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

May 29, 2024 **Refer to NMFS No:** WCRO-2024-01069

Aaron O. Allen, Ph.D.
U.S. Army Corps of Engineers – North Coast Branch
60 South California Street, Second Floor
Ventura, California 93001

Re: Endangered Species Act Section 7(a)(2) Biological Opinion for the Santa Rosa Creek Road Milepost 2.87 Creekbank Stabilization Project in the County of San Luis Obispo, California (Corps' File No. SPL-2023-00384-AJS)

Dear Dr. Allen:

Thank you for your January 25, 2024, letter requesting formal 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 Santa Rosa Creek Road Milepost 2.87 Creekbank Stabilization Project near the City of Cambria in the County of San Luis Obispo, California.

The biological opinion concludes the proposed action is not likely to jeopardize the continued existence of the threatened South-Central California Coast Distinct Population Segment of steelhead (*Oncorhynchus mykiss*) or destroy or adversely modify designated critical habitat for this species. NMFS believes the proposed action is likely to result in incidental take of steelhead, therefore, the attached incidental take statement includes the amount and extent of anticipated incidental take with reasonable and prudent measures and terms and conditions to minimize and monitor incidental take of threatened steelhead.

Please contact Matt McGoogan from NMFS' California Coastal Office in Long Beach at matthew.mcgoogan@noaa.gov or (562) 980-4026 if you have a question concerning this consultation or if you require additional information.

Sincerely,

Alecia Van Atta
Assistant Regional Administrator
California Coastal Office

Enclosure

cc: Antal Szijj, U.S. Army Corps of Engineers, Ventura, CA
Monica Stillman, County of San Luis Obispo, CA
Copy to ARN File #: 151422WCR2024CC00103

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

Santa Rosa Creek Road Milepost 2.87 Creekbank Stabilization Project

NMFS Consultation Number: WCRO-2024-01069
Action Agency: U.S. Army Corps of Engineers

Affected Species and NMFS' Determinations:

ESA-Listed Species	Status	Is Action Likely to Adversely Affect Species?	If likely to adversely affect, Is Action Likely to Jeopardize the Species?	Is Action Likely to Adversely Affect Critical Habitat?	If likely to adversely affect, 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: May 29, 2024

1. INTRODUCTION

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

1.1. Background

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

We completed pre-dissemination review of this document using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (DQA) (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The document will be available within 2 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 California Coastal Office.

1.2. Consultation History

On January 26, 2024, NMFS received the U.S. Army Corps of Engineers' (Corps) request to initiate formal consultation under Section 7 of the Endangered Species Act (ESA). The request involves the Corps' permitting of the County of San Luis Obispo's (County) creekbank stabilization project on Santa Rosa Creek near the City of Cambria, California (*proposed action*). The Corps' written request included the County's project description and a biological assessment (BA) (County 2023) describing the effects of the proposed action on the threatened South-Central California Coast (SCCC) Distinct Population Segment (DPS) of steelhead (*Oncorhynchus mykiss*) and designated critical habitat for this species in Santa Rosa Creek. Based on review of these documents, NMFS determined the information provided was sufficient to develop a complete understanding of the proposed action. As such, formal consultation was initiated on January 26, 2024.

Updates to the regulations governing interagency consultation (50 CFR part 402) were effective on May 6, 2024 (89 Fed. Reg. 24268). We are applying the updated regulations to this consultation. The 2024 regulatory changes, like those from 2019, were intended to improve and clarify the consultation process, and, with one exception from 2024 (offsetting reasonable and prudent measures), were not intended to result in changes to the Services' existing practice in implementing section 7(a)(2) of the Act. 89 Fed. Reg. at 24268; 84 Fed. Reg. at 45015. We considered the prior rules and affirm the substantive analysis and conclusions articulated in this biological opinion and incidental take statement would not have been different under the 2019 regulations or pre-2019 regulations.

1.3. Proposed Federal Action

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

The subject federal action involves the Corps issuing a permit to authorize the County's proposed creekbank stabilization activities along approximately 100-linear feet of Santa Rosa Creek. This location has experienced ongoing erosion for more than a decade and significant additional erosion over the past two winters which has resulted in the loss of the road shoulder and undermining of Santa Rosa Creek Road immediately adjacent to the top of this creekbank. NMFS understands the proposed action is intended to increase public safety and prevent further damage or loss of Santa Rosa Creek Road at this site. In-creek activities associated with this action are expected to require no more than ten weeks to finish and will be completed during a single dry season sometime between June 1 and October 15.

While the proposed action involves many construction activities and incorporates an extensive number of best-management practices (BMP), below we describe only those activities and BMPs most relevant to this biological opinion's effect analysis on threatened steelhead and critical habitat. See the BA for additional details regarding the proposed action (County 2023).

Proposed construction activities

- The County proposes to construct a retaining wall along the western creekbank approximately 100-feet long and up to 40-feet high extending from the top of bank down slope toward the creek. Construction of the wall involves (1) placing fill along the top of bank to restore and stabilize up to 5-feet of road travel lane and shoulder, (2) securing a lattice of interlaced steel forms to the side of the slope, (3) using an excavator either from the road surface or creek channel to install soil nails for holding the form work in place, and (4) using a forklift positioned on the road surface to apply shotcrete to the forms.

- For the purpose of habitat enhancement, the County proposes to install three root-wad structures (up to 4-feet in diameter and a minimum 5-feet long) in the creek channel along the toe of the slope in front and upstream of the retaining wall. Each root-wad will be anchored in place using three to four large boulders (three to four tons each).

Proposed best management practices

1. <u>Dewatering the in-creek work area</u>:

    - At least two biologists with a minimum of three years' experience in salmonid identification and capture will be onsite to oversee dewatering activities. The biologists will use block nets (minimum 1/8-inch mesh) to enclose and prepare for relocating steelhead from the in-creek work area prior to dewatering. Proposed capture methods include seine, dip-net, hand, and electrofishing. If used, electrofishing will be conducted in accordance with NMFS' electrofishing guidelines (NMFS 2000) and by biologists with a minimum of 100 hours of electrofishing experience. Captured steelhead will be held temporarily in containers with cool, oxygenated water and relocated to previously identified (i.e., prior to initiating work area isolation) alternative pool habitats in Santa Rosa Creek with perennial flow and

adequate cover (e.g., instream and over-hanging vegetation, large rock, woody debris etc.), living space, water depth, and water temperature to support steelhead. At least two holding containers will be used to segregate young of year steelhead from larger age classes to reduce risk of predation;

- The in-creek work area (approximately 200-linear feet (LF)) will be isolated and dewatered with a diversion involving construction of two coffer dams (one at the upstream and downstream extents of the work area) across the width of the channel and composed of bags filled with washed gravel (or local native substrate) and a visqueen lining. A bypass culvert will be installed between the coffer dams to pass creek-flow through the work area and sized appropriately to pass twice the anticipated average summer baseflow (0.2-cubic feet per second). The bypass culvert will be a minimum diameter of 18-inches with water depth of at least 1.1-feet; and

- Pumps with screened (3/32-inch mesh minimum) intakes will be used to dewater the isolated work area. This water will be pumped through a filtration system or to an isolated upland area to prevent turbid water returning to surface flow in the creek. As dewatering occurs, biologists will actively monitor the area to capture and relocate remaining steelhead. This work area will remain isolated, dewatered, and devoid of water for up to ten weeks.

2. Protective measures during construction:

- Construction areas will be accessed only from Santa Rosa Creek Road or through an existing ingress point on the adjacent property;

- In-creek construction activities will only occur within the dewatered work area (i.e., outside of flowing water);

- The biologists will monitor work activities, implement BMPs for erosion control (e.g., silt fencing; sterile, weed-free straw-bales or straw-fiber rolls), and regularly (a minimum of twice per day) check to ensure erosion BMPs and the diversion continue to function properly;

- To minimize risk of pollutants entering the creek, heavy machinery (e.g., excavator, forklift, etc.) will be staged, serviced, and refueled, only in confined upland areas completely off-site. The biologists and workers will inspect vehicles and equipment after each refueling and regularly during construction to ensure all are free of fuel and lubricant leaks, and keep oil absorbent and spill containment materials onsite to allow for prompt effective response and remediation of accidental spills;

- New concrete (i.e., shotcrete) will remain isolated from flowing water for a minimum of 30-days after pouring;

- Only minimal trimming or removal of vegetation is proposed and limited primarily to grasses and small shrubs or sapling trees. No trees greater than 4-inch diameter at

breast height (DBH) will be removed. Large native trees will remain undisturbed;

- Shotcrete overspray or other construction debris will be removed from the creek channel prior to diversion removal; and

- Components of the in-creek diversion (i.e., the coffer dams, gravel bags, culvert, visqueen, etc.) will be fully removed once in-creek construction activities are complete (not later than October 15).

3. Post-construction measures:

- The County proposes planting a minimum of 105 willow stakes within a 0.06-acre area along the toe of the slope in front of and adjacent to the retaining wall. Also, a native seed mix will be applied to disturbed areas; and

- The County propose to develop a post-construction monitoring report which will include project as-built plans and photo documentation of project implementation taken before, during, and after construction, utilizing California Department of Fish Wildlife photo monitoring protocols. The report will also document steelhead relocation activities and include the number and size of steelhead captured and relocated, number of steelhead killed or injured, and effects of the proposed action on steelhead not previously considered.

1.3.1. Other Activities

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

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

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

an ITS that specifies the impact of any incidental taking and includes reasonable and prudent measures (RPMs) and terms and conditions to minimize such impacts.

2.1. Analytical Approach

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

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

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

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

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

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

indirectly result in an alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species.
- If necessary, then suggest a reasonable and prudent alternative to the proposed action.

The documents the Corps submitted for NMFS' consideration in the development of this biological opinion are the County's project description and BA for the project (County 2023). The BA provides a detailed description of the proposed action, potential effects of the action on steelhead and critical habitat for this species, and measures to minimize these effects. To further inform the assessment of potential effects on threatened steelhead and critical habitat, NMFS relied on relevant ecological literature (referenced in this biological opinion) and NMFS' own field observations and knowledge of the watershed gained during numerous site visits to this creek over the past decade including a site visit to the action area on May 10, 2024.

2.2. Rangewide Status of the Species and Critical Habitat

This opinion examines the status of each species that is likely to be adversely affected by the proposed action. The status is determined by the level of extinction risk that the listed species face, based on parameters considered in documents such as recovery plans, status reviews, and listing decisions. This informs the description of the species' likelihood of both survival and recovery. The species status section also helps to inform the description of the species' "reproduction, numbers, or distribution" for the jeopardy analysis. The opinion also examines the condition of designated critical habitat, evaluates the conservation value of the various watersheds and coastal and marine environments that make up the designated critical habitat, and discusses the function of the PBFs that are essential for the species' conservation.

2.2.1. Status of the Species

Oncorhynchus mykiss is one of six Pacific salmon in the genus *Oncorhynchus* native to the coast of North America. The natural history of this species dictates the terminology fisheries biologists and resource managers use when discussing *O. mykiss*, its habitat, and distribution. If the species remains in freshwater throughout their entire life cycle (and reside upstream of longstanding migration barriers), they are referred to as resident trout (non-anadromous), or rainbow trout. The anadromous or ocean-going form of *O. mykiss* are listed under the ESA (NMFS 2006) and is typically referred to as "steelhead." Globally, steelhead are found in the western Pacific through the Kamchatka Peninsula in Asia, east to Alaska, south to southern California, and even reported in Baja California del Norte (Ruiz-Campos and Pister 1995).

The listed unit of anadromous *O. mykiss* is termed a "distinct population segment" or DPS (NMFS 2006), and the listed unit contains several individual or fish-bearing watersheds. The DPS recognizes only the anadromous *O. mykiss*. In accordance with the listing decision, this biological opinion solely uses the DPS terminology and provides NMFS' conclusion as to the likelihood of jeopardy to the species based only on effects to the listed DPS. This biological opinion analyzes the effects of the proposed action on the following listed DPS and designated critical habitat, which occur in the action area:

Salmonid Species	ESU/DPS Name	Original Listing	Revised Listing(s)	Critical Habitat Designations
Steelhead (*O. mykiss*)	South-Central California Coast DPS	FR Notice: 62 FR 43937 Date: 08/18/1997	FR Notice: 71 FR 5248 Date:01/05/2006	FR Notice: 70 FR 52488 Date: 09/02/2005

The threatened SCCC DPS of steelhead occupies rivers from the Pajaro River, Santa Cruz County, south to but not including the Santa Maria River, in Santa Barbara County. The decline of the species prompted listing of the SCCC DPS of steelhead as threatened on August 18, 1997 (62 FR 43937) and a revised listing on January 5, 2006 (71 FR 834). The status of the SCCC steelhead populations was assessed by NMFS' Biological Review Team (BRT) in 1996 (Busby et al.), 2005 (Good et al.), 2011 (Williams et al.), and 2023 (NMFS). Abundance of adult steelhead in the SCCC DPS declined from a historical high abundance of 25,000 returning adults, to an estimate of 4,750 adults in 1965 for five river systems (Pajaro, Salinas, Carmel, Little Sur, and Big Sur), to fewer than 500 adults (Boughton and Fish 2003; Good et al. 2005; Helmbrecht and Boughton 2005; Williams et al. 2011; Williams et al. 2016).

As part of the assessment and listing of SCCC steelhead, NMFS convened the BRT, composed of an expert panel of scientists. The BRT evaluated the viability and extinction risk of naturally spawning populations within each DPS. The BRT found high risks to abundance, productivity, and the diversity of the SCCC DPS and expressed particular concern for the DPS's connectivity and spatial structure. The most recent 5-year status review reaffirms the species is at risk of extinction, with survival and recovery remaining tenuous (NMFS 2023).

2.2.1.1. General Life History of Steelhead

O. mykiss possesses an exceedingly complex life history (Behnke 1992). Distinctly different than other Pacific salmon, steelhead adults can survive their first spawning and return to the ocean until the next year to reproduce again. For returning adults, the specific timing of spawning can vary by a month or more among rivers or streams within a region, occurring in winter and early spring. The spawning time frames depend on physical factors such as the magnitude and duration of instream flows and sand-bar breaching. Once they reach their spawning grounds, females will use their caudal fin to excavate a nest (redd) in streambed gravels where they deposit their eggs. Males will then fertilize the eggs and, afterwards, the females cover the redd with a layer of gravel, where the embryos (alevins) incubate within the gravel. Hatching time can vary from approximately three weeks to two months depending on surrounding water temperature. The young fish (fry) emerge from the redd two to six weeks after hatching. As steelhead begin to mature, juveniles or "parr" will rear in freshwater streams anywhere from 1-3 years. Juvenile steelhead can also rear in seasonal coastal lagoons or estuaries of their natal creek, providing over-summering habitat.

Juvenile steelhead emigrate to the ocean (as smolts) usually in late winter and spring and reach maturity at age 2-4, but steelhead can reside in the ocean for an additional 2-3 years before returning to spawn. The timing of emigration is influenced by a variety of parameters such as photoperiod, temperature, breaching of sandbars at the river's mouth and streamflow. Extended

droughts can cause juveniles to become landlocked, unable to reach the ocean (Boughton et al. 2006).

Through studying the otolith (small ear stone) microchemistry of *O. mykiss*, researchers further understand the complex and intricate life history of steelhead. Specifically, resident rainbow trout can produce steelhead progeny; likewise, steelhead can yield resident rainbow trout progeny (Zimmerman and Reeves 2000). Additionally, evidence indicates that sequestered populations of steelhead (e.g., above introduced migration barriers) can exhibit traits that are the same or similar to anadromous specimens with access to the ocean. Examples include inland resident fish exhibiting smolting characteristics and river systems producing smolts with no regular access for adult steelhead. This evidence suggests the ecological importance of the resident form to the viability of steelhead and the need to reconnect populations upstream and downstream of introduced migration barriers. The loss or reduction in anadromy and migration of juvenile steelhead to the estuary or ocean is expected to reduce gene flow, which strongly influences population diversity (McElhany et al. 2000). Evidence indicates genetic diversity in populations of southern California steelhead is low (Girman and Garza 2006).

2.2.1.2. Steelhead Habitat Requirements

Habitat requirements of steelhead generally depend on the life history stage. Steelhead encounter several distinct habitats during their life cycle. Water discharge, water temperature, and water chemistry must be appropriate for adult and juvenile migration. Suitable water depth and velocity, and substrate composition are the primary requirements for spawning. Furthermore, dissolved oxygen concentration, pH, and water temperature are factors affecting survival of incubating embryos. The presence of interspatial spaces between large substrate particle types is important for maintaining water-flow through the nest as well as dissolved oxygen levels within the nest. These spaces can become filled with fine sediment, sand, and other small particles. Additionally, juveniles need abundant food sources, including insects, crustaceans, and other small fish. Habitat must also provide places to hide from predators, such as under logs, root wads and boulders in the stream, and beneath overhanging vegetation. Steelhead also need places to seek refuge from periodic high-flow events (side channels and off channel areas) and may occasionally benefit from the availability of cold-water springs or seeps and deep pools during summer. Estuarine habitats can be utilized during the seaward migration of steelhead, as these habitats have been shown to be nurseries for steelhead. Estuarine or lagoon habitats can vary significantly in their physical characteristics from one another but remain an important habitat requirement as physiology begins to change while juvenile steelhead become acclimated to a saltwater environment.

2.2.1.3. Influence of a Changing Climate on the Species

One factor affecting the rangewide status of threatened steelhead, and aquatic habitat at large, is climate change (Munsch et al. 2022). For the Southwest region, including California, the average temperature has already increased roughly 1.5 ^{o}F compared to a 1960-1979 baseline period (USGCRP 2009). High temperatures will become more common, indicating that southern California steelhead may experience increased thermal stress even though this species has shown to endure higher than preferable body temperatures (Spina 2007).

Precipitation trends are also important to consider. The Southwest region showed a 16 percent increase in the number of days with heavy precipitation from 1958 to 2007 (USGCRP 2009). Potential impacts to steelhead in freshwater streams include damage to spawning redds and washing away of incubating eggs due to higher winter stream flow (USGCRP 2009), and poor freshwater survival due to longer and warmer periods of drought (Mastrandrea and Luers 2012), which may lead to lower host resistance of steelhead to more virulent parasitic and bacterial diseases (Marcogliese 2001). Snyder and Sloan (2005) projected mean annual precipitation in central western California to decrease by 1.6 cm (2.8% percent) by the end of the 21st century.

Increased wildfire activity over recent decades reflects sub-regional responses to changes in climate, specifically observations of warmer and earlier onset of spring along with longer summer-dry seasons (Westerling and Bryant 2008). These wildfires periodically burn large areas of chaparral and adjacent woodlands in autumn and winter in southern California (Westerling et al. 2004). Wildfires can have long-term benefits for steelhead habitat (such as producing influxes of spawning gravels to the stream), but in the short-term they can be catastrophic due to accumulation of fine sediment that negatively affects spawning, foraging, and depth refugia (Boughton et al. 2007).

Changes in vegetation patterns for this region are forecasted to include substantial increases in the amount of grassland and decreases in most other vegetation communities (e.g., chaparral, coastal scrub, blue oak woodland, and foothill pine). Estuarine productivity is likely to change based on changes in freshwater flows, nutrient cycling, and sediment amounts (Scavia et al. 2002). Additionally, upper ocean temperature is the primary physical factor influencing the distribution of steelhead in the open ocean, and a warming climate may result in a northward shift in steelhead distribution (Myers and Mantua 2013).

2.2.2. Designated Critical Habitat

Critical habitat for the SCCC DPS of steelhead was designated on September 2, 2005, and consists of the stream channels listed in (70 FR 52488). Critical habitat has a lateral extent defined as the width of the channel delineated by the ordinary high-water line as defined by the Corps in 33 CFR 329.11, or by its bankfull elevation, which is the discharge level on the streambank that has a recurrence interval of approximately two years (70 FR 52522). PBFs are components of stream habitat that have been determined to be essential for the conservation of the SCCC DPS of steelhead, and are specific habitat components that support one or more steelhead life stages and in turn contain physical or biological features essential to steelhead survival, growth, reproduction, and conservation. These PBFs include:

1) Freshwater spawning sites with sufficient water quantity and quality and adequate accumulations of substrate (i.e., spawning gravels of appropriate sizes) to support spawning, incubation and larval development.

2) Freshwater rearing sites with sufficient water quantity and floodplain connectivity to form and maintain physical habitat conditions and allow salmonid development and mobility; sufficient water quality and forage to support juvenile development; and

natural cover such as shade, submerged and overhanging large wood, log jams, beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.

3) Freshwater migration corridors free of obstruction with water quantity and quality 9 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.

4) Estuarine areas that provide uncontaminated water and substrates; food and nutrient sources to support steelhead growth and development; and connected shallow water areas and wetlands to cover and shelter juveniles.

5) Marine areas with sufficient water quality to support salmonid growth, development, and mobility; food and nutrient resources such as marine invertebrates and forage fish; and near-shore marine habitats with adequate depth, cover, and marine vegetation to provide cover and shelter.

Designated critical habitat for the SCCC DPS includes 1,249-miles of stream habitat and three-square miles of estuary habitat within Monterey, San Benito, Santa Clara, Santa Cruz, and San Luis Obispo counties from the Pajaro River Hydrologic Sub-area south to the Estero Bay Hydrologic Unit (to but not including the Santa Maria River Hydrologic Unit). There are 30 occupied hydrologic sub-unit watersheds within the freshwater and estuarine range of the DPS. Critical habitat has a lateral extent as defined by the bankfull discharge, also known as a 2-year flood event.

2.2.2.1. Status of Designated Critical Habitat

Streams designated as critical habitat in the SCCC DPS have the above PBF attributes to varying degrees, depending on the stream location and the impacts associated with the watershed. NMFS' most recent status review for SCCC steelhead (NMFS 2023) found habitat conditions (particularly regarding stream flows and fish passage) have improved for this DPS since the last status review. However, an extended drought coupled with extensive wildfires has temporarily curtailed migratory opportunities, degraded rearing habitat, and further depleted anadromous and resident *O. mykiss* populations. Urban development, flood control, water development, and other anthropogenic factors have adversely affected the proper functioning and condition of some spawning, rearing, and migratory habitats in streams designated as critical habitat. Urbanization has resulted in some permanent impacts to steelhead critical habitat due to stream channelization, increased bank erosion, riparian damage, migration barriers, pollution, and increased exposure to highway runoff. Many streams within the DPS have dams and reservoirs that reduce the magnitude and duration of flushing stream flows, withhold or reduce water levels suitable for fish passage and rearing, physically block upstream fish passage, and retain valuable coarse sediments for spawning and rearing. In addition, some stream reaches within the DPS' designated critical habitat may be vulnerable to further perturbation resulting from poor land use and management decisions.

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 is at milepost 2.87 on Santa Rosa Creek Road, approximately 2.5-miles northeast of the City of Cambria in an unincorporated area of San Luis Obispo County, California. The action area encompasses the riparian corridor to the top of bank along approximately 400-LF of Santa Rosa Creek. The upper boundary of the action area begins about 150-feet upstream of milepost 2.87 (i.e., at the point where the upper coffer dam for the diversion structure will be installed) and extends 400-feet downstream, which is 200-feet downstream from the lower coffer dam for the diversion structure where effects of the proposed action such as elevated turbidity are anticipated to terminate.

2.4. Environmental Baseline

The "environmental baseline" refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed federal projects in the action area that have already undergone formal or early section 7 consultations, and the impact of State or private actions which are contemporaneous with the consultation in process. The impacts to listed species or designated critical habitat from federal agency activities or existing federal agency facilities that are not within the agency's discretion to modify are part of the environmental baseline (50 CFR 402.02).

2.4.1. Status of Aquatic Habitat in the Action Area

The action area action area is within the footprint of a previous restoration project the Upper Salinas-Las Tablas Resource Conservation District (RCD) completed in December 2020 which involved creating floodplain benches, installing 11 habitat features in the creek channel (i.e., root-wads anchored within boulder clusters) and extensive planting of native vegetation on the east creekbank (County 2023). The restoration project increased in-creek habitat complexity in the action area but did not address or treat the steep exposed creekbank which is the subject of this proposed action. Exceptionally high flow events over the past two years have accelerated erosion of this embankment contributing fine sediment to the creek.

The riparian zone in the action area ranges from 150 to 250-feet in width and is largely composed of native trees (e.g., oak, willow, sycamore, alder etc.) (M. McGoogan, NMFS biologist, personal observation). The action area maintains perennial flow with a wetted creek channel ranging from approximately 15 to 40-feet wide. There are 5 to 6 pool habitats (up to 100-feet long and ranging from 1 to 3-feet deep) connected by short, (5 to 10-feet long) shallow (1 to 6-inch deep) riffles at low flow. The substrate of the creek is a mix of sand, gravels, and cobbles with sporadic larger rocks and boulders. A large gravel bar deposit (approximately 150-feet long and ranging from 5 to 30-feet wide) exists on the inner bend of the east side of the

creek. There is a fair amount and variety of in-creek cover amongst large wood and boulders in action area, in part, as a result of the RCD's previously implemented restoration project. Immediately upstream of the gravel bar there is a bedrock outcrop (approximately 25-feet long) on the eastern creekbank extending into the upper most pool in the reach also providing shade and undercut cover within the reach.

Overall, the PBFs of critical habitat for juvenile steelhead rearing (i.e., natural cover, shelter, water quality/quantity, and riparian) and spawning (i.e., spawning gravels and substrate of appropriate size and composition) exist throughout the action area. Additionally, the PBFs for migration are also considered suitable through the action area as there is no obvious barrier to adult or juvenile steelhead migration.

2.4.2. Status of Steelhead in the Action Area

Santa Rosa Creek is designated as a Core 1 steelhead population in NMFS' recovery plan (NMFS 2013). Core 1 populations are considered vital for the recovery of steelhead in their respective biogeographic population groups and are, therefore, considered highly important populations for recovering the species.

The population of steelhead in Santa Rosa Creek, like streams throughout the SCCC DPS, has greatly decreased from historic levels as a result of anthropogenic impacts in the watershed. The exact current population size of steelhead in Santa Rosa Creek, including the action area, is unknown. When much of this action area was dewatered in August 2020 as part of the RCD's restoration project, 135 juvenile steelhead were relocated (Stillwater 2020). Considering the increased habitat complexity within the action area as result of implementing the RCD's project and above average rainfall over the past two years, NMFS determined the potential current abundance of steelhead in this reach could be higher.

Overall, based on the above information and NMFS' observations of available in-creek habitat in the action area and experience with similar construction actions in San Luis Obispo County, up to 400 juvenile steelhead may be present in the action area during the proposed action. Adult steelhead are not expected to be present within the action area due to the timing of construction activities (June 1 to October 15).

2.4.3. Factors Affecting Species Environment in the Action Area and Vicinity

Road Encroachment and Rural Development

The action area is in a rural area approximately 2.5 miles from the City of Cambria. However, Santa Rosa Creek Road runs near and at certain points (e.g., the action area), immediately adjacent to Santa Rosa Creek. Santa Rosa Creek Road also includes a network of sporadic side roads and connections to a number of private residences or ranches throughout the valley and near the action area. These ranches or houses often include dirt or paved driveways in the vicinity of the creek and in certain instances may maintain and use bridges over the creek or low-flow crossing directly through the creek. Past and present development of lands often results in an increase of impervious surfaces and runoff of pollutants to surface water. Santa Rosa Creek

Road has been observed to alter runoff patterns to the creek in certain areas (Stillwater et al. 2012). The effects on water quality from road-surface runoff are most likely to occur during rainfall events in the wet season. Once in surface water, pollutants of sufficient concentration may impair water quality and alter the characteristics of the channel bed. Runoff from road surfaces contains dirt, oils, automotive fluids, and petro chemicals that are harmful to aquatic life, including steelhead (Tian et al. 2022; Brinkmann et al. 2022). Further, road and rural development along the creek and within the action area contribute directly (i.e., through encroachment) or indirectly (i.e., through flood control measures to protect property and road infrastructure) to confining and incising the creek channel, eliminating floodplain connectivity, and diminishing riparian vegetation. Consequently, further rural development within the action area and vicinity is of concern.

Agricultural Development

Large areas of cultivated fields and open farmlands exist in portions the Santa Rosa Creek watershed upstream and adjacent to the action area. There is potential for increased turbidity or nutrient loading due to runoff into the creek from agriculture and/or livestock on these properties. High turbidity concentrations can cause fish mortality, reduce fish feeding efficiency and decrease food availability. Agricultural runoff can transfer nutrients and pesticides to the creek, which can lower dissolved oxygen levels by increasing algae growth in streams and decreasing forage for steelhead (Anzalone et al. 2022).

Groundwater Diversion

Within the Santa Rosa Creek watershed there are numerous privately-operated groundwater diversions often used to supply water for private homes or agriculture (Stillwater et al. 2012). Water diversions have the potential to adversely affect the growth and survival of steelhead (Spina et al. 2006). Groundwater water pumping can lower the water table decreasing the amount and extent of surface water to support steelhead rearing and may contribute to the curtailment of flows able to sustain steelhead migration (Stillwater and Kear 2012). Further, reduced streamflow or stream drying can result in a significant reduction or loss of habitat and even mortality to steelhead (M. McGoogan, NMFS biologist, personal observation).

2.5. Effects of the Action

Under the ESA, "effects of the action" are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action but that are not part of the 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 402.02).

2.5.1. Effects of the Action on Critical Habitat for SCCC Steelhead

2.5.1.1. Temporary Alteration of Aquatic Habitat

Installing cofferdams to isolate and dewater the in-creek work area (approximately 200-LF) is expected to temporarily prevent a portion of Santa Rosa Creek from serving as a freshwater rearing site for threatened steelhead for up to ten weeks during a single dry season (June 1 through October 15). The temporary loss of habitat is expected to have at least a few effects, described as follows.

The temporary loss of habitat is expected to translate into temporary loss of aquatic macroinvertebrate forage within the action area. Aquatic insects provide a source of food for instream fish populations and may represent a substantial portion of food items juvenile steelhead consume. The effect of macroinvertebrate loss as a food source is expected to be negligible because food would be available upstream and downstream of the isolated work areas via drift through the diversion culvert. Consequently, the temporary loss of access to aquatic macroinvertebrates as a result of isolation activities is not expected to adversely affect forage opportunities within the area.

The temporary loss of habitat due to dewatering a portion of the creek represents an adverse effect to habitat for steelhead for at least a couple reasons. First, the loss of habitat translates into a loss of a freshwater rearing area, which is essential for the growth and survival of juvenile steelhead. Without freshwater rearing areas, the habitat cannot fulfill the intended conservation role for the species. Second, the quality and availability of habitat in the action area has already been diminished and reduced due to anthropogenic factors. Therefore, the loss of habitat due to isolation would perpetuate diminished availability. However, the area impacted by the cofferdams and dewatering is relatively small compared to the amount and extent of habitat available elsewhere in Santa Rosa Creek and, perhaps more importantly, the cofferdams will be removed once in-creek construction is complete. Freshwater rearing habitat upstream and downstream of the action area will be unaffected by the proposed action and, therefore, continue providing the intended conservation role for the species during and after project construction. Overall, this loss of aquatic habitat associated with the dewatering will be temporary, and no long-term diminishment is anticipated in the physical capacity of the habitat to serve the intended functional value for steelhead.

2.5.1.2. Alteration of Creekbank and Creek Bed

The manipulation and disturbance of the creek bed and creekbank can result in degradation to rearing habitat through loss of habitat complexity or changes to morphology and hydraulic conditions creating impediments to steelhead migration. However, review of this proposed action indicates substantive adverse changes are not expected to channel morphology, channel hydraulics, or habitat complexity for at least a few reasons.

First, although in-creek work activities (i.e., construction of the retaining wall and installation of the root-wad and boulder structures) will disturb the creek bed and creekbank, these disturbances are expected to be temporary or minimal. Once construction is complete, all debris and

construction materials associated with the retention wall and creek diversion (i.e., coffer dam and bypass culvert) will be removed from the creek. The retention wall and root-wad structures will be constructed within the existing channel alignment and not expected to appreciably change the general channel contours.

Second, the installation of the retaining wall is not expected to create velocity increases in flow that would reduce the value of migration habitat through the action area for a couple reasons. One, the retaining wall is being installed along a relatively short segment of creekbank. Two, the in-creek installation of the three habitat features (i.e., root-wad and boulder structures) in front and upstream of the retaining wall are expected to create additional roughness to the creek channel while providing low-velocity refuges for steelhead during high-flow events.

Third, although the retaining wall will limit lateral-channel migration and associated habitat forming processes, the habitat complexity in the action area is not expected to be appreciably reduced. The retaining wall is being applied at a discrete location and along a fraction of the total creekbank in the action areas. Further, the planting of willows (i.e., minimum of 105 willow stakes) in front of and adjacent to the retaining wall along with the in-creek installation of the habitat features (i.e., the root-wad and boulder structures) are expected to create additional habitat complexity in the action area.

Overall, based on the foregoing, habitat complexity beneficial for rearing, substrate adequate for spawning and channel hydraulics conducive for steelhead passage, collectively, are expected to be maintained or enhanced in the action area. As a result, the proposed action is not expected to appreciably diminish the functional value of the action area for rearing, spawning, or migration.

2.5.1.3. Alteration of Water Quality

Risk of Increased Sedimentation and Turbidity

We expect the adverse effects to water quality resulting from increases in sedimentation and turbidity will be minimal and temporary for several reasons. First, the proposed action includes a number of sediment and erosion-control measures (e.g., installing silt fencing, straw-fiber rolls, etc.) to reduce the likelihood sediment or construction debris would enter the wetted stream channel. Second, the activities occurring in the wetted creek (i.e., installing the block-nets, seining, installing and removing the coffer diversion dams) are expected to be confined to localized areas and short lived (a few hours or less). Third, water pumped from the work area will be pumped through a filtering system or to an isolated upland area, eliminating the potential of turbid water returning to the creek. Fourth, isolating and dewatering the work area prior to beginning construction activities will allow machinery and crews to work in dry conditions, which eliminates the potential for water-quality alterations during construction.

Similarly, post-construction adverse effects to water quality from increased sedimentation are expected to be minimal, if detectable. The proposed construction and associated excavation may disturb sediment particles on the bed and banks of the creek making them more susceptible to mobilization. However, loose particles within the channel are expected to be composed of native creek alluvium that will redistribute and settle within the first few hours of elevated creek flow

through the channel. Further, the majority of ground disturbance will be in upland areas, which, aside from the retaining wall, will be planted and seeded prior to the first rainy season, increasing cover and reducing the risk for increased sediment runoff.

Risk of Increased Pollutants

Increases in pollutants from newly poured concrete (i.e., from the shotcrete application) or leaks from equipment are expected to be unlikely or minimal due to several proposed protective measures. First, the shotcrete application machinery and forms will allow for controlled placement and retention of concrete within the retaining wall. Second, the creek in vicinity of the retaining wall will be dewatered prior to shotcrete application and remain dewatered for a minimum of 30 days after to allow proper setting and prevent wet concrete from contacting surface water if a leak occurs. Third, equipment and machinery will be staged, cleaned, and refueled in a contained upland area completely off-site and away from aquatic habitat. Additionally, oil absorbent and spill containment materials will be kept onsite to ensure fast, effective containment and cleanup of a spill should one occur. Finally, construction activities will be conducted during the dry season when streamflow is low and runoff from rainfall is unlikely.

2.5.1.4. Disturbance to Near Channel Vegetation

Overall the disturbance or removal of near channel vegetation resulting from the proposed action is expected to be minimal and is not expected to diminish the functional value of critical habitat for steelhead. The work will be conducted from Santa Rosa Creek Road or existing access points on the adjacent property with the majority of construction confined to a steep exposed section of creekbank that is largely devoid of established large vegetation (i.e., the slope is mainly exposed soil with sporadic patches of grasses, small shrubby plants, and a few sapling trees). Further, the proposed post-construction planting of willows and native seeds is expected to assist vegetative recovery within a relatively short time (one to two years) and increase native riparian cover and shading over the long-term.

2.5.2. Effects of the Action on SCCC Steelhead

The remaining portion of the effects analysis will focus on consequences to threatened SCCC steelhead in the action area as a result of the proposed action. The following section is organized to explain effects to this species based on the categories of expected effects to designated critical habitat. Because the timing of the in-channel work is outside the steelhead migration season, only juvenile steelhead are expected to be present in the action area and affected by the proposed action. Therefore, the following discussion focuses solely on consequences to juvenile steelhead.

2.5.2.1. Capture and Relocation of Steelhead

Although there is risk of harm and mortality to steelhead inherent with handling and capture, relocation efforts overall are expected to greatly reduce impacts to juvenile steelhead.

With respect to risk of steelhead harm, handling can induce stress and temporary disorientation, leading to potential injury and mortality. Direct injury may impair steelhead movement, feeding, and survival. To minimize the risk of injury or mortality, the County proposes specific BMPs for capturing and relocating individuals. For example, at least two biologists with experience capturing steelhead will oversee and conduct dewatering and relocation activities. Further, prior to the start of dewatering activities, the biologists will assess and identify in-creek relocation pool habitats that have perennial flow and adequate cover, living space, depth, and water temperature to support steelhead. Based on NMFS' observation, there appears to be ample, sufficient in-creek habitat adjacent to the action area for relocation. Although the applicant will document the capture and relocation of juvenile steelhead within the dewatered area, the proposed action does not include a provision for notifying NMFS in real time if a steelhead mortality occurs, which can be important for identifying whether additional minimization measures are needed to protect steelhead.

Based on NMFS' observations of available habitat in the action area and experience with similar construction projects in San Luis Obispo County, NMFS expects up to 400 juvenile steelhead will need to be relocated. NMFS expects up to 20 juvenile steelhead will be injured or killed as a result of relocation activities. This estimated mortality is also based on NMFS' experience and knowledge gained on similar proposed actions in San Luis Obispo County during the last several years.

2.5.2.2. Temporary Loss of Living Space

The temporary loss of a freshwater rearing area (i.e., the dewatered work area) and associated displacement of steelhead could increase densities of steelhead in creek reaches adjacent to the action area. However, based on our observations and our general familiarity of steelhead abundance, there appears to be ample, comparable habitat adjacent to the action area that can sufficiently support steelhead temporarily displaced from the work area. Further, the effect of macroinvertebrate loss on juvenile steelhead is expected to be negligible because food from upstream sources would be available downstream of the dewatered area via drift through the diversion culvert. Overall, we anticipate this loss would be temporary, minimal, and affect only a small portion of the overall Santa Rosa Creek steelhead population for up to ten weeks during a single dry season (June 1 to October 15). Additionally, the proposed habitat enhancements (i.e., the installation of the root-wad and boulder structures) are expected to further minimize the effects of the temporary loss of living space through introducing new features to sustain habitat complexity in the action area.

2.5.2.3. Steelhead Movement and Migration

Steelhead movement is not expected to be substantially impacted during construction. Although steelhead will be temporarily excluded from the dewatered work area, the culvert selected for the diversion will be appropriately sized to allow passage of steelhead. Further, the diversion will only be present for up to ten weeks during a single dry season (between June 1 and October 15) when creek-flow is minimal and riffle depth in this reach may naturally preclude or limit movement of steelhead between pool habitats.

Steelhead movement and migration are also not expected to be diminished after work activities are complete, for several reasons. First, the channel is expected to generally retain the general pre-construction contours. Second, natural habitat characteristics are expected to form following proposed willow planting along the toe of the creekbank. Finally, in-creek installation of the habitat features (i.e., three root-wads and boulder structures) are expected to support volitional, unimpeded passage through creation of low velocity refuges for steelhead during high flow events.

2.5.2.4. Altered Water Quality

The anticipated changes in water quality (i.e., increased sediment, turbidity, or pollutants) are not expected to translate into acute or chronic adverse effects on steelhead. Highly turbid water can result in decreased feeding, growth, and survival of juvenile steelhead (Thompson and Beauchamp 2016). Although certain activities associated with work area isolation (i.e., seining, diversion installation and removal) may increase turbidity, the increase is expected to be localized and last only a few hours or less. Further, installing sediment and erosion-control measures (e.g., straw-fiber rolls, silt-fencing) and isolating the work area from surface water is expected to eliminate the likelihood of sediment, debris, or pollutants entering surface water during construction. Therefore, effects of the proposed action on steelhead associated with increases in sedimentation and turbidity are expected to be minimal and temporary.

2.5.2.5. Alteration of Channel Shading

Effects from the alteration of shading on steelhead are expected to be minimal, if detectable. As discussed previously (section 2.5.1.4), large trees within and the dense riparian areas adjacent to the action area will remain undisturbed, and the post-construction planting of willows and native seeds is expected to assist vegetative recovery within a relatively short time (one to two years) and increase native riparian cover and shading over the long-term. As such, alteration of shading due to the proposed action is not expected to impact the fitness of steelhead in the action area.

2.6. Cumulative Effects

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

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

NMFS is generally familiar with activities occurring in the action area, and at this time, unaware of such actions that would be reasonably certain to occur. Consequently, no cumulative effect is

likely, beyond the continuing effects of present land uses reasonably certain to occur into the future (see Environmental Baseline, Section 2.4).

2.7. Integration and Synthesis

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

Juvenile steelhead are expected to be present in the action area during the proposed action and, therefore, subject to the effects from the proposed action. The adverse effects to steelhead include injury or mortality during the process of capture and relocation from the in-creek work area. However, precautions are proposed that are expected minimize the risk of injury and mortality to steelhead during capture and relocation. Further, there is ample nearby instream habitat in Santa Rosa Creek expected to suitably harbor the relocated steelhead. Finally, the expected effects associated with the habitat alteration due to the temporary diversion will be brief and localized.

Based on the steelhead relocation and habitat observations described in the environmental baseline, NMFS concludes up to 400 juvenile steelhead will be captured and relocated during the proposed action as a result of dewatering the in-creek work area. A potential for mortality of up to 20 juvenile steelhead is expected from these relocations. Therefore, the overall expected mortality rate (5%) due to the proposed action is low. Further, based on NMFS' general familiarity of steelhead abundance in the SCCC DPS, and San Luis Obispo County streams in particular, the anticipated number of juvenile steelhead that will be injured or killed as a result of the proposed action is likely to represent a small fraction of the overall watershed-specific population and the entire threatened SCCC DPS of steelhead. Therefore, the effects of the relocation on steelhead and the anticipated potential mortality are not expected to give rise to population-level effects.

Overall, the impacts to critical habitat are expected to be temporary and not translate into a reduction in the functional value of the habitat in the long term. Vegetation trimming and removal is expected to be minimal and the post-construction planting of willows and native riparian seeds is expected to increase the benefits of the riparian zone (e.g., shading, cover, habitat complexity, food production). The proposed installing of three in-creek habitat features (i.e., root-wad and boulder structures) is expected to minimize the potential effects of the concrete retaining wall on habitat complexity and fluvial-geomorphic processes as well as assist in maintaining unimpeded conditions for steelhead migration. Therefore, rearing, spawning, and migration conditions are expected to be maintained and available to support the conservation role of designated critical habitat for the threatened SCCC DPS of steelhead.

We also considered the proposed action in the context of anticipated climate trends for the south-central California coastal region inclusive of the action area. The action area could be subject to higher average summer temperatures and lower precipitation levels in the future as a result of climate change, which would lead to higher creek temperatures and longer dry periods. Reduction in the amount of precipitation would reduce the amount and extent of flow. For this proposed action, these noted likely effects of climate change are unlikely to be detected during the proposed action. Further, the adverse effects of the proposed action are expected to have completely elapsed prior to these climate-change effects.

2.8. 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, NMFS' biological opinion is the proposed action is not likely to jeopardize the continued existence of the threatened SCCC DPS of steelhead or destroy or adversely modify designated critical habitat for this species.

2.9. Incidental Take Statement

Section 9 of the ESA and federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined by regulation to include significant habitat modification or degradation that actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 222.102). "Harass" is further defined by guidance as to "create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering." "Incidental take" is defined by regulation as takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the federal agency or applicant (50 CFR 402.02). Section 7(b)(4) and section 7(o)(2) provide that taking that is incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA if that action is performed in compliance with the terms and conditions of this ITS.

2.9.1. Amount or Extent of Take

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

> For reasons discussed in this biological opinion, NMFS determined the proposed action on Santa Rosa Creek will result in the incidental take (capture, injury, and mortality) of juvenile steelhead when the in-creek work area is dewatered. To this end, NMFS anticipates up to 400 juvenile steelhead will be captured and relocated during dewatering and up to 20 of these juvenile steelhead will be injured or killed. Incidental take will have been exceeded if more than 400 juvenile steelhead are captured or more than 20 juvenile steelhead are killed. The accompanying biological opinion does not anticipate other forms of take incidental to the proposed action.

2.9.2. Effect of the Take

In the biological opinion, NMFS determined that the amount or extent of anticipated take, coupled with other effects of the proposed action, is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

2.9.3. Reasonable and Prudent Measures

"Reasonable and prudent measures" refers to those actions the Director considers necessary or appropriate to minimize the impact of the incidental take on the species (50 CFR 402.02).

NMFS determined the following reasonable and prudent measures are necessary and appropriate to minimize and monitor incidental take of steelhead. The results of the effect analysis provide the basis for the following reasonable and prudent measure:

1. Avoid and minimize harm and mortality of steelhead during the relocation activities.

2. Provide NMFS with the post-construction monitoring report.

2.9.4. Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the federal action agency must comply (or must ensure that any applicant complies) with the following terms and conditions. The Corps or any applicant has a continuing duty to monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this ITS (50 CFR 402.14). If the entity to whom a term and condition is directed does not comply with the following terms and conditions, protective coverage for the proposed action would likely lapse.

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

> The County's biologist shall contact NMFS (Matt McGoogan, 562-980-4026 or matthew.mcgoogan@noaa.gov) as soon as practicable if one or more steelhead are found dead or injured. The purpose of the contact shall be to review the activities resulting in the mortality and to determine if additional protective measures are required. All steelhead mortalities shall be retained, frozen as soon as practical, and placed in an appropriate-sized sealable bag that is labeled with the date and location of the collection and fork length and weight of the specimen(s). The biologist shall retain frozen samples until transfer of these samples (usually shipping overnight on dry-ice) can be coordinated with NMFS. Subsequent notification must also be made in writing to Matt McGoogan, NMFS, 501 West Ocean Boulevard, Suite 4200, Long Beach, California 90802-4213 and matthew.mcgoogan@noaa.gov within five days of noting dead or injured steelhead. The written notification shall include 1) the date, time, and location of the carcass or injured specimen; 2) a color photograph of the steelhead; 3) cause of injury or death; and 4) name and affiliation of the person whom found the specimen.

2. The following term and condition implement reasonable and prudent measure 2:

> The County shall provide the proposed post-construction monitoring report to NMFS within 30 days following completion of construction. The report shall be sent to Matt McGoogan, NMFS, 501 West Ocean Boulevard, Suite 4200, Long Beach, California 90802-4213 and matthew.mcgoogan@noaa.gov.

2.10. Conservation Recommendations

Section 7(a)(1) of the ESA directs federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Specifically, "conservation recommendations" are suggestions regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information (50 CFR 402.02).

NMFS has no conservation recommendation related to this proposed action.

2.11. Reinitiation of Consultation

This concludes formal consultation for the Corps' permitting of the County's proposed creekbank stabilization project at MP 2.87 on Santa Rosa Creek Road, in San Luis Obispo County.

Under 50 CFR 402.16(a): "Reinitiation of consultation is required and shall be requested by the federal agency, where discretionary federal involvement or control over the action has been retained or is authorized by law and: (1) if the amount or extent of taking specified in the incidental take statement is exceeded; (2) if new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion or written concurrence; or (4) if a new species is listed or critical habitat designated that may be affected by the identified action."

3. Data Quality Act Documentation and Pre-Dissemination Review

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

3.1. Utility

Utility principally refers to ensuring that the information contained in this consultation is helpful, serviceable, and beneficial to the intended users. The intended user of this opinion is the Corps. Other interested users could include the County, Upper Salinas-Las Tablas Resource Conservation District, California Department of Fish and Wildlife, and U.S. Fish and Wildlife

Service. Individual copies of this opinion were provided to the Corps and County. The document will be available within 2 weeks at the NOAA Library Institutional Repository [https://repository.library.noaa.gov/welcome]. The format and naming adhere to conventional standards for style.

3.2. Integrity

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

3.3. Objectivity

Information Product Category: Natural Resource Plan

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

Best Available Information: This consultation and supporting documents use the best available information, as referenced in the References section. The analyses in this opinion contains 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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