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

April 10, 2020 **Refer to NMFS No:** WCRO-2019-02686

William M. Meyer, Colonel
United States Army
Installations & Environment
National Guard Bureau
111 South George Mason Drive
Arlington, Virginia 22204-1373

Re: Endangered Species Act Section 7(a)(2) Biological Opinion for the South-Central California Coast Steelhead Endangered Species Management Component for Camp Roberts

Dear Colonel Meyer:

Thank you for your letter of September 17, 2019, 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 South-Central California Coast Steelhead Endangered Species Management Component for Camp Roberts in southern Monterey and northern San Luis Obispo counties, California. 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 nor likely to result in the destruction or adverse modification of critical habitat for this species. 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 William Stevens of the NMFS North-Central Coast Office in Santa Rosa, California at (707) 575-6066, or William.Stevens@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 Farrell, California Army National Guard Camp Roberts,
paige.k.farrell.nfg@mail.mil
Jay Rubinoff, Army National Guard, jay.m.rubinoff.civ@mail.mil
Copy to ARN File # 151422WCR2019SR00200

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

South-Central California Coast Steelhead Endangered Species Management Component for Camp Roberts

NMFS Consultation Number: WCRO-2019-02686

Action Agency: Department of Defense, Army National Guard

Table 1. 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	Yes	No

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

Issued By:

Alecia Van Atta
Assistant Regional Administrator
California Coastal Office

Date: April 10, 2020

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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 USC 1531 et seq.), and implementing regulations at 50 CFR 402, as amended.

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 the NMFS North-Central Coast Office in Santa Rosa, California.

1.1.1 Consultation History

In late 2017, personnel at the California Army National Guard's Camp Roberts formed a technical advisory committee (TAC) to help guide conservation actions and ensure Camp Roberts is keeping pace with other local watershed and recovery plan efforts. Invited members of the TAC included representatives from Camp Roberts, Stillwater Sciences (consultant to Camp Roberts), National Marine Fisheries Service, Trout Unlimited, Central Coast Salmon Enhancement, California Department of Fish and Wildlife, and Upper Salinas-Las Tablas Resource Conservation District. In February 2018, a draft final *South-Central California Coast Steelhead Endangered Species Management Component for Camp Roberts* (Stillwater Sciences 2018a) was completed and provided to the TAC for their review.

On September 17, 2019, NMFS received a request for initiation of consultation pursuant to section 7 of the ESA from the U.S. Department of Army National Guard Installations and Environment Directorate (ARNG-I&E) for the South-Central California Coast Steelhead Endangered Species Management Component for Camp Roberts in southern Monterey and northern San Luis Obispo Counties, California. In their request for consultation, ARNG-I&E 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-I&E. Enclosed with the request for consultation was the *Final Report – June 2019 Biological Evaluation for the South-Central California Coast Steelhead Endangered Species Management Component for Camp Roberts* (Biological Evaluation; Stillwater Sciences 2019). Camp Roberts also provided an electronic copy of the June 2018 *South-Central California Coast Steelhead Endangered Species Management Component for Camp Roberts* (Stillwater Sciences 2018b). As described in the Biological Evaluation, ARNG-I&E and CAARNG determined that activities proposed on Camp Roberts may affect, and are likely to adversely affect threatened South-Central California Coast steelhead (*Oncorhynchus mykiss*) Distinct Population Segment (DPS) and their designated critical habitat. In a September 26, 2019, email NMFS requested additional information on the

proposed action; on September 27, 2019, Camp Roberts personnel provided the requested information via email and consultation was initiated.

1.2 Proposed Federal Action

"Action" means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies (50 CFR 402.02). Camp Roberts is a CA ARNG training site in central California, federally owned by the U.S. Army and licensed and operated by the CAARNG. Army Regulation 200-1 guides U.S. Army compliance with the ESA and the regulation requires that an Endangered Species Management Component (ESMC) be prepared for each listed and proposed species and their critical habitat. The proposed action is the implementation of the South-Central California Coast Steelhead ESMC for Camp Roberts including: (1) Management Actions; and (2) Steelhead Conservation Actions over the next 10 years. As noted above, the U.S. ARNG-I&E designated the CAARNG 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 the U.S. ARNG-I&E.

Management Actions are maintenance or military training activities implemented on Camp Roberts and are listed here and described in detail below:

Stream fording
Temporary bridge installation
Bivouacking
Water purification training
Road, tank trail, and firebreak maintenance
Bridge maintenance/repair
Culvert replacement
Control of invasive plants
Riparian management
Recreation
Fire management.

Steelhead Conservation Actions are listed here and described in detail below:

Juvenile steelhead habitat enhancement
Fish passage assessment
Water temperature monitoring
Sediment reduction.

1.2.1 Management Actions

Stream fording. Stream fording by wheeled and tracked vehicles may occur at up to five designated sites along the Nacimiento River (no fording will occur within the San Antonio or Salinas Rivers) during May through December. Implementation of conservation measures associated with stream fording (informed by Gosse et al. 1998) include:

- Fording sites will avoid high value steelhead rearing habitat in side channels.
- Fording sites will be situated where streambanks are stable and where the approaches to the crossing have low slopes. Steep or unstable slopes will be stabilized to prevent erosion.

- Fording sites will be selected on a site-specific basis after the stream is surveyed.
- Fording sites will be situated in areas where the streambed is comprised of bedrock or substrate is stable (i.e., not eroding).
- Crossings will be restricted to a single location and at right angles to the stream banks to minimize disturbance.
- Fording sites will be prepared and used during flow conditions outside of peak flows (> 800 cubic feet per second [cfs]).
- The approach to fording sites will be stabilized using non-erodible materials such as corduroy, brush mats, or clean stone materials.
- Equipment will be mechanically sound to avoid leakage of oil, gas, or hydraulic fluids.
- Fording sites will be monitored to ensure that approaches to the site are not eroding and that disturbances associated with fording are not creating fish passage obstructions.
- When a fording site is no longer required, the stream banks will be restored to their original condition. Any wheel ruts or other damage that may cause sedimentation in the stream will also be repaired.
- Fording maneuvers will be confined to the smallest area possible (< 50 feet wide spanning the Nacimiento River at up to 4 locations).

Temporary bridge installation. Temporary pre-fabricated bridges may be installed in the Nacimiento River as part of training activities (no temporary bridge installation activities will occur in the San Antonio or Salinas rivers). This type of training is rare and occurs less than one time every couple of years. Temporary bridges are easily transportable and are constructed manually on-site and do not require the placement of footings or permanent structures. Installation will be limited May through December in order to reduce potential impacts to steelhead spawning, adult migrating, and fry emergence. An assessment of steelhead habitat conditions will be conducted at each site prior to bridge construction and relevant protective measures will be implemented. Conservation measures for temporary bridge installation include:

- Bridge installation will avoid high value rearing habitat in side channels.
- Bridges will be installed where stream banks are stable (i.e., not eroding).
- Bridge locations will be selected on a site-specific basis after the stream is surveyed.
- Bridges will be situated at right angles to the stream bank to minimize disturbance.
- Soils surrounding the bridge approaches will be secured with appropriate best management practices (BMPs) to eliminate soil erosion into the waterway.
- Bridge sites will be monitored to ensure stream banks are not eroding.

Bivouacking. During field exercises, troops may bivouac in any of Camp Roberts' training areas. Bivouacking entails establishing temporary encampments that may be used for a single night, up to several weeks. Bivouacs vary in complexity depending on the type of exercise with encampments ranging in size from one-person pup tents, to tents the size of small buildings. Bivouacking activities may involve hand digging latrines or small pumps (up to 13.7 meters x 3.7 meters x 3.78 meters) for wash water associated with kitchen, shower, and laundry facilities. Bivouacking is highly discouraged near rivers; however, this activity may occasionally occur in the riparian zone within the action area. Discharge of waste water into waterways in not permitted. Latrines and pumps are not permitted within 30 meters of river banks.

Water purification training. This training involves siphoning water through a screened intake from the Nacimiento River as part of military training. Water siphoning is for training only; the water will not be treated and will be returned to the river after the event. This activity may occur at any time of year and uses a low volume of water (up to 0.11 cfs for a period of hours) that is returned to the river afterwards. Pump intakes will be screened following the NMFS (1996) juvenile fish screen criteria. Water purification training locations will be surveyed prior to implementation of the training to ensure siphoning locations are not placed in high quality spawning or rearing habitat.

Road, tank trail, and fire break maintenance. Travel-ways at Camp Roberts (i.e., roads, tank trails, and firebreaks) require regular maintenance to protect their structural integrity. The CA ARNG maintains its roadways to allow military mission activities and to prevent environmental degradation. Prioritization of maintenance activities is based on the military mission, funding, and potential risk to the environment. The typical maintenance of primary paved roadways entails pothole repair and general resurfacing, while typical maintenance of primary gravel roads entails regrading, crowning, filling, scarifying, and re-compaction. With both types of primary roads, the shoulders, gutters, and road right-of-way also require contouring, vegetation removal, drainage armoring, culvert cleaning and replacement, and recapturing of eroded soils along the sides of established roadways where erosion occurs. The majority of unimproved road maintenance is performed within the confines of established road right-of-ways and encompasses drainage ditches, road shoulders, culverts, and bridges.

- To the maximum extent feasible, ground-disturbing maintenance activities will be avoided during the wet season, which typically extends from November 1 through April 30. Maintenance activities will use BMPs to reduce harmful runoff from entering adjacent rivers and streams. To the extent possible, relevant BMPs as described in the California Statewide Storm Water Management Plan (Caltrans 2012) will be implemented for all road, trail, and firebreak maintenance. Such BMPs will be in place to minimize potential effects to steelhead and steelhead habitat, including:

    - Sediment control (e.g., silt fencing and check dams),
    - Soil stabilization (e.g., hydraulic mulch and hydroseeding),
    - Concentrated flow conveyance controls (e.g., earth dikes, drainage swales, and lined ditches), and
    - Temporary stream crossing.

Additional measures as described in Weaver et al. (2015) will be implemented during road maintenance activities, including:

- All roads will be regularly inspected and maintained.
- A sufficient barrier of filter strip of undisturbed soil and vegetation will be left between road maintenance activity and nearby streams.
- Durable aggregate road surfacing will be used for active roads and road segments that drain to streams to minimize erosion and fine sediment.

- Where ditches are hydrologically connected[1] to streams, soil disturbance will be kept to a minimum to encourage sediment deposition; if grading or clearing is required to maintain capacity, they will be immediately seeded to reestablish a vegetation cover.
- Where feasible, outsloping will be used to minimize flows in ditches and reduce the potential for erosion and sediment delivery from the road surface. The outsloped road surface ensures that turbid road runoff and fine sediment eroded from the roadbed will be drained to the outside edge of the road where it can be safely discharged into vegetation and onto undisturbed soils.
- Road surface drainage will be dispersed and discharged into a filtering area with enough ground cover and slope distance to infiltrate water and catch sediment. In locations lacking adequate vegetation, physical barriers (logs, brush, ditches, etc.) or small sediment retention structures/basins may be added to trap sediment.
- Excess spoil from maintenance activities will never be sidecast near streams or where it could fail, or cause a slope failure, and deliver sediment to a water body, instead it will be hauled to a stable disposal site safely distant from streams, contoured to disperse runoff and stabilized with mulch and vegetation.

Bridge maintenance and repair. Bridge maintenance and repair periodically occurs on either of two bridges in the Action Area: High and Low Water Bridges. High Water Bridge is a wood trestle bridge and requires occasional bridge painting and sealing, repair or replacement of beams or plans, vegetation removal and debris removal. Low Water Bridge is a metal Bailey bridge placed over there large free-standing culverts and requires occasional bolt tightening or replacement and vegetation removal. This bridge is not painted or sealed and has no footings in the active waterway. Culvert replacement at this bridge is discussed below. Vegetation removal may include tree and other vegetation clearing adjacent to bridges, primarily for fire prevention and maintenance access purposes. Bridge maintenance and repair occurs outside the wet season, which typically extends from November 1 through April 30.

To the extent possible, relevant BMPs as described in the California Statewide Storm Water Management Plan (Caltrans 2012) will be implemented for bridge maintenance/repair activities to minimize potential effects to steelhead and steelhead habitat, including:

- waste management: paints, sealants, construction equipment, etc., will be staged in a temporary containment facility away from the waterway;
- preservation of existing vegetation to the greatest extent possible;
- temporary sediment control (e.g., silt fencing and check dams; and
- soil stabilization (e.g., hydraulic mulch and hydroseeding).

[1] Hydrologic connectivity refers to the length or proportion of a road or road network that drains runoff directly to streams or other water bodies. Any road segment that has a continuous surface flow path to a natural stream channel during a 'design' runoff event is termed a hydrologically connected road or road reach. Connectivity usually occurs through road ditches, road surfaces, gullies, rolling dips, waterbars or other drainage structures or disturbed surfaces associated with roads.

Culvert replacement. Culvert replacement occurs as needed throughout the Action Area. While most culverts are located in ephemeral drainages that convey water only during storm events, the only culverts within the mainstem Nacimiento River are the culverts at the Low Water Bridge, described below. Culvert replacement activities are covered in the Integrated Natural Resources Management Plan (INRMP) which provides guidelines for culvert replacement and is summarized below (CA ARNG 2014). Culverts located in perennial streams where steelhead are located, other than the Low Water Bridge culvert replacement project, were not analyzed in this biological opinion. All culvert replacements are installed using BMPs to prevent soil erosion, including energy dissipaters at out-falls where needed (CA ARNG 2014).

Low Water Bridge. The only culverts located within the Nacimiento River are three large culverts at Low Water Bridge. Originally there were plans to remove and replace the entire crossing structure containing the culverts, however in 2011 a single span metal bridge was installed over the deteriorated crossing and the culverts were left in place. Future plans and a related biological evaluation were developed to remove the culverts and the concrete apron from the river. A large storm event in 2016 eroded away much of the concrete apron.

Low Water Bridge culvert removal is an important Camp Roberts management action that would also provide a conservation benefit to S-CCC steelhead. The existing culvert structure and associated concrete apron (what remains after the 2016 storm) continue to degrade and negatively impact water quality and river flow and poses a partial barrier to steelhead passage.

Removal of the culvert entails breaking apart the existing concrete apron, removing debris and culverts, and replacing some of the existing riprap upstream and downstream of the bridge. Portions of the work site will be dewatered to allow for demolition activities. To reduce effects of dewatering on S-CCC steelhead, a fish rescue plan will be developed in coordination with NMFS prior to implementation. Two existing access roads located south of the crossing (one from the east bank and one from the west bank) will be used to facilitate heavy equipment access to the river bed following dewatering. All staging of equipment and materials would take place in a previously disturbed area located on the west side of the river. A current and more detailed plan to remove the culverts is currently underway and will implement the conservation measures listed below.

- Limit in-channel project activities to occur between June 15 and October 15 in order to avoid disruption to potential spawning steelhead and smolt migration.
- Avoid stranding impacts to native fish in dewatered work areas. A fish rescue and relocation plan will be prepared in coordination with NMFS prior to dewatering.
- All pumping intake hoses will be equipped with screens per NMFS screening criteria (NMFS 1996).
- Maintain sufficient flows during water diversion so that stream flow downstream of the construction site is not reduced below background levels.
- CA ARNG will coordinate with MCWRA prior to implementation of diversion activities in order to identify any anticipated changes in reservoir releases or other actions associated with Nacimiento Dam operations which may inhibit flows in the project area.
- Implement native vegetation avoidance and protection measures and replace all temporarily and permanently impacted native vegetation as a result of project completion.

- Prior to implementation, the CA ARNG will prepare a Vegetation Management Plan (VMP) that will identify native trees, vegetation and other sensitive areas to be protected throughout project operations.
- Implement BMPs identified in CA ARNG 2015a to minimize impacts to water quality disturbances, including:
- Limit project-related disturbances to the dry season work window (June 15 to October 15) to avoid sedimentation impacts related to storm water runoff. Apply final stabilization measures at the earliest possible date following bank stabilization activities.
- Limit the total areas requiring clearing, grading, or re-contouring to the minimum necessary to complete project activities.
- Silt-laden water pumped from the isolated work area will not be allowed to re-enter the live channel. Silt-laden water will be filtered naturally through vegetation or by BMPs (i.e., filter socks, bladder bags, etc.) and allowed to recharge groundwater in the project area.
- Avoid operation of equipment in flowing water or other wetted areas.
- Prohibit the use of an earthen berm or excavation within the channel to isolate the workspace from flowing water.
- No equipment shall be stored within the banks of the Nacimiento River for the overnight period. The designated staging area shall be used for all overnight staging and equipment fueling.
- Implement all BMPs such as erosion control blankets, silt fences, biodegradable straw wattles, and other measures identified by the Regional Water Quality Control Board or other regulatory agencies per manufacturer's recommendations in order to minimize erosion or potential harm to water quality and in-channel habitat during dewatering and crossing removal. Use of monofilament erosion control materials will be prohibited.
- Avoid stockpiling soils or other materials on the banks of the river. Grade spoil sites to minimize surface erosion and apply erosion control measures, as appropriate, to prevent sediment from entering the river channel, or upland habitat areas. Remove stockpiles from the project area at the earliest possible date.
- Apply mulch to disturbed areas and replant with native species as soon as practical after disturbance, following guidelines established in the VMP.

Control of invasive plants. The CA ARNG controls invasive plants to sustain land available for military training, improve habitat, and provide for health and safety. Invasive plants are controlled using mechanical and chemical treatment methods described in the Biological Opinion for Camp Roberts (USFWS 2009). Periodic surveys are used to monitor impacts associated with invasive plants control. These surveys are conducted along riparian corridors and in areas where threatened and endangered plants and vernal pool fairy shrimp occur. Monitoring surveys are also conducted around various other base features including roadsides, electric poles, airfield, fire ranges, and training areas.

Invasive plant control methods within the riparian zone include hand removal and bagging, while in upland areas plant control also includes spot treatment with Telar herbicide. In an effort to eliminate chemical transport, herbicide application is not permitted within 24 hours of a rain event.

Riparian management. The primary goal of riparian management at Camp Roberts is to maintain existing riparian habitat and restore or expand riparian habitat, where appropriate. Riparian management as described in the INRMP (CA ARNG 2014) includes several measures to maintain and protect existing riparian habitat such as maintaining riparian buffers, limiting the types of training activities that may occur within riparian areas, and restricting ground disturbing activities within riparian areas. Efforts to restore or expand riparian habitat include (CA ARNG 2014):

- native vegetation planning to replace riparian vegetation that is damaged or removed as a result of military training, construction, or maintenance projects at 3:1 ratio (three native trees/shrubs for every one removed or significantly damaged);
- creating a comprehensive Riparian Vegetation Management Policy that formalizes protection, restoration, and mitigation guidelines for riparian habitats; and
- restoring, maintaining, and enhancing riparian corridors with native vegetation to improve bank stability, structure, and biological productivity.

Recreation. The principal form of natural resources-based outdoor recreation at Camp Roberts is hunting. The Camp Roberts hunting program is facilitated by the installation and is open to military personnel, dependents, civilian employees, and the public. Hunters must register each day and must return their registration forms with harvest results at the close of each day. The California Department of Fish and Wildlife (CDFW) game warden conducts hunting and fishing law enforcement within the Action Area (USFWS 2009).

Fire management. Due to the large expanses of grasslands at Camp Roberts, prescribed burns are conducted annually to reduce fuel loads. Prescribed burning and fire suppression activities, conducted by Emergency Services Fire, include prescribed burns and wildland fire suppression. Prescribed burning is conducted at Camp Roberts to reduce the risk of wildfires, manage vegetation in support of training activities, and to enhance habitat. On average, prescribed burns occur on approximately 10,000 acres annually (USFWS 2009). Riparian areas will not be burned during a prescribed burn.

Wildland fires on Camp Roberts are treated as emergencies in which all necessary actions are taken to control the fires. Such actions may include, but are not limited to, cutting emergency firebreaks with bulldozers, creating fire lines with hand tools, using water hoses, and driving off-road.

To reduce adverse effects on natural resources resulting from fires, the CA ARNG has developed an Integrated Wildland Fire Management Plan (IWFMP; CA ARNG 2015). Actions included in the IWFMP require a Natural Resource Manager to be on site to provide information on protected natural resources and protection priorities when a fire threatens important protected resources. In addition, fire management activities should take actions to reduce sediment input into the Nacimiento River and avoid use of heavy equipment in riparian areas and side channel habitat to the greatest extent possible. Other conservation measures include conducting environmental briefings to fire crews, limiting firebreak maintenance and burning activities to the dry season, prohibiting burning or grading of firebreaks in riparian areas, and incorporating a rotation of annual burn areas. Native vegetation will be reestablished after a successfully

implemented prescribed burn to minimize erosion and prevent establishment of invasive plant species.

1.2.2 Steelhead conservation actions

Enhance juvenile rearing habitat in side channels. As will be discussed in further detail later, overall steelhead abundance in the Nacimiento River appears to be low, making it difficult to determine what life stage is limiting production in the Action Area. However, based on the availability of suitable spawning habitat and poor condition of summer juvenile rearing habitat, it appears that suitable juvenile rearing habitat may be limiting summer carrying capacity, and possibly smolt production. In particular, there appears to be a lack of velocity refuge from unnaturally high spring and summer flows, high predation potential from invasive species, periodic stress from high water temperature, and periodic stranding risk. Conservation actions to enhance juvenile rearing habitat could address much of this threat by increasing habitat complexity to provide refuge from high water velocity, and cover from invasive species. These actions will not address risks from periodic increases in high water temperature and stranding associated with the operation of Nacimiento Dam.

Based on CA ARNG's analysis, the highest potential to enhance juvenile rearing habitat within the Action Area is in the existing side channels of the Nacimiento River. These areas convey only a portion of the flow from the main channel, and thus have lower water velocities more likely to be suitable for steelhead rearing. Review of available aerial imagery indicates that much of the current side channel habitat is inundated during high summer flows (> 200 cfs) when juvenile rearing habitat is most likely impaired. Within these areas, efforts to enhance habitat complexity are more likely to remain stable over time and to provide high-value habitat for juvenile steelhead.

The extent of side channels was mapped using aerial imagery and LiDAR surface elevation data. Based on this mapping, the Study Area was divided into three reaches based on the abundance of side channels; side channels are most abundant in Reach 3, which also has robust and extensive riparian plant communities relative to the rest of the Study Area. Additional off-channel habitat also occurs within Reach 1.

To increase suitable habitat within existing side channel, CA ARNG proposes to place engineered large woody debris and boulder structures in side channels inundated during summer flows. Final enhancement designs will incorporate water surface elevations corresponding with elevations that occur during minimum flows in the Study Area to address stranding potential related to Nacimiento Dam releases. Additional engineering and environment permitting would be required prior to implementation. Designs would consider the potential for juvenile steelhead stranding within side channel enhancement locations and incorporate appropriate measures (e.g. channel slope and inundation under various flows) to reduce the risk of stranding. Monitoring of juvenile steelhead use prior to, and following enhancement (described below in *Steelhead monitoring*) is recommended to evaluate the success of enhancement efforts, and to guide future efforts.

Juvenile rearing habitat enhancement within the Nacimiento River will occur in up to five side channel locations. Up to 1,000 meters (total for the five locations) of stream channel may need to be dewatered which will require a dewatering plan and fish capture and relocation plan.

Based on the low abundance of juvenile steelhead in the Nacimiento River, five juvenile steelhead are expected to be captured and relocated. The following conservation measures will be implemented:

- Limit in-channel project activities to occur between June 15 and October 15 in order to avoid disruption to potential spawning steelhead and smolt outmigration.
- Avoid stranding impacts to native fish in dewatered work areas. A fish rescue and relocation plan will be prepared in coordination with NMFS prior to dewatering.
- All pumping intake hoses will be equipped with screens per the NMFS screening criteria (NMFS 1996).
- Maintain sufficient flows during water diversion so that stream flow downstream of the construction site is not reduced below background levels.
- CA ARNG will coordinate with MCWRA prior to implementation of diversion activities in order to identify any anticipated changes in releases or other actions associated with the Nacimiento Dam operations which may inhibit flows in the project area.
- Prior to implementation, the CA ARNG will prepare a Vegetation Management Plan (VMP) that will identify native trees, vegetation and other sensitive areas to be protected throughout project operations.

Implement BMPs identified in CA ARNG 2015a to minimize impacts to water quality disturbances, including:

- Limit project-related disturbances to the dry season work window (June 15 to October 15) to avoid sedimentation impacts related to storm water runoff. Apply final stabilization measures at the earliest possible date following bank stabilization activities.
- Limit the total areas requiring clearing, grading, or re-contouring to the minimum necessary to complete project activities.
- Silt-laden water pumped from the isolated work area will not be allowed to re-enter the live channel. Silt-laden water will be filtered naturally through vegetation or by BMPs (i.e., filter socks, bladder bags, etc.) and allowed to recharge groundwater in the project area.
- Avoid operation of equipment in flowing water or other wetted areas.
- Prohibit the use of an earthen berm or excavation within the channel to isolate the workspace from flowing water.
- No equipment shall be stored within the banks of the Nacimiento River for the overnight period. The designated staging area shall be used for all overnight staging and equipment fueling.
- Implement all BMPs such as erosion control blankets, silt fences, biodegradable straw wattles, and other measures identified by the Regional Water Quality Control Board or other regulatory agencies per manufacturer's recommendations in order to minimize erosion or potential harm to water quality and in-channel habitat during dewatering and crossing removal. Use of monofilament erosion control materials will be prohibited.
- Avoid stockpiling soils or other materials on the banks of the river. Grade spoil sites to minimize surface erosion and apply erosion control measures, as appropriate, to prevent sediment from entering the river channel, or upland habitat areas. Remove stockpiles from the project area at the earliest possible date.

- Apply mulch to disturbed areas and replant with native species as soon as practical after disturbance, following guidelines established in the VMP.

Fish passage assessment. Fish passage conditions for adult steelhead and juvenile steelhead should be assessed within the recent Study Area and results submitted to the CDFW Fish Passage Assessment Database. A recent review by CA ARNG of the CDFW Fish Passage Database (CDFW 2017) showed zero fish passage impediments within the Study Area; however, conditions at the Low Water Crossing bridge appear to be limiting steelhead passage under high flow conditions.

Water temperature monitoring. Because high water temperatures have been observed during low flows that occur during summer rearing, it is crucial to monitor temperatures in habitats used by steelhead. Additional water temperature data will be collected in the Nacimiento River during the summer and fall and compared with streamflow data collected at the USGS gaging station (11149400). Temperature monitoring will be conducted at the upstream and downstream end of the Study Area and within side channel locations. This data will help inform the relationship between temperature and flow as it relates to steelhead temperature requirements.

Sediment reduction. Streamside erosion was observed during a reconnaissance survey at multiple locations within the Study Area, but no direct effect on steelhead habitat was observed. This may change as the reconnaissance survey occurred after the 2017 peak flows which may have transported eroded sediment out of the Nacimiento River to the Salinas River. Sufficient data is lacking to assess whether streamside erosion is limiting steelhead habitat during drier water years. To gain a better understanding of sediment conditions within the Study Area, the effect of sediment on steelhead habitat will be monitored to capture conditions following a drier winter (i.e., peak daily average flow < 1,000 cfs). If fine sediment is determined to reduce steelhead habitat, then sediment sources will be identified and prioritized for efforts to reduce sediment inputs. Remediation of previously identified sediment sources would also be addressed, including: 1) scour at Twin Bridges, 2) sediment input from Boy Scout Crossing, 3) bank scour, and 4) scour at the Low Water Bridge. Remediation actions can include bank armoring at scour locations, bank set-back to dissipate velocities below levels that cause scouring, and enhancing channel conditions within dry stream beds to capture or trap sediment within the existing channel.

We considered 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 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 provides 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 non-discretionary 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/or an adverse modification analysis. The jeopardy analysis relies upon the regulatory definition of "to jeopardize the continued existence of" a listed species, which is "to engage in an action that 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 relies on the 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 (species) use(s) the term primary constituent element (PCE) or essential features. The 2016 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 2019 regulations define effects of the action using the term "consequences" (50 CFR 402.02). As explained in the preamble to the regulations (84 FR 44977), that definition 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 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.

2.1.1 Use of Best Available Scientific and Commercial Information

To conduct the assessment presented in this opinion, NMFS examined an extensive amount of information from a variety of sources. Detailed background information on the biology and status of the listed species and critical habitat has been published in a number of documents including peer reviewed scientific journals, primary reference materials, and governmental and non-governmental reports. Additional information regarding the potential effects of the proposed Project-related activities on the listed species in question, their anticipated response to these actions, and the environmental consequences of the actions as a whole was formulated from the aforementioned resources, and the biological assessments provided for the projects.

For information that has been taken directly from published, citable documents, those citations have been reference in the text and listed at the end of this document. A complete record of this consultation is on file at NMFS North-Central Coast Office in Santa Rosa, California (ARN # 151422WCR2019SR00200).

2.2 Rangewide Status of the Species and Critical Habitat

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

2.2.1 Status of the 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.

Recent 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. 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 (Williams et al. 2016), 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. 2011), therefore, the S-CCC steelhead DPS remains listed as threatened (Williams et al. 2016; 81 FR 33468).

2.2.2 Status of Critical Habitat for the S-CCC steelhead DPS

In designating critical habitat, NMFS considers, among other things, the following requirements of the species: 1) space for individual and population growth, and for normal behavior; 2) food, water, air, light, minerals, or other nutritional or physiological requirements; 3) cover or shelter; 4) sites for spawning, reproduction, and rearing offspring; and, generally 5) habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of this species (50 CFR 424.12(b)). In addition to these factors, NMFS also focuses on PBFs and/or essential habitat types within the designated area that are essential to the conservation of the species and that may require special management considerations or protection (81 FR 7214).

PBFs for S-CCC steelhead critical habitat and their associated essential features within freshwater include:

- freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development;
- freshwater rearing sites with:
    - water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility;
    - water quality and forage supporting juvenile development; and
    - natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks;
- freshwater migration corridors free of obstruction and excessive predation with water quantity and quality conditions and natural cover such as submerged and overhanging large

wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.

PBFs for S-CCC steelhead critical habitat and their associated essential features within estuarine areas include areas free of obstruction and excessive predation with the following essential features: (1) water quality, water quantity and salinity conditions supporting juvenile and adult physiological transitions between fresh- and saltwater; (2) natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels; and (3) juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation (70 FR 52488).

The condition of S-CCC steelhead critical habitat, specifically its ability to provide for their conservation, has been degraded from conditions known to support viable salmonid populations. NMFS has determined the present depressed population conditions are, in part, the result of the following human-induced factors affecting critical habitat: agriculture, grazing, and mining activities, urbanization, stream channelization, construction of dams and other migration impediments, wetland loss, water resource development including aquifer overdraft, and past recreational harvest. Impacts of concern include alteration of stream bank and channel morphology, alteration of water temperatures, fragmentation of habitat, loss of downstream recruitment of spawning gravels and large woody debris, degradation of water quality and quantity, alteration or loss of riparian vegetation communities, and fish passage constraints (Busby et al. 1996; 70 FR 52488).

Depletion and storage of streamflow have drastically altered the natural hydrologic cycles in many of the streams in the S-CCC steelhead DPS (Good et al. 2005; NMFS 2013). Alteration of streamflows results in migration delays, loss of suitable habitat due to dewatering and blockage, stranding of fish from rapid flow fluctuations, increased water temperatures, and have degraded estuary/lagoon access and function. Overall, the current condition of S-CCC steelhead critical habitat is degraded, and likely cannot provide the conservation value necessary for the recovery of the species absent habitat restoration efforts.

NMFS' recovery plan for the S-CCC steelhead DPS (NMFS 2013) describes the key threats and the actions needed to achieve recovery for populations within each biogeographical population group (BPG). For the Nacimiento River, San Antonio, and Salinas River populations (all Core 1 [highest priority] populations for the recovery of this DPS) within the Interior Coast BPG, critical recovery actions included: (1) development and implement operating criteria to ensure the pattern and magnitude of water extractions and water releases, including bypass flows around diversions and dams (e.g., Nacimiento, San Antonio, and Salinas Dams) to provide the essential habitat functions to support the life history and habitat requirements of adult and juvenile steelhead; and (2) physically modify Nacimiento, San Antonio, and Salinas Dams to allow steelhead natural rates of migration to upstream spawning and rearing habitats, and passage of smolts and kelts downstream to the estuary and ocean.

2.2.3 Global Climate Change

Another factor affecting the rangewide status of 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[2], 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).

2.2.4 Life History of S-CCC Steelhead

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

[2] Both the San Francisco Bay and Monterey Bay regions exhibit similar Mediterranean climate patterns. The action area is located within the Monterey Bay region.

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 Action Area includes the Camp Roberts California National Guard training site (approximately 43,000 acres) in Monterey and San Luis Obispo counties, California, which encompasses a 1.5-mile section of the San Antonio River, a 10.7-mile section of the Nacimiento River, and a 7.0-mile section of the Salinas River.

2.3.1 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 prominent natural features on Camp Roberts are the three rivers mentioned above. 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.

The Salinas River in the action area (a migration corridor for S-CCC steelhead) is primarily influenced by availability of instream flows which Camp Roberts does not influence or control. Habitat conditions in the San Antonio River within the Action Area are also primarily influenced

by the availability of instream flows. Monterey County Water Resources Agency (MCWRA) owns and operates San Antonio Dam approximately three miles upstream of the Camp Roberts property line. The San Antonio/Salinas River confluence is approximately 107 miles upstream from the Pacific Ocean. MCWRA also 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 in the Nacimiento River are also primarily influenced by the availability of instream flows.

2.3.2 Status of S-CCC Steelhead in the Action Area

Steelhead use the Action Area for spawning, rearing, and migration. The current steelhead population in the Nacimiento River is likely at very low abundance. The Nacimiento River is one of three main anadromous tributaries to the Salinas River. The San Antonio River was one of the three most important spawning and rearing tributaries for Salinas River steelhead (Titus *et al*. 2002). 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 counted at the 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 in 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 2017 (due to low flow conditions in 2015 and 2016, no index reach monitoring occurred).

Only one individual steelhead was captured (in 2012) during the four years of electrofishing. 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.

2.3.3 Status of S-CCC Steelhead Critical Habitat in the Action Area

Key factors influencing the steelhead population within the Action Area include anadromous migratory access in the Salinas River, a potential fish passage barrier at the Low Water Bridge, high spring and summer flows, fluctuating summer flows, warm water temperatures, lack of suitable juvenile steelhead rearing habitat, and invasive species.

Steelhead use of upper Salinas River tributaries is dependent upon the presence of a migration corridor in the mainstem Salinas River (Titus et al. 2002). One of the main limitations to migration within the Salinas River Basin is the limited availability of adequate flows coupled with the long distances (over 110 miles to the upper tributaries) to suitable spawning and rearing grounds. The number of days within the migration period where flows are adequate for migration is highly variable from year to year, and groundwater pumping has shortened this window. In addition, levees, channel clean outs, road crossings, and removal of riparian vegetation have reduced the availability, and quality, of migration habitat for steelhead. The confluence of the Salinas and Nacimiento rivers is approximately 110 miles upstream from the mouth of the Salinas River. A redd survey conducted on February 26, 2003, between river mile 0 and approximately river mile 7 resulted in zero redds observed. The three miles of river closest to the dam were not surveyed. This un-surveyed area is thought to have the best spawning and rearing habitat (see below).

Nacimiento River steelhead have been affected by the damming of the Nacimiento River, water release methods and schedules from Nacimiento Reservoir, groundwater pumping and other water diversions, limited migration opportunities in the Salinas River, and fish stocking managed by the CDFG.

Most of the Nacimiento River downstream of the dam is degraded from conditions that support robust steelhead populations. One area of the Nacimiento River continues to contain aquatic habitat in relatively good condition for steelhead. Reconnaissance level habitat surveys conducted immediately downstream of the Dam in spring 2000 documented the presence of steelhead spawning and rearing habitat with good cover, relatively cool water temperatures and dense riparian vegetation, and less fine sediments than found downstream. Even with these relatively better habitat conditions, habitat value for steelhead in this area is heavily influenced by flow levels and quality of water released from the reservoir (EDAW 2001).

The confluence of the Salinas and San Antonio rivers is approximately 107 miles upstream from the mouth of the Salinas River. Following construction of the San Antonio Dam, the pattern of flow releases from the dam was not predicted to provide perennial flow conditions in the lowermost San Antonio River, and CDFG decided against developing a fishery downstream from the dam (Titus et al. 2002). Although the availability of steelhead spawning and rearing habitat was limited in the lower San Antonio River even before dam construction, CDFG still identified steelhead as inhabitants of the San Antonio River below the reservoir as of 1981 (Titus et al. 2002). Presumably, it was assumed that steelhead still entered the lower river from the Salinas River when runoff was sufficient to provide a continuous migration corridor. However,

lack of access to historic spawning and rearing habitats in the perennial headwaters greatly limits steelhead use of the San Antonio River (Titus et al. 2002). Currently, hydrologic conditions downstream of San Antonio Dam and other habitat conditions do not favor steelhead (ENTRIX and EDAW 2002). Surveys of the lower San Antonio River completed after the placement of San Antonio Dam show steelhead use is low.

Currently, flows in the lower San Antonio River are affected by regulated discharges from San Antonio Dam and do not represent naturally occurring flow patterns during traditional steelhead spawning times. Releases from San Antonio Dam from January through April range from 3 cfs to several thousand cfs and are managed to meet minimum flow requirements, "aquifer conservation" releases, and flood control releases.

2.3.4 Climate Change and the Action Area

The long-term effects of climate change have been presented in Section 2.2.3 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.

2.3.5 Previous Section 7 Consultations in the Action Area

NMFS has conducted two formal consultations on actions within the action area. Each anticipated small amounts of incidental take that were unlikely to affect future steelhead returns and both 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.

2.4 Effects of the Action

Under the ESA, "effects of the action" are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (see 50 CFR 402.17). In our analysis, which describes the effects of the proposed action, we considered 50 CFR 402.17(a) and (b).

2.4.1 Bivouacking, water purification training, fish passage assessment, and water temperature monitoring

These activities are not expected to result in any effects to steelhead or their habitat, as described. Bivouacking (which entails establishing temporary encampments that may be used for a single night, up to several weeks) is limited in riparian areas and ground disturbance activities will be minor. Additionally, gray water discharge into waterways is not permitted. Water purification

training (which involves siphoning water through a screened intake from the Nacimiento River as part of military training) will not be treated and will be returned to the river after the event. Pump intakes will be screened following the NMFS (1996) juvenile fish screen criteria. Water purification training locations will be surveyed prior to implementation of the training to ensure siphoning locations are not placed in high quality spawning or rearing habitat. Fish passage assessment is completed primarily via visual reconnaissance surveys and water temperature monitoring is a passive activity and does not require disturbance to the river other than the initial anchoring of instruments to river boulders.

2.4.2 Management Actions and Steelhead Conservation Actions with Minor Effects

Temporary bridge installation. This type of training is rare and occurs less than one time every couple of years. Temporary bridges are easily transportable and are constructed manually on-site and do not require the placement of footings or permanent structures. Installation will be limited to May through December in order to reduce potential impacts to steelhead spawning, adult migrating, and fry emergence. Although the temporary bridges do not utilize footings or permanent structures, the streambed and banks could be affected during installation. However, the degree of disturbance will be minor. 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 installing temporary bridges.

Road, tank trail, and fire break maintenance. Travel-way maintenance has the potential to affect steelhead habitat by increasing sediment delivery into the Nacimiento River. Routine road, trail, and firebreak maintenance occurs between May 1 and October 30 (i.e., the dry season). Most roads, trails, and firebreaks that undergo routine maintenance are located away from the active river channel which reduces immediate threats to the waterway. The effects of chronic elevated sediment and turbidity levels to steelhead and their habitat are described above. However, Camp Roberts proposes several measures that will avoid and minimize the effects to steelhead and their habitat including sediment control and soil stabilization measures and sufficient buffer strips. 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 maintenance activities.

Bridge maintenance and repair. Painting, sealing and the replacement and repair of beams and planks can be a source of harmful chemicals and construction debris into waterways. Appropriate minimization measures (i.e., a spill prevention and control plan, hazardous waste management plan) are expected to reduce the likelihood of impacts to steelhead and their habitat. In locations along river sections or within riparian areas, vegetation removal may be required to complete bridge maintenance and repair activities. The effects of vegetation removal associated with the proposed action are described below.

Control of invasive plants. Invasive plant control methods within the riparian zone include hand removal and bagging. Control of invasive plants is expected to prevent their further spread within the Action Area, enhance riparian habitat, and reduce competition with native plants. Based on the presence of a well-established native riparian corridor along the rivers in the Action Area, the hand-removal of invasive plants within the riparian corridor is expected to result in

negligible short-term adverse effects, and ultimately long-term beneficial effects, to steelhead and their habitat.

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), source of woody debris that creates fish habitat diversity (Bryant 1983, Lisle 1986, Shirvell 1990), and both cover and shelter for fish (Bustard and Narver 1975, Wesche et al. 1987, Murphy and Meehan 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.

Vegetation clearing activities would occur outside of the rainy season (typically November 1 through April 30) . Because bridge maintenance and repair will occur on either of only two bridges (High and Low Water Bridges) and vegetation removal will occur primarily for fire prevention and maintenance access purposes, NMFS expects only a few riparian trees will be removed. This may result in reductions in riparian vegetation. However, the loss of canopy cover due to tree removal is not anticipated to result in significantly 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.

Riparian management. Riparian areas provide several benefits to aquatic habitats, including moderating water temperatures, providing bank stabilization, reducing sediment input, and increasing terrestrial invertebrate production (Knight and Bottorff 1983). Replacing riparian vegetation that is damaged or removed as a result of military training, construction, or maintenance projects at a 3:1 ratio; creating a comprehensive Riparian Vegetation Management Policy; and restoring, maintaining, and enhancing riparian corridors with native vegetation are expected to fully mitigate for impacts to riparian vegetation, and actually improve habitat conditions for steelhead within the Action Area.

Fire Management. Both wildland fires and prescribed burning have the potential to adversely affect natural resources. Such fires can increase or reduce nutrient availability, adversely affect migratory birds and other wildlife, increase erosion, and/or alter the ecosystem's vegetation communities. Fires have also been reported to provide benefits to native plant communities. Within riparian areas fires can provide an important disturbance shown to increase native species richness and increase the proportion of native plant species (Hankins 2013). The likelihood of steelhead or their habitat being impacted by prescribed burns is negligible because prescribed burns will occur away from riparian areas and rivers in the Action Area.

2.4.3 Management Actions and Steelhead Conservation Actions with Significant Impacts on Steelhead

Stream fording. Stream fording will be limited to the months of May to December within designated locations to eliminate impacts to spawning steelhead. A preliminary assessment of steelhead habitat conditions at fording sites was completed during visual reconnaissance surveys for the ESMC. This assessment identified the potential for fine sediment to be released at fording sites. Vehicle passage through stream fords has the potential to damage *O. mykiss* habitat, destroy redds, create barriers to fish migration, and introduce plumes of turbidity (Weaver et al. 2015). Unless it has a bedrock foundation and hardened approaches, stream fording can lead to increased erosion. The piled-up sand and gravel that can result from fording can create a potential fish migration barrier. Short-term effects to S-CCC steelhead may include temporary avoidance of stream fording areas and reduced feeding due to increased turbidity (Sigler et al. 1984).

During stream fording, the river bed and banks will be disturbed. 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). During stream fording, NMFS anticipates disturbed river bed sediment could affect water quality and critical habitat in the action area in the form of small, short-term increases in turbidity. Disturbed soils on the river bank are easily mobilized when late fall and winter storms increase streamflow levels or through direct delivery via runoff.

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 stream fording are not expected to rise to the levels discussed in the previous paragraph, because the project proposed conservation measures (e.g., sites will avoid high value steelhead rearing habitat in side channels; sites will be situated where streambanks are stable and where the approaches to the crossing have lows slopes; sites will be monitored to ensure that approaches to the sites are not eroding and that disturbances associated with fording are not creating fish passage obstructions) to prevent the mobilization of sediment. Due to the proposed conservation measures, NMFS anticipates 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 stream fording would not extend more than 150 feet downstream of the crossing based on sites being situated in areas where the streambed is comprised of bedrock or substrate is stable (i.e., not eroding). 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 stream fording.

Stream fording in the Nacimiento River has the potential to crush fish and/or displace fish. However, because: (1) the density of juvenile steelhead in the Nacimiento River is currently very low (less than six steelhead per 100 meters of stream); (2) fording maneuvers will be confined to the smallest area possible (less than 50 feet wide spanning the river at up to five locations); and (3) fording sites will be selected on a sites-specific basis after the stream is surveyed, the likelihood of steelhead being crushed is also very low, and the number of fish that will be displaced will be very low.

NMFS expects some juvenile steelhead may be present in the areas that will be forded by wheeled and tracked vehicles, and some may be crushed, while others may be displaced. Based on the low density of steelhead in the Nacimiento River, NMFS expects no more than five young-of-the-year and pre-smolting juvenile steelhead per year will be killed as a result of these activities. Fish that are displaced 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 emigration and reduced growth rates (Keeley 2003). 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 severe 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 displaced from each fording sited (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 displaced without crowding of other juvenile steelhead.

Culvert replacement. Culvert removal at the Low Water Bridge will include in-stream work with potential to cause short term effects to S-CCC steelhead. Other culverts are located within ephemeral non-fish bearing drainages and will only be replaced during periods of no flow. In-channel work may require temporarily dewatering sections of the river up to 450 meters in length and rerouting stream flow around work locations. Heavy equipment uses required for culvert replacement has the potential to destabilize bank and channel substrates that may contribute to erosion. Heavy equipment use also has the potential to introduce contaminants into the river that may impair water quality. Removal of riparian vegetation may be required to access the culverts. Gunite (cement) that surround portions of the Low Water Bridge culverts will need to be broken apart as part of the removal process.

CA ARNG proposes to isolate the work area (i.e., with cofferdams) and bypass streamflow around the culvert removal site. 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. Dewatering of the Nacimiento River channel is estimated to affect up to 450 meters in length. NMFS anticipates only minor temporary changes to the streamflow of the river

outside of the dewatered construction areas 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.

Based on the low abundance of S-CCC steelhead in the Nacimiento River (less than six juveniles per 100 meters of stream), we expect 27 juvenile steelhead will be captured and relocated. However, based on similar projects in similar sites in central California coastal streams, the anticipated number of fish caught is often underestimated. Therefore, we expect a total of 45 juvenile steelhead will be captured and relocated for the Low Water Bridge Culvert project.

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.

Although sites selected for relocating fish should have similar and ample aquatic habitat as in the capture sites, in some instances relocated fish may endure short-term stress from crowding at the relocation sites. 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. 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 risks described in the following section on dewatering. NMFS expects no more than two percent of the steelhead captured by the Project for dewatering will be injured or killed during relocation activities.

Juvenile steelhead that avoid capture in the project work area following relocation efforts may die due to desiccation, thermal stress, or be crushed by equipment or foot traffic if not found by biologists while water levels within the reaches recede. However, due to fish relocation efforts,

NMFS expects the number of juvenile steelhead that would die as a result of stranding during dewatering activities would be less than one percent of the steelhead within the work sites prior to dewatering.

The dewatering of up to 450 meters 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 culvert removal site are not expected to impact juvenile steelhead movements in the Nacimiento River beyond typical summer low-flow conditions. Steelhead experience intermittent conditions in many central California coastal streams during summer which impede upstream and downstream movements by juveniles. Although it is unknown at this time, based on similar projects in similar central California coast streams, we expect the temporary cofferdams and water diversion structures will be in place for approximately six weeks. The limited duration (approximately six weeks) in combination with the summer/fall season timing of this projects' water diversions 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 culvert removal site may be killed or their abundance reduced when creek habitat is dewatered (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 Low Water Bridge culvert removal project activities would result in disturbance of the river bed and banks for equipment access, removal 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 and critical habitat 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, because the projects propose soil and channel stabilization measures to prevent the mobilization of sediment. Due to 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 Low Water Bridge culvert removal 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 associated with exposure to the minor elevated suspended sediment levels that would be generated by the Low Water Bridge Culvert project.

Recreation. The principal form of outdoor recreation at Camp Roberts is hunting. The Camp Roberts hunting program is facilitated by the installation and is open to military personnel, dependents, civilian employees, and the public. NMFS expects any indirect effects to steelhead or their habitat as a result of hunting activities will be negligible.

Juvenile steelhead habitat enhancement. Habitat enhancement through the placement of in-channel wood structures is expected to increase the amount of suitable juvenile rearing habitat within the Nacimiento River by increasing habitat complexity within the existing side channels. Placement of in-channel wood structures that area partially inundated under normal minimum release flows (60 cfs) and further inundated under typical summer flows (>200 cfs) would increase fish cover throughout the year and provide velocity refuge during high flow events. High flows are likely to scour sediment around wood structures increasing habitat complexity relative to the current condition.

Cumulatively, up to 1,000 meters of stream channel may need to be dewatered for the 5 habitat enhancement projects. These projects could impacts steelhead via fish relocation, projects site dewatering, and construction related turbidity. The severity and duration of effects to steelhead from these projects are virtually identical to those described above for *Culvert replacement.* Based on a juvenile steelhead density of 6 fish per 100 meters, 60 juvenile steelhead are expected to be captured and relocated (it is unknown at this time how much dewatering will occur at each of the five sites). However, based on similar projects in similar sites in central California coastal streams, the anticipated number of fish caught is often underestimated. Therefore, we expect a total of 100 juvenile steelhead will be captured and relocated. NMFS expects no more than two percent of the steelhead captured during dewatering will be injured or killed during relocation activities. Juvenile steelhead that avoid capture in the project work area following relocation

efforts may die due to desiccation, thermal stress, or be crushed by equipment or foot traffic if not found by biologists while water levels within the reaches recede. However, due to fish relocation efforts, NMFS expects the number of juvenile steelhead that would die as a result of stranding during dewatering activities would be less than one percent of the steelhead within the work sites prior to dewatering. As described above for *Culvert replacement,* NMFS does not anticipate harm, injury, or behavioral impacts to S-CCC steelhead associated with construction related turbidity, or the reduction and alteration of habitat in dewatered reaches.

2.4.4 Effects on Critical Habitat

As discussed above, CA ARNG's Management Actions and Steelhead Conservation Actions are expected to result in short-term disturbance to the channels and adjacent riverbank areas. Localized impacts to water quality in the form of increased levels of turbidity and suspended sediment will be contained during construction by the cofferdams and post-construction mobilization of sediment during high flow events are expected to be minimal. Any sediment and turbidity associated with CA ARNG's actions will rapidly dissipate downstream during subsequent high flows over the next rainy season. Any sediment and turbidity generated from the activities will likely be miniscule compared to the sediment and turbidity generated in the three rivers during winter rains. The temporary exposure of approximately 1,450 meters of channel in the Nacimiento River to increased sedimentation or turbidity is not expected to reach the scale where the physical or biological features of critical habitat will be altered, and therefore the ability of critical habitat to support listed species' conservation needs in the action area will be maintained.

PBFs of juvenile salmonid rearing habitat in the action area will be temporarily impacted by dewatering approximately 1,450 meters of channel in the Nacimiento River during juvenile steelhead enhancement activities and during the removal of the Low Water Bridge culverts. The amount of physical habitat available for rearing juveniles will be reduced by these amounts for a period of up to approximately six weeks and food supplies within the dewatered reaches will be temporarily reduced. Benthic (*i.e.*, bottom dwelling) aquatic macroinvertebrates may be killed or their abundance reduced when stream habitat is dewatered (Cushman 1985). However, effects to aquatic macroinvertebrates resulting from streamflow diversion and dewatering is expected to be short-term. Because construction activities will be short-lived and the dewatered reaches are relatively small, rapid recolonization (typically one to two months) of disturbed areas by macroinvertebrates is expected following rewatering (Cushman 1985, Thomas 1985, Harvey 1986). In addition, the effect of macroinvertebrate loss on juvenile salmonids would likely be negligible because food from upstream sources (via drift) would be available downstream of the dewatered areas since streamflow would be bypassed around the construction work sites. Based on the foregoing, NMFS expects the temporary loss of habitat space and impacts to aquatic macroinvertebrates as a result of dewatering activities would result in only minor temporary reductions to rearing PBFs for steelhead in the action area. The ability of critical habitat to support listed species' conservation needs in the action area will be maintained.

The temporary water diversion and cofferdams are not expected to affect the critical habitat PBFs associated with migration because the diversion will not be in place during periods of adult and smolt steelhead migration in the Nacimiento River. Water diversion around the worksites will be limited to the period between June 15 through October 15 when adults and smolts are no

longer migrating and cofferdams will be removed prior to the beginning of adult or smolt migration of December through May (Fukushima and Lesh 1998).

NMFS expects CA ARNG's actions will result in benefits to S-CCC critical habitat. Removing invasive plants, improving fish passage at Low Water Bridge, and enhancing juvenile rearing habitat in the Nacimiento River are likely to improve the chances that steelhead will persist in the Nacimiento River.

2.5 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.

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.

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 in the environmental baseline (Section 2.4).

2.6 Integration and Synthesis

The Integration and Synthesis section is the final step in our assessment of the risk posed to species and critical habitat as a result of implementing the proposed action. In this section, we add the effects of the action (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 diminishes the value of designated or proposed critical habitat for the conservation of the species.

The Nacimiento River, San Antonio River, and Salinas River populations are all Core 1 (highest priority) populations for the recovery of the S-CCC DPS (NMFS 2013). 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). The 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. As described in this biological opinion, there are a variety of causes for the population declines.

Based on the type of activities, their size, scope, and location, many of the proposed activities are 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. For stream enhancement activities and the Low Bridge Crossing project, NMFS estimates up to 145 juvenile steelhead will be captured and 5 killed from dewatering and relocation activities. NMFS estimates 5 juvenile steelhead may be killed annually as a result of stream fording. 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 of 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.

The Nacimiento River, Salinas River, and San Antonio River populations are part of the Interior Coast biogeographical population group (BPG) identified in the recovery plan for the S-CCC steelhead DPS (NMFS 2013). Other watersheds are also part of this BPG which 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.

Regarding designated critical habitat, key factors influencing the steelhead population within the Action Area include anadromous migratory access in the Salinas River, a potential fish passage barrier at the Low Water Bridge, high spring and summer flows, fluctuating summer flows, warm water temperatures, lack of suitable juvenile steelhead rearing habitat, and invasive species. Depletion and storage of streamflow have drastically altered the natural hydrologic cycles in many of the streams in the S-CCC steelhead DPS (Good et al. 2005; NMFS 2013). Alteration of streamflows results in migration delays, loss of suitable habitat due to dewatering and blockage, stranding of fish from rapid flow fluctuations, increased water temperatures, and have degraded estuary/lagoon access and function. Overall, the current condition of S-CCC steelhead critical habitat is degraded, and likely cannot provide the conservation value necessary for the recovery of the species absent habitat restoration efforts.

The proposed action will cause temporary and short-term impacts (i.e., dewatering and vegetation removal), and long-term beneficial impacts (i.e., juvenile rearing habitat will be enhanced, fish passage at Low Water Bridge will be improved and invasive plant species will be controlled). 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 critical habitat in the action area, and because habitat conditions in the action area will see some benefits, it is

unlikely critical habitat at the BPG- or DPS-level will experience any adverse impacts. Therefore, it is unlikely the proposed action will appreciably diminish the value of designated S-CCC steelhead critical habitat.

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, in-water activities will occur for approximately six weeks in the next 10 years, and the above effects of climate change will not be detected within that time frame. If the effects of climate change are detected over the short term, they will likely materialize as moderate changes to the current climate conditions within the action area. These changes may place further stress on S-CCC steelhead. The effects of the proposed actions combined with 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) and annual variations. S-CCC steelhead are expected to persist throughout these phenomena, 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 or their critical habitat 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 the value of designated S-CCC steelhead critical habitat, or reduce S-CCC steelhead DPS numbers, reproduction, or distribution.

2.7 Conclusion

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

2.8 Incidental Take Statement

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

that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant (50 CFR 402.02). Section 7(b)(4) and section 7(o)(2) provide that taking that is incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA if that action is performed in compliance with the terms and conditions of this ITS.

2.8.1 Amount or Extent of Take

In the biological opinion, NMFS determined that incidental take is reasonably certain to occur as a result of the South-Central California Coast Steelhead Endangered Species Management Component for Camp Roberts. The number of threatened steelhead that may be affected by the proposed action is expected to be small, and direct adverse effects will occur primarily to the juvenile life stage.

The following incidental take is anticipated to occur as a result of the Proposed Action:

- 5 juvenile steelhead may be crushed (killed) per year as a result of stream fording activities;
- 45 juvenile steelhead will be captured and relocated during stream dewatering for the Low Water Bridge project, 2 percent of these fish (1 fish) will be injured or killed, and 1 percent of fish (1 fish) present in the reach before dewatering will die from stranding after dewatering is complete;
- cumulatively, for the 5 habitat enhancement projects, 100 juvenile steelhead will be captured and relocated during stream dewatering, 2 percent of these fish (2 fish) will be injured or killed, and 1 percent of fish (1 fish) present in reaches before dewatering will die from stranding after dewatering is complete.

2.8.2 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 or destruction or adverse modification of critical habitat.

2.8.3 Reasonable and Prudent Measures

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

1. Undertake measures to ensure that harm and mortality to S-CCC steelhead resulting from Project implementations are low.
2. Prepare and submit designs for the Low Water Bridge culvert removal project and the juvenile steelhead rearing habitat enhancement sites.
3. Prepare and submit reports which summarize implementation of the South-Central California Coast Steelhead Endangered Species Management Component and post-construction conditions at Low Water Bridge and juvenile steelhead rearing habitat enhancement sites.

2.8.4 Terms and Conditions

The terms and conditions described below are non-discretionary, and the Department of Defense, Army National Guard or any applicant must comply with them in order to implement the RPMs (50 CFR 402.14). The Department of Defense, Army National Guard or any applicant has a continuing duty to monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this ITS (50 CFR 402.14). If the entity to whom a term and condition is directed does not comply with the following terms and conditions, protective coverage for the proposed action would likely lapse.

The following terms and conditions implement reasonable and prudent measure 1:

- General Conditions for all Fish and Capture and Relocation Activities:

    1. Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year. If precipitation sufficient to produce runoff is forecast to occur while construction is underway, work will cease and erosion control measures will be put in place sufficient to prevent significant sediment runoff from occurring. Exceptions on the fish relocation/dewatering time period will be considered on a case-by-case basis only if justified and if precipitation sufficient to produce runoff is not forecast to occur during any of the above activities, and if approved by the CA ARNG and NMFS. If the channel is expected to be seasonally dry during this period, construction should be scheduled so that fish relocation and dewatering are not necessary.

    2. A qualified fisheries biologist shall perform all seining, electrofishing, and fish relocation activities. The qualified fisheries biologist shall capture and relocate salmonids and other native fish prior to construction of the water diversion structures (*e.g.,* cofferdams). The qualified fisheries biologist shall note the number of salmonids observed in the affected area, the number of salmonids relocated, and the date and time of collection and relocation. The qualified fisheries biologist shall have a minimum of three years of field experience in the identification and capture of salmonids, including juvenile salmonids. The qualified biologist will adhere to the following requirements for capture and transport of salmonids:

        a) Determine the most efficient means for capturing fish. Complex stream habitat generally requires the use of electrofishing equipment, whereas in outlet pools, fish may be concentrated by pumping down the pool and then seining or dip netting fish.

        b) Notify NMFS one week prior to capture and relocation of salmonids to provide NMFS staff an opportunity to attend.

        c) Initial fish relocation efforts will be conducted several days prior to the start of construction. This provides the fisheries biologist an opportunity to return to the work area and perform additional electrofishing passes immediately

prior to construction if there is water in the isolated construction area. In these instances, additional fish could be captured that eluded the previous day's efforts. If water is left in the construction area, dissolved oxygen levels sufficient for salmonid survival must be maintained.

d) At project sites with high summer water temperatures, perform relocation activities during morning periods.

e) Prior to capturing fish, determine the most appropriate release location(s). Consider the following when selecting release site(s):

- Similar water temperature as capture location,
- Ample habitat for captured fish,
- Low likelihood of fish reentering work site or becoming impinged on exclusion net or screen.

f) Periodically measure air and water temperatures and monitor captured fish. Temperatures will be measured at the head of riffle tail of pool interface. Cease activities if health of fish is compromised owing to high water temperatures, or if mortality exceeds three percent of captured salmonids.

a. Electrofishing Guidelines:

The following methods shall be used if fish are relocated via electrofishing:

1. All electrofishing will be conducted according to NMFS' *Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act* (NMFS 2000).

2. The backpack electro-fisher shall be set as follows when capturing fish: Voltage setting on the electro-fisher shall not exceed 300 volts.

	Initial	Maximum
A) Voltage:	100 Volts	300 Volts
B) Duration:	500 µs (microseconds)	5 ms (milliseconds)
C) Frequency:	30 Hertz	30 Hertz

3. A minimum of three passes with the electro-fisher shall be utilized to ensure maximum capture probability of salmonids within the area proposed for dewatering.

4. Water temperature, dissolved oxygen, and conductivity shall be recorded in an electrofishing log book, along with electrofishing settings.

5. A minimum of one assistant shall aid the fisheries biologist by netting stunned fish and other aquatic vertebrates.

b. Seining Guidelines:

The following methods shall be used if fish are removed with seines.

1. A minimum of three passes with the seine shall be utilized to ensure maximum capture probability of all salmonids within the area.

2. All captured fish shall be processed and released prior to each subsequent pass with the seine.

3. The seine mesh shall be adequately sized to ensure fish are not gilled during capture and relocation activities.

c. *Guidelines for Relocation of Salmonids:*

The following methods shall be used during relocation activities associated with either method of capture (electrofishing or seining):

1. Fish shall not be overcrowded into buckets, allowing no more than 150 0+ fish (approximately six cubic inches per 0+ individuals) per 5 gallon bucket and fewer individuals per bucket for larger/older fish.

2. Every effort shall be made not to mix 0+ salmonids with larger steelhead, or other potential predators, that may consume the smaller salmonids. Have at least two containers and segregate young-of-year (0+) fish from larger age-classes. Place larger amphibians in the container with larger fish.

3. Salmonid predators, including other fishes and amphibians, collected and relocated during electrofishing or seining activities shall not be relocated so as to concentrate them in one area. Particular emphasis shall be placed on avoiding relocation of predators into the salmonid relocation pools. To minimize predation of salmonids, these species shall be distributed throughout the wetted portion of the stream to avoid concentrating them in one area.

4. All captured salmonids shall be relocated, preferably upstream, of the proposed construction project and placed in suitable habitat. Captured fish shall be placed into a pool, preferably with a depth of greater than two feet with available instream cover.

5. All captured salmonids will be processed and released prior to conducting a subsequent electrofishing or seining pass.

6. All native captured fish will be allowed to recover from electrofishing before being returned to the stream.

7. Minimize handling of salmonids. However, when handling is necessary, always wet hands or nets prior to touching fish. Handlers will not wear insect repellants containing the chemical N,N-Diethyl-meta-toluamide (DEET).

8. Temporarily hold fish in cool, shaded, aerated water in a container with a lid. Provide aeration with a battery-powered external bubbler. Protect fish from jostling and noise and do not remove fish from this container until time of release.

9. Place a thermometer in holding containers and, if necessary, periodically conduct partial water changes to maintain a stable water temperature. If water temperature reaches or exceeds those allowed by CDFW and NMFS, fish shall be released and rescue operations ceased.

10. In areas where aquatic vertebrates are abundant, periodically cease capture, and release at predetermined locations.

11. Visually identify species and estimate year-classes of fish at time of release. Count and record the number of fish captured. Avoid anesthetizing or measuring fish. Also identify hatchery (clipped adipose fin) and wild fish.

- Processing of Carcasses - If any steelhead are found dead or injured, the biologists will contact NMFS biologist, William Stevens, by phone immediately at (707) 575-6066 or the NMFS North Central Coast Office located in Santa Rosa, California at (707) 575-6050. 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 steelhead mortalities and tissue samples. All steelhead 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, California 95060. The steelhead mortalities (following acquisition of genetic sample material) are to be retained, placed in an appropriately-sized sealable plastic bag, labeled with the date and location of collection, and fork length, and be frozen as soon as possible. Frozen steelhead mortalities will be retained by the biological monitor until specific instructions are provided by the NMFS contact named above. Tissue samples are to be stored at ambient temperature. The biological monitor may not transfer steelhead mortalities to anyone other than the NMFS contact identified above without obtaining prior approval from NMFS' Central Coast Branch Chief. Any such transfer will be

subject to such conditions as NMFS deems appropriate.

- No fording shall occur where redds are present. For all proposed fording sites, a qualified fisheries biologist shall conduct a redd survey to ensure no redds are present.

- CA ARNG shall provide project designs of the juvenile steelhead rearing habitat enhancement project and Low Water Bridge culvert removal project to NMFS in a timely manner for our review prior to project implementation.

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

- At least 60 days prior to dewatering activities, CA ARNG must provide NMFS a dewatering and fish rescue and relocation plan for review and approval.

- At least 90 days prior to construction of the juvenile steelhead rearing habitat enhancement projects and Low Water Bridge culvert removal project, CA ARNG must provide 60 percent project designs plans to NMFS for review and approval.

- At least 30 days prior to construction of the juvenile steelhead rearing habitat enhancement projects and Low Water Bridge culvert removal project, CA ARNG must provide 90 percent (or greater) project designs plans to NMFS for review and approval.

- Send plans to Alecia Van Atta, Assistant Regional Administrator, California Coastal Office, in care of Mandy Ingham, Central Coast Branch Supervisor, NOAA Fisheries West Coast Region, USGS Pacific Coast & Marine Science Center, 2885 Mission Street, Santa Cruz, California 95060. Email (Mandy.Ingham@noaa.gov) is preferred.

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

- On or before January 15, following the completion of the Low Water Bridge culvert removal and juvenile steelhead rearing habitat enhancement projects, a report must be submitted to NMFS that provides a comprehensive summary of the construction, including fish capture and relocation data, a description of any unforeseen project impacts (if applicable), and measures taken to resolve the unforeseen impacts (if applicable). The report will include photos of the area prior, during, and following construction.

- On or before January 15, provide a comprehensive summary report of the prior year's fish passage assessment and water temperature activities and results.

- Send reports to Alecia Van Atta, Assistant Regional Administrator, California Coastal

Office, in care of Mandy Ingham, Central Coast Branch Supervisor, NOAA Fisheries West Coast Region, USGS Pacific Coast & Marine Science Center, 2885 Mission Street, Santa Cruz, California 95060. Email (Mandy.Ingham@noaa.gov) is preferred.

2.9 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 at this time.

2.10 Reinitiation of Consultation

This concludes formal consultation for the South-Central California Coast Steelhead Endangered Species Management Component for Camp Roberts.

As 50 CFR 402.16 states, 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 if: (1) The amount or extent of incidental taking specified in the ITS is exceeded, (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion, (3) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion, or (4) a new species is listed or critical habitat designated that may be affected by the 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 Department of Defense, Army National Guard, and California's Army National Guard at Camp Roberts. Other interested users could include 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. This opinion will be available through the NOAA Institutional Repository (https://repository.library.noaa.gov/), after approximately two weeks. The format and naming adheres 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 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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