequent responses to crowding by steelhead include emigration and reduced growth rates (Keeley 2003). Some of the fish released at the relocation sites may choose not to remain in these areas and move either upstream or downstream to areas that have more vacant habitat and a lower density of fish. As each fish moves, competition remains either localized to a small area or quickly diminishes as fish disperse. NMFS does not expect impacts from increased competition would be large enough to adversely affect the survival chances of individual steelhead, or cascade through the watershed population based on the small areas that would likely be affected and the relatively small number of individuals likely to be relocated at each site (particularly when compared with the remainder of individuals

throughout the river not affected by the project). As described above, sufficient habitat appears to be available in the Nacimiento River to sustain fish relocated without crowding of other juvenile steelhead.

Based on information from other relocation efforts, NMFS estimates injury and mortalities would be two percent or less of those steelhead that are captured and relocated (one fish during each dewatering event). Data on fish relocation efforts in California streams since 2004 shows most mortality rates are below three percent for steelhead (Collins 2004, CDFG 2005, 2006, 2007, 2008, 2009, 2010a, 2010b). Fish that avoid capture during relocation efforts may be exposed to stranding, desiccation and predation or be crushed by equipment or foot traffic if not found by biologists while water levels recede. NMFS expects the number of juvenile steelhead that will die as a result of stranding during dewatering activities will be less than one percent of the steelhead within the work sites prior to dewatering (one fish during each dewatering event). Overall, NMFS expects no more than three percent of the steelhead present in the dewatered reach during relocation activities will be injured or killed (two fish during each dewatering event).

Minor and temporary changes to streamflow outside of the dewatered construction areas may occur during the dewatering process. These fluctuations in flow are anticipated to be small, gradual, and short-term. Once the cofferdams and bypasses are installed and operational, streamflow above and below the work sites should be the same as the pre-project conditions except within the dewatered work areas where streamflow is bypassed.

The dewatering of up to 205 linear feet of channel is expected to cause a temporary reduction in the quantity of aquatic habitat. The temporary cofferdams and water diversion structures in the river at the bent foundation repair sites are not expected to impact juvenile steelhead movements in the Nacimiento River beyond typical Nacimiento Dam summer flow release conditions. The temporary cofferdams and water diversion structures will be in place for approximately three months but upstream and downstream passage will not be impeded. The limited duration and small footprint of the diversion in combination with the in-water work window of June 15 to October 15 is expected to maintain conditions suitable for individual steelhead in the Nacimiento River.

Benthic (i.e., bottom dwelling) aquatic macroinvertebrates (a salmonid prey item) within the dewatered site may be killed or their abundance reduced (Cushman 1985). However, effects to aquatic macroinvertebrates resulting from the streamflow bypass and dewatering will be temporary because construction activities would be relatively short-lived. Rapid recolonization (typically one to two months) of disturbed areas by macroinvertebrates is expected following channel re-watering (Cushman 1985, Thomas 1985, Harvey 1986). Based on the foregoing, NMFS expects fish will be able to find food and cover outside of the action area as needed to maintain their fitness during project construction.

The bridge bent foundation repair activities would result in disturbance of the river bed and banks for equipment access, removal of sediment, pouring of concrete, and for the placement/removal of the cofferdams. Instream and near-stream construction activities have been shown to result in temporary increases in turbidity (reviewed in Furniss et al. 1991, Reeves et al.

1991, Spence et al. 1996). While the cofferdam and streamflow bypass system are in place, construction activities are not expected to degrade water quality in the Nacimiento River because the work area will be dewatered and isolated from the flowing waters of the river. Post-construction, NMFS anticipates disturbed soils could affect water quality in the action area in the form of small, short-term increases in turbidity during re-watering (i.e., cofferdam removal) and subsequent higher flow events during the first winter storms post-construction. Disturbed soils on the river bank are easily mobilized when late fall and winter storms increase streamflow levels.

Increases in sediment may affect fish in a variety of ways. High concentrations of suspended sediment can disrupt normal feeding behavior and efficiency (Cordon and Kelley 1961, Bjornn et al. 1977, Berg and Northcote 1985), reduce growth rates (Crouse et al. 1981), and increase plasma cortisol levels (Servizi and Martens 1992). High and prolonged turbidity concentrations can reduce dissolved oxygen in the water column, result in reduced respiratory functions, reduce tolerance to diseases, and can also cause fish mortality (Sigler et al. 1984, Berg and Northcote 1985, Gregory and Northcote 1993, Velagic 1995, Waters 1995). Even small pulses of turbid water can cause salmonids to disperse from established territories (Waters 1995), which can displace fish into less suitable habitat and/or increase competition and predation, decreasing chances of survival. Increased sediment deposition can fill pools thereby reducing the amount of potential cover and habitat available, and smother coarse substrate particles which can impair macroinvertebrate composition and abundance (Sigler et al. 1984, Alexander and Hansen 1986).

Chronic elevated sediment and turbidity levels may affect steelhead as described above. However, sedimentation and turbidity levels associated with: (1) cofferdam construction and removal; (2) the subsequent rewetting of the construction sites within the action areas, and (3) subsequent rainfall events are not expected to rise to the levels discussed in the previous paragraph due to soil and channel stabilization measures used in the Project. With CA-ARNG's proposed use of erosion control measures, NMFS anticipates there will be minimal area of disturbed, exposed soils remaining post-construction. Therefore, any resulting elevated turbidity levels would be small, only occur for a short period, and be well below levels and durations shown in the scientific literature as causing injury or harm to salmonids (see for example Sigler et al. 1984 or Newcombe and Jensen 1996). NMFS expects any sediment or turbidity generated by the Project would not extend more than 150 feet downstream of the work site based on the site conditions and methods used to control sediment. NMFS does not anticipate harm, injury, or behavioral impacts to S-CCC steelhead from exposure to the minor elevated suspended sediment levels that would be generated.

The subsequent maintenance and removal of large woody debris near the foundation bents are reasonably likely to include temporary degradation of water quality, degradation of cover, and temporary displacement of juvenile fish. Based on the existing low abundance of steelhead in the Nacimiento River, a very small number of juvenile steelhead may be exposed to these effects. Large wood removal may cause juvenile steelhead to become temporarily displaced from their established territories due to increased turbidity levels or from removal of cover. NMFS expects any sediment or turbidity generated by the wood removal would not extend more than 150 feet downstream of the work site. Fish that are displaced are expected to find suitable habitat and space nearby. Larger logs will be removed or released downstream and smaller debris is

expected to be dislodged and then float downstream, potentially providing some habitat value. Therefore, NMFS does not anticipate harm, injury, or behavioral impacts to S-CCC steelhead from wood removal.

2.5.2. Construction of Access Roads and Fire Breaks

Construction of access roads and fire breaks has the potential to affect steelhead habitat by reducing riparian vegetation and increasing sediment delivery into the Nacimiento River. The access roads and fire breaks are located in upland areas which reduces immediate threats to the waterway. The effects of elevated sediment and turbidity levels to steelhead and their habitat are described above.

Riparian vegetation helps maintain stream habitat conditions necessary for salmonids. Riparian zones serve important functions in stream ecosystems such as providing shade (Poole and Berman 2001), sediment storage and filtering (Cooper et al. 1987, Mitsch and Gosselink 2000), nutrient inputs (Murphy and Meehan 1991), water quality improvements (Mitsch and Gosselink 2000), channel and stream bank stability (Platts 1991). Riparian vegetation disturbance and removal can degrade these ecosystem functions and impair stream habitat. Where riparian vegetation is impaired, steelhead may be exposed to poor: shade, substrate, water quality, habitat diversity, cover, and shelter. These habitat impairments have the potential to limit or preclude successful spawning and rearing, reduce adult migration success, and expose juveniles and smolts to increased predation.

The temporary access road is clear of riparian trees and would primarily result in loss of grassland or small shrubs. It would be restored to natural state after construction. The permanent access road and turnaround area would result in removal of cottonwood habitat and sandbar willow habitat. NMFS expects only a few mature riparian trees will be removed. The loss of canopy cover due to tree removal is not anticipated to result in noticeably higher water temperatures due to the dense riparian canopies present in the action area and the likely presence of remaining trees (and intact canopy) adjacent to vegetation removal sites. Riparian vegetation will remain on the banks in sufficient quantities to provide the shelter and cover necessary for juvenile rearing and for adults and smolts to successfully migrate through the action area. Additionally, any loss of riparian or wetland habitat will be reestablished or created in the wetland mitigation described below. Several project AMMs are focused on avoiding and minimizing the effects of vegetation management on steelhead and their habitat, including sediment control and soil stabilization measures. NMFS does not anticipate harm, injury, or behavioral impacts to S-CCC steelhead associated with exposure to the minor elevated suspended sediment levels that would be generated by these construction activities or by the temporary and minor reduction in wetland or riparian habitat.

2.5.3. Annual Maintenance of Fire Breaks

Vegetation maintenance activities in the fire breaks would occur annually primarily during September or later to accommodate the bird nesting season. This is due to the fire breaks supporting sparse to moderate vegetation cover that may be suitable for nesting. During maintenance activities, no disturbance to the roots of the vegetation is expected but heights will be maintained to 3 feet above ground or less. There is potential for soil movement and increased

sedimentation from maintenance activities in the upland areas that are close to the river bank. Impacts associated with exposure to temporary and minor elevated suspended sediment levels are discussed above. NMFS anticipates that through the inclusion of several erosion and sediment control AMMs, temporary and minor increases in turbidity from annual fire break maintenance would not cause harm, injury or behavioral impacts to S-CCC steelhead.

2.5.4. Wetland and Riparian Mitigation

The temporary and permanent loss of riparian and aquatic habitat caused by certain Project activities will be mitigated within the action area. The mitigation plan includes re-establishment or creation of plant communities at a 2:1 (riparian) and 3:1 (wetland) replacement ratio to offset permanent impacts. Removal of man-made barriers, concrete fill, and debris within and adjacent to the Nacimiento River to create additional aquatic habitat may cause temporary increases in turbidity from bank disturbance. Planting and seeding of new native vegetation may also result in increased sedimentation during ground disturbing activities or during rain events until the vegetative cover matures. The impacts to steelhead from temporary and minor increases in turbidity has been described above in relation to other Project activities. Several AMMs are in place to avoid and minimize potential erosion, including silt curtains, fiber rolls and ground mulch.

Creation of approximately 1.31 acres of aquatic habitat located within the Project disturbance footprint will increase riparian and wetland habitat within the action area over the long-term. The creation of wetland and riparian habitat will result in habitat attributes associated with new vegetation, such as soil stabilization and canopy cover. Once established, the riparian and wetland mitigation elements will support steelhead habitat function in the action area by regulating water temperatures from shade and promoting an abundance of diverse terrestrial-based prey sources for rearing juveniles.

2.6. Cumulative Effects

"Cumulative effects" are those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation [50 CFR 402.02 and 402.17(a)]. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

Some continuing non-Federal activities are reasonably certain to contribute to climate effects within the action area. However, it is difficult if not impossible to distinguish between the action area's future environmental conditions caused by global climate change that are properly part of the environmental baseline *vs.* cumulative effects. Therefore, all relevant future climate-related environmental conditions in the action area are described earlier in the discussion of environmental baseline (Section 2.4).

Because Camp Roberts is federally owned by the U.S. Army, we generally do not expect any cumulative effects to occur on Camp Roberts. However, MCWRA owns and operates two dams that affect conditions in the action area. NMFS expects the effects to steelhead and their habitat as a result of reservoir operations will continue into the foreseeable future. Similarly,

groundwater pumping and or water diversions by private landowners upstream and downstream of the action area will also continue into the foreseeable future. NMFS expects reservoir operations and water withdrawals will alter the hydrology and negatively affect aquatic habitat and S-CCC steelhead.

2.7. Integration and Synthesis

The Integration and Synthesis section is the final step in assessing the risk that the proposed action poses to species and critical habitat. In this section, we add the effects of the action (Section 2.5) to the environmental baseline (Section 2.4) and the cumulative effects (Section 2.6), taking into account the status of the species and critical habitat (Section 2.2), to formulate the agency's biological opinion as to whether the proposed action is likely to: (1) reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing its numbers, reproduction, or distribution; or (2) appreciably diminish the value of designated or proposed critical habitat as a whole for the conservation of the species.

The Nacimiento River population is part of the larger Interior Coast Range BPG, and as noted in Section 2.2 (Rangewide Status of the Species), this BPG is in particularly poor condition and exhibit a greater lack of viability than many of the coastal subpopulations. Although steelhead are present in most streams of the DPS (Good et al. 2005), their populations are significantly less than historical estimates and have become more fragmented, unstable, and vulnerable to stochastic events (Boughton et al. 2006). Salinas River steelhead populations travel many miles to spawning grounds in the main tributaries and are therefore dependent on sufficient mainstem flow to complete their life-cycles. In many years, access to the Salinas river and up to the Nacimiento River is impeded by insufficient instream flow.

As described in the Environmental Baseline (Section 2.4), the current steelhead population in the Nacimiento River is at very low abundance. This is primarily due to lack of connectivity to the Pacific Ocean and by Nacimiento River instream flows which Camp Roberts does not influence or control. Based on the type of activities, their size, scope, and location, the proposed project is not expected to significantly impact steelhead or their habitat. However, some activities within the Nacimiento River will result in take (capture and mortality) of steelhead. During river diversion activities for bent foundation repair, NMFS estimates up to 20 juvenile steelhead will be captured and 4 killed from dewatering and relocation activities during the duration of the Project. Therefore, a primary risk assessment is whether the loss of these individuals will reduce appreciably the likelihood of both the survival and recovery of S-CCC steelhead in the wild by reducing its numbers, reproduction, or distribution.

Because no adults are expected to be harmed and due to the relatively large number of juveniles produced by each spawning pair, steelhead spawning in the Nacimiento River in future years are likely to produce enough juveniles to replace the few that may be killed as a result of the proposed activities. Therefore, it is unlikely the loss of these individuals will reduce appreciably the likelihood of both the survival and recovery of S-CCC steelhead in the Nacimiento River.

Other tributaries in the Salinas River support populations of the Interior Coast BPG and several other watersheds are also part of this BPG. These populations will not be affected by the proposed action and are expected to continue to contribute to the BPG's steelhead numbers,

reproduction, and distribution. As a result, the S-CCC steelhead DPS numbers, reproduction, or distribution will not be appreciably reduced.

The proposed action will cause minor short-term impacts (i.e., dewatering and vegetation removal), and long-term beneficial impacts (i.e., juvenile rearing habitat will be enhanced, and native plant species restored). The short-term negative impacts are not expected to alter the overall habitat conditions in the action area. Because there are no long-term negative impacts to habitat in the action area, and because habitat conditions in the action area will see some benefits, it is unlikely that spawning, rearing or migratory habitat at the BPG- or DPS-level will experience any adverse impacts.

Regarding future climate change effects in the action area, California could be subject to higher average summer air temperatures and lower total precipitation levels. Reductions in the amount of snowfall and rainfall would reduce streamflow levels in Northern and Central Coastal rivers. Estuaries may also experience changes in productivity due to changes in freshwater flows, nutrient cycling, and sediment amounts. For this action, construction activities will occur over two years within the next two to six years, and the above effects of climate change will likely not be detected within that time frame. The effects of the proposed actions combined with potential short-term moderate climate change effects may result in conditions similar to those produced by natural ocean-atmospheric variations as described in the Environmental Baseline section of this opinion (Section 2.4). S-CCC steelhead are expected to persist throughout these annual variations in weather patterns as they have in the past, even when concurrently exposed to the effects of similar projects.

As described in the Cumulative Effects section of this opinion (Section 2.5) NMFS expects the effects to steelhead and their habitat as a result of reservoir operations will continue into the foreseeable future. Similarly, groundwater pumping and or water diversions by private landowners upstream and downstream of the action area will also continue into the foreseeable future. NMFS considered these ongoing cumulative effects in combination with the effects of the proposed action. The proposed action does not mitigate the cumulative effects of reservoir operations or groundwater pumping, nor does it exasperate these impacts or impede future actions to mitigate these effects. Furthermore, NMFS does not expect any synergistic effects to steelhead from the proposed action when combined with cumulative effects. Therefore, NMFS determined the effects of the proposed action and cumulative effects, combined, are not expected to appreciably diminish or reduce S-CCC steelhead DPS numbers, reproduction, or distribution.

2.8. Conclusion

After reviewing and analyzing the current status of the listed species, the environmental baseline within the action area, the effects of the proposed action, the effects of other activities caused by the proposed action, and the cumulative effects, it is NMFS' biological opinion that the proposed action is not likely to jeopardize the continued existence of S-CCC steelhead. No critical habitat has been designated within the action area for this species; therefore, none was analyzed.

2.9. 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.

2.9.1. Amount or Extent of Take

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

- Up to 20 juvenile steelhead will be captured and relocated during stream dewatering for the Project during the two construction seasons, two percent of these fish (one fish) will be injured or killed, and one percent of fish (one fish) present in the reach will die from stranding after dewatering is completed each construction season;

- Cumulatively, during both construction seasons, it is anticipated that four fish present in the reach during dewatering will be injured, killed or die from stranding after dewatering is completed.

2.9.2. 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.

2.9.3. 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).

NMFS believes the following reasonable and prudent measures are necessary and appropriate to minimize take of S-CCC steelhead:

1. Undertake measures to ensure that injury and mortality to steelhead resulting from fish relocation and dewatering activities is low;

2. Undertake measures to minimize harm to steelhead from the project through degradation of aquatic habitat; and
3. Prepare and submit plans and reports regarding fish capture and relocation, dewatering, construction and maintenance activities, and riparian and wetland mitigation.

2.9.4. 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 U.S Army National Guard or their 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. CA ARNG or the contractor will allow any NMFS employee(s), or any other person designated by NMFS, to accompany field personnel to visit the project sites during activities described in this opinion.
    b. CA ARNG or the contractor will retain qualitied biologists with expertise in the area of anadromous salmonid biology, including handling, collecting, and relocating salmonids; salmonid/habitat relationships; and biological monitoring of salmonids. All fisheries biologists working on this project will be qualified to conduct fish collections in a manner that minimizes all potential risks to ESA-listed salmonids. Electrofishing, if used, shall be performed by a qualified biologist and conducted according to the NOAA's electrofishing guidelines (NMFS 2000). See: http://www.nwr.noaa.gov/ESA-Salmon-Regulations-Permits/4d Rules/upload/electro2000.pdf.
    c. CA ARNG or the contractor will ensure that a biologist monitors the construction sites during placement and removal of cofferdams and channel diversions to ensure that any adverse effects to salmonids are minimized. A biologist will be on site during all dewatering events to capture, handle, and safely relocate salmonids to an appropriate location. The biologist will notify NMFS biologist Yvette Redler-Medina at yvette.redler-medina@noaa.gov, one week prior to capture activities in order to provide an opportunity for NMFS staff to observe the activities. During fish relocation activities the fisheries biologist shall contact NMFS staff at the above number, if injury or mortality of federally listed salmonids exceeds the take listed in section 2.9.1, at which time NMFS will stipulate measures to reduce the take of steelhead.
    d. Steelhead Salmonids will be handled with extreme care and kept in water to the maximum extent possible during rescue activities. All captured fish will be kept in cool, shaded, aerated water protected from excessive noise, jostling, or overcrowding any time they are not in the stream, and fish will not be removed from this water except when released. To avoid predation, the biologist will have at least two containers and segregate young-of-year from larger age classes and

other potential aquatic predators. Captured steelhead will be relocated, as soon as possible, to a suitable instream location (pre-approved by NMFS – see 3a below) in which suitable habitat conditions are present to allow for adequate survival of transported fish and fish already present.

e. If any steelhead are found dead or injured beyond the anticipated incidental take numbers, the biological monitor will contact NMFS biologist, Yvette Redler-Medina, by phone at (916) 539-7066 or email at yvette.redler-medina@noaa.gov. The purpose of the contact is to review the activities resulting in take, determine if additional protective measures are required, and to ensure appropriate collection and transfer of salmonid mortalities and tissue samples. All salmonid mortalities will be retained. Tissue samples are to be acquired from each salmonid mortality per the methods identified in the NMFS Southwest Fisheries Science Center Genetic Repository protocols (contact the above NMFS staff for directions) and sent to: NOAA Coastal California Genetic Repository; Southwest Fisheries Science Center; 110 McAllister Way; Santa Cruz CA 95060.

f. Non-native fish that are captured during fish relocation activities shall not be relocated to anadromous fish streams, or areas where they could access anadromous fish habitat.

2. The following terms and conditions implement reasonable and prudent measure 2:

   a. To ensure that the Project is built as designed and contractors adhere to construction best management practices, CA ARNG will ensure monitoring will be performed during construction by qualified individuals. Monitors will be knowledgeable of the Project designs, construction minimization measures, and the needs of native fish, including steelhead. Monitoring will be performed daily. The monitor(s) will work in close coordination with Project management personnel, the Project design team, and the construction crew to ensure that the Project is built as designed.

   b. Construction equipment used within the river channel will be checked each day prior to work within the creek channel (top of bank to top of bank).

3. The following terms and conditions implement reasonable and prudent measure 3:

   a. Fish Capture and Dewatering Plans – The CA ARNG must submit a fish capture/relocation and channel dewatering plan to NMFS for review, including but not limited to suitable instream locations where any captured steelhead will be relocated in which suitable habitat conditions are present to allow for adequate survival of transported fish and fish already present. The plan shall be submitted electronically to NMFS biologist Yvette Redler at yvette.redler-medina@noaa.gov at least 30 days prior to the planned start of these activities.

   b. Annual Reporting – The CA ARNG must prepare and submit annual reports to NMFS for Project activities as outlined below. The reports must be submitted electronically to NMFS biologist Yvette Redler at yvette.redler-medina@noaa.gov by January 31 the following year. Reports prepared for compliance with other agency requirements that contain the information requested below would be acceptable.

The report must contain, at minimum, the following information:

i. Construction and Maintenance related activities – The report(s) must include the dates construction began and was completed; a discussion of any unanticipated effects or unanticipated levels of effects on salmonids, including a description of any and all measures taken to minimize those unanticipated effects and a statement as to whether or not the unanticipated effects had any effect on ESA-listed fish; the number of steelhead killed or injured during the project action; and photographs taken before, during, and after the activity from photo reference points.

ii. Fish relocation – The report(s) must include a description of the location from which fish were removed and the release site(s) including photographs; the date and time of the relocation effort; a description of the equipment and methods used to collect, hold, and transport salmonids; the number of fish relocated by species; the number of fish injured or killed by species and a brief narrative of the circumstances surrounding ESA-listed fish injuries or mortalities; and a description of any problems which may have arisen during the relocation activities and a statement as to whether or not the activities had any unforeseen effects.

iii. Post-Construction Vegetation Monitoring and Reporting – The applicant must develop and submit for NMFS' review a plan to assess the success of revegetation of the wetland mitigation sites. Reports documenting post-project conditions of vegetation installed at the sites will be prepared and submitted annually for the first five years following project completion, unless the site is documented to be performing poorly, then monitoring requirements will be extended. Reports will document vegetation health and survivorship and percent cover, natural recruitment of native vegetation (if any), and any maintenance or replanting needs. Photographs must be included. If poor establishment is documented, the report must include recommendations to address the source of the performance problems.

2.10. 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). NMFS has no conservation recommendations as this time.

2.11. Reinitiation of Consultation

This concludes formal consultation for the High-Water Bridge Project on the Nacimiento River in Camp Roberts.

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."

3. DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW

The Data Quality Act (DQA) specifies three components contributing to the quality of a document. They are utility, integrity, and objectivity. This section of the opinion addresses these DQA components, documents compliance with the DQA, and certifies that this opinion has undergone pre-dissemination review.

3.1. Utility

Utility principally refers to ensuring that the information contained in this consultation is helpful, serviceable, and beneficial to the intended users. The intended users of this opinion are the U.S. Department of Defense, Army National Guard and California's Army National Guard at Camp Roberts. Other interested users could include the Monterey County Water Resources Agency, California Department of Fish and Wildlife, Central Coast Regional Water Quality Control Board, U.S Fish and Wildlife Service, and the public. Individual copies of this opinion were provided to the U.S. Department of Defense, Army National Guard and California's Army National Guard at Camp Roberts. The document will be available within 2 weeks at the NOAA Library Institutional Repository [https://repository.library.noaa.gov/welcome]. The format and naming adhere to conventional standards for style.

3.2. Integrity

This consultation was completed on a computer system managed by NMFS in accordance with relevant information technology security policies and standards set out in Appendix III, 'Security of Automated Information Resources,' Office of Management and Budget Circular A-130; the Computer Security Act; and the Government Information Security Reform Act.

3.3. Objectivity

Information Product Category: Natural Resource Plan

Standards: This consultation and supporting documents are clear, concise, complete, and unbiased; and were developed using commonly accepted scientific research methods. They adhere to published standards including the NMFS ESA Consultation Handbook, ESA regulations, 50 CFR 402.01 et seq., and the MSA implementing regulations regarding EFH, 50 CFR part 600.

Best Available Information: This consultation and supporting documents use the best available information, as referenced in the References section. The analyses in this opinion contain more background on information sources and quality.

Referencing: All supporting materials, information, data and analyses are properly referenced, consistent with standard scientific referencing style.

Review Process: This consultation was drafted by NMFS staff with training in ESA and reviewed in accordance with West Coast Region ESA quality control and assurance processes.

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