UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

December 21, 2011

In response refer to:
2011/03897

Christine Cox-Kovacevich
Caltrans Central Region Deputy Director
855 M Street, Suite 200
Fresno, California 93721

Dear Ms. Kovacevich:

Thank you for your agency's letter of August 2, 2011, requesting initiation of formal consultation with NOAA's National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Effective July 1, 2007, the Federal Highway Administration (FHWA) assigned, and the California Department of Transportation (Caltrans) has assumed all responsibilities for consultation and approval on most highway projects in California. Therefore, Caltrans is now considered the federal action agency for ESA consultations with NMFS for federally funded projects. This letter transmits NMFS' biological opinion for Caltrans proposed bank stabilization project on Pocket Canyon Creek along Highway 116 near the town of Guerneville, in Sonoma County, California. The enclosed biological opinion is based on our review of Caltrans' proposed project and describes NMFS' analysis of the potential effects on the threatened Central California Coast (CCC) steelhead (*Oncorhynchus mykiss*) Distinct Population Segment (DPS) and designated critical habitat for the CCC coho salmon (*O. kitsuch*) Evolutionary Significant Unit (ESU) and CCC steelhead DPS, in accordance with the ESA.

In the enclosed biological opinion, NMFS concludes the Pocket Canyon Creek – Highway 116 bank stabilization project is not likely to jeopardize the continued existence of the CCC steelhead DPS. NMFS has also concluded the project is not likely to result in the destruction or adverse modification of critical habitat for CCC coho salmon or CCC steelhead. However, NMFS anticipates take of listed CCC steelhead may occur as a result of project construction. An incidental take statement with non-discretionary terms and conditions is included with the enclosed biological opinion. In addition, conservation recommendations have been included in the enclosed biological opinion.

This letter also transmits NMFS' Essential Fish Habitat (EFH) conclusions pursuant to section 305(b) of the Magnuson-Stevens Fisheries Conservation and Management Act (MSFCMA). Within the action area, Pocket Canyon Creek is identified as EFH for CCC coho salmon, which

is managed under the Pacific Coast Salmon Fishery Management Plan (FMP). The proposed action has the potential to adversely affect EFH. However, the proposed action contains adequate measures to avoid, minimize, mitigate, or otherwise offset the adverse effects to EFH. With the terms and conditions set forth in the biological opinion, NMFS has no additional EFH Conservation Recommendations to provide.

If you have any questions regarding the enclosed biological opinion, please contact Mr. Joel Casagrande at (707) 575-6016, or joel.casagrande@noaa.gov.

Sincerely,

For Rodney R. McInnis
Regional Administrator

Enclosure

cc: Chris Yates, NMFS, Long Beach
Mary Oliva, Rachel Kleinfelter, Caltrans, Stockton
John Cleckler, USFWS, Sacramento
Adam McKannay, CDFG, Yountville
Copy to file 151422SWR2011SR00430

BIOLOGICAL OPINION

ACTION AGENCY: California Department of Transportation (Caltrans)

ACTION: Pocket Canyon Creek – Highway 116 Bank Stabilization Project, Sonoma County, California

CONSULTATION CONDUCTED BY: National Marine Fisheries Service, Southwest Region

TRACKING NUMBER: 2011/03897

DATE ISSUED: **December 21, 2011**

I. CONSULTATION HISTORY

The California Department of Transportation (Caltrans) will be acting as the lead agency as per the agreement with the Federal Highway Administration (FHWA) in accordance with Section 6005 (a) of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (PL-109-59) to assume the FHWA Secretary's responsibilities under the National Environment Policy Act of 1969 (42 USC § 4351, *et seq.*) and all or part of the FHWA Secretary's responsibilities for environmental review, consultation, or other action required under any environmental law with respect to one or more highway projects within the state.

Caltrans contacted NOAA's National Marine Fisheries Service (NMFS) on May 17, 2011, seeking technical assistance and guidance for the repair of a failed retaining wall along Pocket Canyon Creek and Highway 116 located near the town of Guerneville in Sonoma County, California. Between May 17 and July 29, 2011, NMFS provided technical assistance to Caltrans which included discussions on the salmonid species likely to be present and critical habitat designations in the proposed action area, construction windows for these species, general channel dewatering strategies, and designs of the proposed retaining wall. A site visit was conducted on June 20, 2011, to observe existing habitat and infrastructure conditions within the proposed action area and to further assess proposed designs for the repair of the wall. Staff from Caltrans, the United States Fish and Wildlife Service (USFWS) and NMFS attended the site visit.

On August 2, 2011, Caltrans requested formal consultation with NMFS pursuant to section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.*) on the effects of the proposed Pocket Canyon Creek – Highway 116 Bank Stabilization Project on the threatened Central California Coast (CCC) coho salmon (*Oncorhynchus kisutch*) Evolutionarily Significant Unit (ESU) and the threatened CCC steelhead (*O. mykiss*) Distinct Population Segment (DPS), and critical habitat designated for CCC coho salmon and CCC steelhead. After reviewing the letter and the enclosed Biological Assessment (Caltrans 2011), NMFS determined

additional information was necessary to initiate consultation for the proposed project. On September 1, 2011, NMFS sent a letter to Caltrans requesting clarification of specific details of the proposed project, including channel access and retaining wall design, and requesting additional information that was not included in the original initiation package. On November 4, 2011, NMFS received the remaining information from Caltrans needed to initiate formal consultation.

II. DESCRIPTION OF THE PROPOSED ACTION

Caltrans proposes to use funding from FHWA to repair storm damage to a slope and retaining wall along the eastbound lane of Highway 116 in Sonoma County east of the town of Guerneville at post mile (PM) 13.76. The slope is part of Pocket Canyon Creek's stream bank at this location. In 2010, storm damage undermined the existing slope and overturned the retaining wall. Emergency work, conducted that summer, was necessary to stabilize the road bed and consisted of temporary slope repair. Caltrans now proposes to remove and replace the failed retaining wall, replace a culvert, and widen the eastbound traffic lane. Work will be done using heavy equipment. The entire project will be completed during one dry season between July 1 and October 15 and is not expected to last more than 60 days. Caltrans anticipates the project will go to construction in either 2013 or 2014, but may start as late as 2017. There are no interrelated or interdependent actions associated with this project.

A. Description of Project Activities

The proposed project includes the following: 1) removal of the existing failed retaining wall; 2) construction of a 130-foot long soldier pile retaining wall along the eastbound direction of Highway 116; 3) in-kind replacement of a buried culvert that carries surface runoff from adjacent property under Highway 116 into Pocket Canyon Creek; and 4) widening the existing eastbound lane to a standard 12-foot lane with a 4-foot shoulder. Dewatering will most likely be required to complete the construction of the retaining wall. Caltrans will incorporate several measures to minimize the magnitude, extent, and duration of potential impacts, including limiting in-water construction activities to the summer low-flow period, using cofferdams to isolate the construction areas from the flowing stream, restricting access to the stream to a single access road, and implementing a re-vegetation and monitoring plan that is approved by NMFS.

Stream flow is likely to be present within the action area during the start of the in-channel work, and therefore a stream flow diversion will be necessary to replace the failed retaining wall. A temporary coffer dam will be utilized to divert water around the worksite. Prior to construction of the cofferdam, block nets will be placed at the upstream and downstream end of the area to be dewatered. Once the nets are in place, a NMFS approved fisheries biologist will capture and relocate salmonids from this section of the creek until they are confident few or no fish remain. Fish will be captured using authorized methods (*i.e.,* backpack electrofishing and seining) and relocated to suitable habitat upstream of the construction area. A cofferdam will be constructed at the upstream end of the dewatered section out of gravel-filled bags (using clean, washed gravel) and an earthen berm will be constructed at the downstream end. A 36-inch high-density

polyvinyl chloride pipe will be placed in the creek channel which will be used to divert the stream flow through the action area. The total length of the dewatered section will be no more than 175 feet. If necessary, pumps will be used to remove standing water from the dewatered section of the creek to water storage containers or a temporary detention or filtration basin away from the stream channel to prevent direct discharge of this water to the creek. Pump intakes will be screened in accordance with NMFS criteria to prevent accidental entrainment of juvenile salmonids. Fish relocation efforts will continue as needed during pumping activities to ensure no salmonids are left behind in the drying channel.

Prior to construction of the new soldier pile wall, the failed section of the retaining wall, which is approximately 50 feet long and remains partially overturned in Pocket Canyon Creek, will need to be removed. The existing retaining wall section will be removed from the creek channel after the creek channel is dewatered. Equipment will be required in the creek channel bed to remove soil from the top of the wall footing and to break the wall into smaller sections. The smaller sections will then be removed by equipment staged on the roadway.

Caltrans will construct a new 130-foot long soldier pile retaining wall parallel to and between the eastbound lane of Highway 116 and Pocket Canyon Creek that will replace the existing failed wall and stabilize the slope between Highway 116 and Pocket Canyon Creek. The wall will consist of steel piles with concrete lagging and the piles will be drilled into the bank from the highway. The wall would extend approximately 15 feet above the creek bed and would also serve as a headwall for a 36-inch culvert which drains a small catchment underneath Highway 116 into the creek. To avoid further scouring, the new soldier pile wall would need to be treated using a stone or concrete finish. A 20 to 30-foot section of the wall comes into contact with the creek channel due to a bend in the creek. For this section, the footing of the wall would extend an additional 10 feet below the creek bed which will require excavation in the creek channel. In addition, to avoid scour, rock slope protection (RSP) will be placed in front of a larger portion of the wall (approximately 60 of its 130-foot total length) that overlaps the smaller 20-30-foot section with the extended footing. The keyed RSP will be buried below channel grade to a depth of five feet and will extend approximately five feet above the channel bottom. The RSP will extend eight feet at its maximum width from the new wall into the creek channel, but because the new wall will be constructed farther away from the creek than the existing wall, the channel will be able to accommodate the RSP without resulting in a decrease in channel capacity or impacts to stream flow conditions. All RSP will be placed at the base of the wall from the highway. Based on Caltrans' projected velocities and stream flow volumes at the site, Caltrans will use RSP material that is 25 to 75 pounds, with a diameter that will vary between 0.75 to 1.0 feet. In addition, the RSP will be planted with vegetation plugs consisting of native riparian species found at the project site. It will take 50 days to construct the soldier pile wall and will require the following equipment: excavator, drilling equipment such as a crane with auger, and a bobcat loader. A dirt access ramp to the channel bed will be used for equipment access, which will be located west (downstream) of the existing retaining wall and will require some vegetation removal and trimming. All remaining work will be conducted from the roadway.

The Highway 116 road bed will be widened to provide a standard 12-foot lane with a 4-foot shoulder in the eastbound direction. Part of the eastbound shoulder would be a cantilevered slab

on top of the shoulder pile retaining wall. A concrete barrier is proposed at the edge of the shoulder on the eastbound direction on top of the wall. The solid concrete barrier is being constructed for safety due to the vertical drop-off in front of the soldier pile retaining wall. The 36-inch corrugated steel pipe culvert running under Highway 116 would need to be replaced in-kind. These activities will be done from the roadway and will not require creek access.

Construction of the project will require one-lane, one-way reversible traffic control with a temporary traffic signal. Construction equipment will be parked on the roadway behind the temporary K-rails while reversible traffic control is in process. A flat area on the northwest side of Highway 116 adjacent to a private driveway would be used as an area for stockpiling and construction staging.

Caltrans has proposed to implement several BMPs and minimization measures throughout the project. These are specified in detail in Caltrans (2011) and include the following: (1) conducting pre-project surveys for ESA-listed species; (2) conducting construction staff training on species identification and habitat requirements prior to beginning the project; (3) installing environmentally sensitive fencing to outline and protect existing riparian habitats; (4) implementing a Water Pollution Control Plan and erosion control features; (5) limiting vegetation clearing to the greatest extent possible; (6) developing a re-vegetation plan which will be reviewed and approved by NMFS no later than 60 calendar days prior to groundbreaking; (7) complying with Federal Executive Order 13112 to reduce the spread of invasive non-native plant species (all imported fill will be certified non-toxic and weed free); (8) developing and implementing a spill response plan; and (9) conducting work on the retaining wall, as much as possible, from the highway.

B. Action Area

The action area is located near the town of Guerneville, Sonoma County, California, along Pocket Canyon Creek and Highway 116. The action area for the proposed project includes the direct impact area (up to the elevation of ordinary high water), which is approximately 175 feet in length, and approximately 1,000 feet of the creek downstream of the dewatered section. NMFS expects there will be temporary increases in turbidity related to the construction and removal of dewatering facilities. Adverse effects related to increased turbidity are not expected to extend beyond approximately 1,000 feet, at which point, much of the suspended material will have settled and the effects related to the turbidity will have become negligible. The 1,000 foot extended impact area is based on observations by NMFS staff (Joel Casagrande, NMFS Biologist, personal observation, 2010) of the downstream extent of turbidity during similar activities at another (*e.g.*, Uvas Creek, Santa Clara County) project site in Central California where substrate quality was similar but summer stream flows were substantially greater (discussed in greater detail in the Effects of the Action section). The total action area will constitute approximately 1,175 feet of Pocket Canyon Creek.

III. ANALYTICAL FRAMEWORK

A. Jeopardy Analysis

In accordance with policy and regulation, the jeopardy analysis in this biological opinion relies on four components: (1) the Status of the Species, which evaluates the ESU's and/or DPS's range-wide conditions, the factors responsible for that condition, and the species' likelihood of both survival and recovery; (2) the Environmental Baseline, which evaluates the condition of the ESA-listed salmonid species in the action area, the factors responsible for that condition, and the relationship of the action area to the likelihood of both survival and recovery of the ESA-listed salmonids; (3) the Effects of the Action, which determines the direct and indirect effects of the proposed Federal action and the effects of any interrelated or interdependent activities on the species in the action area; and (4) Cumulative Effects, which evaluates the effects of future, non-Federal activities in the action area on the ESA-listed salmonid species.

The jeopardy determination is made by adding the effects of the proposed Federal action and any Cumulative Effects to the Environmental Baseline and then determining if the resulting changes in species status in the action area are likely to cause an appreciable reduction in the likelihood of both the survival and recovery of these listed species in the wild.

The jeopardy analysis in this biological opinion places an emphasis on the range-wide likelihood of both survival and recovery of these listed species and the role of the action area in the survival and recovery of the listed species. The significance of the effects of the proposed Federal action is considered in this context, taken together with cumulative effects, for purposes of making the jeopardy determination. We use a hierarchical approach that focuses first on whether or not the effects on ESA-listed salmonid species in the action area will impact their respective population. If the population will be impacted, we assess whether this impact is likely to affect the ability of the populations to support the survival and recovery of the ESU and/or DPS.

B. Adverse Modification Determination

This biological opinion does not rely on the regulatory definition of destruction or adverse modification of critical habitat at 50 CPR 402.02.[1] Instead, we have relied upon the statutory provisions of the ESA to complete the following analysis with respect to critical habitat.

The adverse modification analysis in this biological opinion relies on four components: (1) the Status of Critical Habitat, which evaluates the range-wide condition of critical habitat for the ESA-listed salmonids in terms of primary constituent elements (PCEs), the factors responsible for that condition, and the intended conservation value of the critical habitat overall; (2) the Environmental Baseline, which evaluates the condition of critical habitat in the action area, the factors responsible for that condition, and the conservation value of the critical habitat in the action area; (3) the Effects of the Action, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the PCEs in the action area and how that will influence the conservation value of affected critical

[1] This regulatory definition has been invalidated by Federal Courts.

habitat units; and (4) Cumulative Effects, which evaluates the effects of future, non-Federal activities in the action area on the PCEs and how that will influence the conservation value of affected critical habitat units.

For purposes of the adverse modification determination, we add the effects of the proposed Federal action on the ESA-listed salmonid species' critical habitat in the action area, and any Cumulative Effects, to the Environmental Baseline and then determine if the resulting changes to the conservation value of critical habitat in the action area are likely to cause an appreciable reduction in the conservation value of critical habitat range-wide. If the proposed action will negatively affect PCEs of critical habitat in the action area we then assess whether or not this reduction will impact the value of the ESU and/or DPS critical habitat designation as a whole.

C. Use of Best Available Scientific and Commercial Information

To conduct the assessment, 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 effects of the project's actions 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, the biological assessment for this project, and project meeting notes if applicable. For information that has been taken directly from published, citable documents, those citations have been referenced in the text and listed at the end of this document.

IV. STATUS OF THE SPECIES/CRITICAL HABITAT

This biological opinion analyzes the effects of the Pocket Canyon Creek – Highway 116 bank stabilization project on the CCC steelhead DPS listed as threatened under the ESA (71 FR 834; January 5, 2006). The action area is within the designated critical habitat for CCC coho salmon (64 FR 24049; May 5, 1999) and CCC steelhead (70 FR 52488; September 2, 2005).

The historic and present use of Pocket Canyon Creek by CCC coho salmon is unknown. The Pocket Canyon Creek Watershed is adjacent to several drainages within the Russian River Watershed (*e.g.*, Dutch Bill Creek, Green Valley Creek, and Austin Creek) that have supported coho salmon populations both historically and currently. On June 20, 2011, habitat conditions in the action area (located at the downstream end of the watershed), as observed by NMFS staff, were very poor and deemed not suitable as rearing habitat for juvenile coho salmon (*e.g.*, shallow flow, lack of complex pools, and abundant fine sediment). This assessment was shared by Bill Cox, retired California Department of Fish and Game (CDFG) Fisheries Biologist, who also conducted a site visit in late June 2011 to assess general habitat conditions for both juvenile salmonids and freshwater shrimp (B. Cox, personal communication, August 2011). Based on the time of year the project will be implemented (July – October) and the unsuitable rearing habitat conditions for coho salmon at the project location, NMFS assumes juvenile coho salmon will not

be present in the action area during project implementation. Therefore, effects to CCC coho salmon are not assessed further in this biological opinion. This biological opinion will only analyze affects to juvenile CCC steelhead, which are generally more tolerable of impacted habitat conditions.

A. Species Description, Life History, and Status

In this opinion, NMFS assesses four population viability parameters to help us understand the status of CCC steelhead and the population's ability to survive and recover. These population viability parameters are: abundance, population growth rate, spatial structure, and diversity (McElhany *et al.* 2000). While there is insufficient information to evaluate these population viability parameters in a thorough quantitative sense, NMFS has used existing information to determine the general condition of each population and factors responsible for the current status of the DPS.

We use these population viability parameters as surrogates for numbers, reproduction, and distribution, the criteria found within the regulatory definition of jeopardy (50 CFR 402.20). For example, the first three parameters are used as surrogates for numbers, reproduction, and distribution. We relate the fourth parameter, diversity, to all three regulatory criteria. Numbers, reproduction, and distribution are all affected when genetic or life history variability is lost or constrained resulting in reduced population resilience to environmental variation at local or landscape-level scales.

1. General Life History

Steelhead are anadromous forms of *O. mykiss*, spending some time in both freshwater and saltwater. Steelhead young usually rear in freshwater for one to three years before migrating to the ocean as smolts. Migration to the ocean usually occurs in the spring. Steelhead may remain in the ocean for one to five years (two to three years is most common) before returning to their natal streams to spawn (Busby *et al*. 1996, Moyle 2002). The distribution of steelhead in the ocean is not well known. Coded wire tag recoveries indicate that most steelhead tend to migrate north and south along the continental shelf (Barnhart 1986). The timing of upstream migrating CCC steelhead adults is correlated with higher flow events, in winter or spring. In contrast to other species of *Oncorhynchus*, steelhead may spawn more than one season before dying (iteroparity); although one-time spawners represent the majority.

Because rearing juvenile steelhead reside in freshwater all year, adequate flow and temperature are important at all times. Outmigration appears to be more closely associated with size than age. In Waddell Creek, Shapovalov and Taft (1954) found steelhead juveniles migrating downstream at all times of the year, with the largest numbers of young-of-year (YOY, or Age 0+) and yearlings (Age 1+) steelhead moving downstream during spring and summer. Cover is an important habitat component for juvenile steelhead, both as a velocity refuge and as a means of avoiding predation (Meehan and Bjornn 1991). However, juvenile steelhead tend to use riffles and other habitats not strongly associated with cover during summer rearing more than other salmonids (Everest and Chapman 1972, Smith and Li 1983). Young steelhead feed on a

wide variety of drifting aquatic and terrestrial insects (Everest and Chapman 1972, Moyle 2002). In winter, juvenile steelhead become less active and hide in available cover, including gravel or woody debris (Moyle 2002).

Water temperature can influence the metabolic rate, distribution, abundance, growth, and habitat use of rearing juvenile steelhead (Smith and Li 1983, Barnhart 1986, Bjornn and Reiser 1991, Myrick and Cech 2005). Optimal temperatures for steelhead growth range between 10 and 20 degrees (°) Celsius (C) (Hokanson *et al.* 1977, Wurtsbaugh and Davis 1977, Myrick and Cech 2005). Fluctuating diurnal water temperatures are also important for the survival and growth of salmonids (Busby *et al.* 1996). Suspended sediment concentrations, or turbidity, also can influence the distribution and growth of steelhead (Bell 1973, Sigler *et al*. 1984, Newcombe and Jensen 1996). Bell (1973) found suspended sediment loads of less than 25 milligrams per liter (mg/L) were typically suitable for rearing juvenile steelhead.

2. Status of CCC Steelhead DPS

Historically, approximately 70 populations[2] of steelhead existed in the CCC steelhead DPS (Spence *et al.* 2008). Many of these populations (about 36) were independent, or potentially independent, meaning they had a high likelihood of surviving for 100 years absent anthropogenic impacts (Spence *et al.* 2008). The remaining populations were dependent upon immigration from nearby CCC steelhead DPS populations to ensure their viability (McElhaney *et al.* 2000, Bjorkstedt *et al.* 2005).

While historical and present data on abundance are limited, CCC steelhead numbers are substantially reduced from historical levels. A total of 94,000 adult steelhead were estimated to spawn in the rivers of this DPS in the mid-1960's, including 50,000 fish in the Russian River – the largest population within the DPS (Busby *et al.* 1996). Near the end of the 20th Century, McEwan (2001) estimated the wild run population in the Russian River Watershed was between 1,700-7,000 fish. Abundance estimates for smaller coastal streams in the DPS indicate low but stable levels with recent estimates for several streams (Lagunitas, Waddell, Scott, San Vicente, Soquel, and Aptos creeks) of individual run sizes of 500 fish or less. For more detailed information on trends in CCC steelhead abundance, see: NMFS 1997 and Good *et al.* 2005.

Some loss of genetic diversity has been documented and attributed to previous among-basin transfers of stock and local hatchery production in interior populations in the Russian River (Bjorkstedt *et al.* 2005). Reduced population sizes and fragmentation of habitat in San Francisco streams has likely also led to loss of genetic diversity in these populations.

CCC steelhead have experienced a serious decline in abundance and long-term population trends suggest a negative growth rate. This indicates the DPS may not be viable in the long term. DPS populations that historically provided enough steelhead immigrants to support dependent

[2] Population as defined by Bjorkstedt *et al*. 2005 and McElhaney *et al*. 2000 as, in brief summary, a group of fish of the same species that spawns in a particular locality at a particular season and does not interbreed substantially with fish from any other group. Such fish groups may include more than one stream. These authors use this definition as a starting point from which they define four types of populations (not all of which are mentioned here).

populations may no longer be able to do so, placing dependent populations at increased risk of extirpation. However, because CCC steelhead have maintained a wide distribution throughout the DPS, roughly approximating the known historical distribution, CCC steelhead likely possess a resilience that is likely to slow their decline relative to other salmonid DPSs or ESUs in worse condition. The most recent status review concludes steelhead in the CCC steelhead DPS remain "likely to become endangered in the foreseeable future" (Good *et al.* 2005), a conclusion that was consistent with a previous assessment (Busby *et al.* 1996) and supported by the most recent NMFS Technical Recovery Team work (Spence *et al.* 2008). On January 5, 2006, NMFS issued a final determination that the CCC steelhead DPS is a threatened species, as previously listed (71 FR 834). Data from the 2008/09, 2009/10, and 2010/2011 adult CCC steelhead returns indicate a decline in returning adults across their range compared to other recent returns (*e.g.*, 2006/2007, 2007/2008) (Jeffrey Jahn, NMFS, personal communication, December 2011). For example, counts of returning adult steelhead in 2009 and 2010 at both Warm Springs Dam (Dry Creek, Russian River Watershed) and Lake Mendocino Dam (East Fork Russian River) have been lower than the average returns the previous ten years (Jeffrey Jahn, NMFS personal communication, December 2011).

3. Status of Critical Habitat

The condition of critical habitat for the CCC steelhead DPS and CCC coho salmon ESU, specifically its ability to provide for their conservation, has been degraded from conditions known to support viable salmonid populations. NMFS has determined present depressed population conditions are, in part, the result of multiple human-induced factors affecting critical habitat including: logging, agricultural and mining activities, urbanization, stream channelization, dams, wetland loss, and water withdrawals, including unscreened diversions for irrigation. Impacts of concern include alteration of stream bank and channel morphology, alteration of water temperatures, loss of spawning and rearing habitat, fragmentation of habitat, loss of downstream recruitment of spawning gravels and large woody debris, degradation of water quality, removal of riparian vegetation resulting in increased stream bank erosion, increases in sedimentation in streams from upland areas, loss of shade (higher water temperatures) and loss of nutrient inputs (61 FR 56138, Busby *et al.* 1996, 70 FR 52488). Depletion and storage of natural river and stream flows have drastically altered natural hydrologic cycles in many of the stream and stream reaches designated as critical habitat. Alteration of flows results in migration delays, loss of suitable habitat due to dewatering and blockage; stranding of fish from rapid flow fluctuations; entrainment of juveniles into poorly screened or unscreened diversions, and increased water temperatures harmful to salmonids. Overall, current condition of CCC steelhead and CCC coho salmon critical habitat is degraded, and may not provide the conservation value necessary for the recovery of the species.

B. Factors Responsible for Salmonid Stock Declines

NMFS cites many reasons (primarily anthropogenic) for the decline of salmonids (Busby *et al.* 1996, Good *et al.* 2005). The foremost reason for the decline in these anadromous populations is the degradation and/or destruction of freshwater and estuarine habitat, including critical habitat, caused by (as described briefly above) anthropogenic disturbances such as urban development,

agriculture, logging, water resource development, and dams. Additional factors contributing to the decline of these populations include: poor estuary/lagoon management (Smith 1990, Bond 2006), commercial and recreational harvest, artificial propagation (Waples 1991), natural stochastic events, marine mammal predation (NMFS 1999, Hanson 1993), reduced marine-derived nutrient transport (Bilby *et al.* 1996, Bilby *et al.* 1998, and Gresh *et al.* 2000), and most recently poor ocean conditions (Lindley *et al.* 2009).

C. Global Climate Change

Modeling of climate change impacts in California suggests average summer air temperatures are expected to increase (Lindley *et al*. 2007). Heat waves are expected to occur more often, and heat wave temperatures are likely to be higher (Hayhoe *et al*. 2004). Total precipitation in California may decline; critically dry years may increase (Lindley *et al*. 2007, Schneider 2007). The Sierra Nevada snow pack is likely to decrease by as much as 70 to 90 percent by the end of this century under the highest emission scenarios modeled (Luers *et al*. 2006). Wildfires are expected to increase in frequency and magnitude, by as much as 55 percent under the medium emissions scenarios modeled (Luers *et al*. 2006). Vegetative cover may also change, with decreases in evergreen conifer forest and increases in grasslands and mixed evergreen forests. The likely change in amount of rainfall in northern and central coastal streams under various warming scenarios is less certain, although as noted above, total rainfall across the state is expected to decline. For the California North Coast, some models show large increases (75 to 200 percent) while other models show decreases of 15 to 30 percent (Hayhoe *et al*. 2004). Many of these changes are likely to further degrade salmonid habitat by, for example, reducing stream flows during the summer and raising summer water temperatures. Estuarine productivity is likely to change based on changes in freshwater flows, nutrient cycling, and sediment amounts (Scavia *et al.* 2002). In marine environments, ecosystems and habitats important to sub-adult and adult salmonids are likely to experience changes in temperatures, circulation and chemistry, and food supplies (Feely *et al.* 2004, Brewer 2008, Osgood 2008, Turley 2008). The projections described above are for the mid to late 21st Century. In shorter time frames natural climate conditions are more likely to predominate (Cox and Stephenson 2007, Smith *et al.* 2007).

V. ENVIRONMENTAL BASELINE

The environmental baseline is the current status of the species and critical habitat in the action area based on analysis of the effects of past and ongoing human and natural factors. 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 consultation, and the impacts of State or private actions which are contemporaneous with the consultation in process (50 CFR 402.02).

The proposed project is located in the lower portion of Pocket Canyon Creek, a tributary to the Russian River in the coastal mountains in central Sonoma County. The action area is located just east of the town of Guerneville and approximately 2.4 stream kilometers from the Russian River

confluence. Runoff from private property owned by Korbel (12245 Pocket Canyon Highway) and the Caltrans right-of-way is collected into a drainage ditch, which then flows through a 36-inch corrugated steel pipe culvert beneath Highway 116 and into Pocket Canyon Creek.

Within the action area, the creek flows in a low gradient channel that is entrenched (approximately 15 feet below top of bank), and supports a dense riparian canopy consisting of willow (*Salix spp.*), alder (*Alnus spp.*), and California bay (*Umbellularia californica*). Substrate in the creek channel consists primarily of small gravel with sand and other fine sediments. Highway 116 parallels the creek's right bank. The historic floodplain along the left bank consists of a small open meadow. Access to the meadow floodplain appears to be disconnected. The riparian canopy consists of red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), red alder (*Alnus rubra*), and California bay (*Umbellularia californica*) with an understory of Himalyan blackberry (*Rubus discolor*), common horsetail (*Equisetum laevigatum*), poison hemlock (*Conium maculatum*), and poison oak (*Toxicodendron diversilobum*) (Caltrans 2011). The dominant land cover in the Pocket Canyon Creek Watershed is primarily second growth coast redwood-mixed conifer forest. General land uses include rural residential, timber harvest, and vineyards.

A. Status of Critical Habitat in the Action Area

During a site visit on June 20, 2011, habitat conditions in Pocket Canyon Creek, as viewed from the Highway, appeared to be marginally suitable for summer juvenile steelhead rearing. The channel in the action area was entrenched with very limited access to the floodplain on the left bank side and no access to the floodplain on the right bank side due to the presence of Highway 116. The riparian canopy was dense and created well-shaded conditions in the creek. Stream flow in early summer following a very wet winter was low (estimated at less than 2 cfs), which formed short riffles that connected shallow pools and flat water habitats. Substrate conditions consisted primarily of small gravels with pockets of sand and finer sediments in the shallow pools. These substrate conditions are marginally suitable for rearing (*i.e.*, able to support a limited aquatic invertebrate community) but would not likely be suitable for redd survival if used for spawning by steelhead (*i.e.*, excess fine sediments).

Between 2002 and 2004, the Community Clean Water Institute (CCWI) and several volunteers monitored various water quality parameters, including turbidity, pH, dissolved oxygen, conductivity, water temperature, nitrate-nitrogen, and orthophosphate at multiple sites throughout Pocket Canyon Creek (including a site just upstream of the action area). The results of this monitoring indicated that Pocket Canyon Creek maintained good water quality conditions throughout the year that were capable of supporting salmonids (CCWI 2004). Temperatures averaged less than 57 degrees (°) Fahrenheit (F) during the summer rearing period, and mean turbidity levels were 3 Nephelometric Turbidity Units. The primary limitation for salmonids was the scarcity of water in the channel.

Based on the above information, NMFS believes the overall PCEs for rearing are somewhat degraded because some essential elements (*e.g.*, fine sediments and low flows) may have been adversely impacted by past logging and agricultural related activities upstream of the action area.

The PCEs for migration through the action area are considered good, as no barriers to adult or juvenile migration were observed. Overall, the PCEs for spawning appear to be degraded based on relatively poor substrate quality in the action area; however, the action area is located near the terminus of the watershed and therefore most, if not all, spawning habitat is presumably located farther upstream in the watershed.

B. Status of Listed Salmonids within the Action Area

A recent CDFG document (Cox 2000) identified Pocket Canyon Creek as a stream known to support a steelhead population. The Pocket Canyon Creek steelhead population was included in the Lower Russian River population[3] (Spence *et al.* 2008 – See Table A.8); a dependent population within the CCC steelhead DPS.

A letter dated April 6, 2006, by CDFG fisheries biologist Derek Acomb (Acomb 2006) states, "There are no records of a recent CDFG survey on Pocket Canyon Creek. All computer files related to Pocket Canyon appear to only summarize historical assessments. Pocket Canyon was not recently surveyed and there is no data for Pocket Canyon." In July 1998 CDFG conducted a survey of Mays Canyon Creek (a tributary to Pocket Canyon Creek) and noted "many salmonids present at the mouth" (*i.e.*, confluence with Pocket Canyon Creek) (CDFG 2006a). Mays Canyon Creek joins Pocket Canyon Creek approximately 2 kilometers downstream of the action area near the confluence with the Russian River. Based on the information available, NMFS assumes juvenile steelhead reside in the action area during the dry season and that their numbers are low. Recent trapping and adult counts indicates the steelhead populations in the greater Russian River Basin are depressed. The Sonoma County Water Agency and the University of California Cooperative Extension have conducted salmonid out-migrant trapping in two creeks adjacent to Pocket Canyon Creek (Dutch Bill Creek to the west and Green Valley Creek to the east) and in another nearby stream (Austin Creek). In all three streams, the abundance of steelhead leaving these systems during spring and early summer has been lower than previously observed in these streams (Jeffrey Jahn, NMFS personal communication, December 2011). These data are consistent with recent low adult steelhead returns observed at counting facilities in the upper Russian River. Because Pocket Canyon Creek is nearby, and shares similar topography, hydrology, vegetation, and disturbance history, NMFS assumes steelhead numbers in Pocket Canyon Creek, including the action area, are similar to numbers in these nearby streams.

C. Factors Affecting Species Environment within the Action Area

Threats to salmonids and riparian habitat quality in Pocket Canyon Creek, including the action area, are silt and other fine sediments from roads, development, and timber harvest, low stream flows due to extraction from subsurface wells, and pollution from vineyards and septic systems (CCWI 2004, CDFG 2006a).

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[3] The Lower Russian River Population includes unnamed and smaller tributaries of the Russian River downstream of the confluence of Mark West Creek, but excluding Austin, Dutch Bill, Green Valley, and Mark West creeks which are identified as separate populations.

As discussed above, Caltrans conducted emergency slope repairs in early 2011 to the embankment parallel to Highway 116. These repairs were done from the top of the stream's bank and did not enter flowing waters. Slide debris between the existing wall and the scarp of the slide was excavated and a geo-synthetic reinforced embankment was constructed as a temporary repair. However, the failed retaining wall is still in-place and requires replacement to permanently stabilize the slope.

D. Previous Section 7 Consultations and Authorized Research Activities in the Action Area

No other section 7 consultations have occurred in the action area.

Section 10(a)(1)(A) research and enhancement permits and research under exemptions granted under section 4(d) of the ESA could potentially occur in the Pocket Canyon Creek Watershed in the future. Based on NOAA's Authorizations and Permits for Protected Species (APPS) website[4], there are currently three active section 10(a)(1)(A) research and enhancement permits issued that authorize research on salmonids in the Russian River Watershed including Pocket Canyon Creek; Permit 10094 issued to CDFG Region 3, and Permits 1044 Modification 4 and 1112 Modification 2 issued to NMFS's Southwest Fisheries Science Center. There are no authorized research projects under the 2011 4(d) research program, and NMFS is unaware of any potential activities that may request coverage under the 4(d) research program in future years. In general, all research activities are closely monitored and require measures to minimize take during the research activities. As of November 2011, no take of salmonids has occurred in the action area related to research permits and NMFS is unaware of any proposed sampling in the immediate future.

VI. EFFECTS OF THE ACTION

The purpose of this section is to identify the direct and indirect effects of the proposed action, and any interrelated or interdependent activities, on threatened CCC steelhead. Data to quantitatively determine the precise effects of the proposed action on CCC steelhead are limited or not available; the assessment of effects therefore focuses mostly on qualitative identification. This approach was based on knowledge and review of the ecological literature and other relevant materials. This information was used to gauge the likely effects of the proposed project via an exposure and response framework that focuses on what stressors (physical, chemical, or biotic), directly or indirectly caused by the proposed action, that salmonids are likely to be exposed to. Next, we evaluate the likely response of salmonids to these stressors in terms of changes to salmonids survival, growth, and reproduction, and changes to the ability of PCEs to support the value of critical habitat in the action area. PCEs include sites essential to support one or more life stages of the species. These sites for migration, spawning, and rearing in turn contain physical and biological features that are essential to the conservation of the species.

[4] https://apps.nmfs.noaa.gov/search/search.cfm

A. Fish Capture and Relocation

The replacement of the failed retaining wall with a new soldier pile retaining wall will require dewatering of the action area and therefore fish capture and relocation will be necessary. Prior to construction of the dewatering facilities, block nets will be placed at the upstream and downstream end of each dewatered area. Once the nets are in place, a NMFS-approved fisheries biologist will capture and relocate salmonids from the dewatered area until they are confident few or no fish remain. Fish capture and relocation will continue once the dewatering process begins in order to ensure fish are not stranded during the drawdown of the dewatered area. All steelhead captured will be relocated upstream of the action area. Based on the marginal rearing conditions present in the action area (*i.e.*, minimal stream flow, shallow pool depths, and poor overall substrate conditions) NMFS expects the total number of juvenile steelhead likely to be present in the action area to be low and no more than 35 individuals.

Caltrans proposes to use a backpack electrofisher or seines to capture and relocate steelhead. Fish capture and relocation activities pose a risk of injury or mortality to fish species. 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 fish relocation activities will be conducted by qualified fisheries biologists following both the CDFG and NMFS guidelines, direct effects to and mortality of steelhead during capture will be minimized. Data from years of similar salmonid relocation activities indicate average mortality rate is below one percent (Collins 2004; CDFG 2005, 2006b, 2007, 2008, 2009, 2010). Based on this information, NMFS will use three percent as the maximum amount of mortality likely from fish capture and relocation for the project; or no more than one juvenile steelhead.

Although sites selected for relocating fish should have ample habitat, in some instances relocated fish may endure short-term stress from crowding at the relocation sites. Relocated fish may also have to compete with other fish causing increased competition for available resources such as food and habitat (Keeley 2003). Stress from crowding, including increased competition for food among juvenile steelhead in the relocation areas will be minimal and temporary, because when the project is finished steelhead will be able to redistribute in the creek unimpeded. NMFS cannot estimate the number of fish affected by competition, but does not expect this impact will be large enough to affect the survival chances of individual fish. For example, the use of multiple release sites will help facilitate fish dispersion, limiting competition. Once the project is complete and following the first precipitation event, juvenile steelhead rearing space will return to the dewatered area. Despite these impacts, fish relocation operations, if necessary, are expected to significantly minimize project impacts to juvenile steelhead by removing them from areas where they would have experienced high rates of injury and mortality.

B. Dewatering

Direct effects from dewatering will occur to juvenile steelhead within this reach. Low levels of turbidity are expected to occur as a result of the cofferdam construction. Caltrans will construct

the cofferdams without the use of heavy equipment in the live stream. Fish capture and relocation will occur prior to (and after) the construction of the cofferdams. This will remove most, if not all, fish from the areas where the cofferdams will be constructed. Juvenile salmonids that avoid capture prior to the implementation of site dewatering will die if not captured while the dewatering is underway. Caltrans or its contractors will continue fish capture and relocation during the dewatering process. NMFS expects the number of juvenile salmonids that will be killed as a result of stranding during dewatering activities will be one percent or less of the fish within the action area prior to dewatering, or no more than one steelhead. During the dewatering process, the biologist on site will make every effort to collect and relocate fish that avoided capture prior to the beginning of the dewatering process.

Another manner by which juvenile salmonids may be harmed or killed during dewatering activities is to be entrained into the pumps or discharge line. To eliminate this risk, the applicant will screen all pumps according to NMFS criteria, to ensure juvenile steelhead will not be harmed by the pumps during dewatering events.

Juvenile salmonids rearing downstream of the action area may be inadvertently affected by the loss of benthic (*i.e.*, bottom dwelling) aquatic macroinvertebrate production within the dewatered area (Cushman 1985). However, effects to aquatic macroinvertebrates resulting from dewatering will be temporary because construction activities will be relatively short-lived, drift from upstream will continue through the pipe, and rapid re-colonization (about two to three months) of disturbed areas by macroinvertebrates is expected following construction (Cushman 1985, Thomas 1985, Harvey 1986).

C. Turbidity

NMFS anticipates only short-term increases in turbidity will occur during the construction and removal of cofferdams. Suspended sediment may affect salmonid feeding behavior and efficiency, resulting in reduced growth rates (Sigler *et al.* 1984, Newcomb and Jensen 1996). Also, because of turbidity, salmonids disperse from established territories, which can temporarily displace fish into less suitable habitats and which can lead to reduced growth rates (Sigler *et al.* 1984).

Much of the research discussed in the paragraph above focused on turbidity levels higher than those expected to occur during implementation of the proposed activities. As described above in the Environmental Baseline, substrate throughout the action area consists of gravel and a mixture of fine sediments (Joel Casagrande, NMFS, personal observation, June 20, 2011). NMFS expects the increase in turbidity to be relatively minor during the proposed activities. Still, the effects of elevated turbidity may extend downstream approximately 1,000 feet, beyond which, much if not all of the suspended material would settle in the stream channel because of very low flows during the installation and removal of the cofferdams.[5] Observations of turbidity response during removal of dewatering facilities in a Central California Coast watershed (*i.e.*, Uvas Creek, Santa Clara County) where substrate quality was similar and stream flows were substantially

[5] The slower the water velocity, and smaller the amount of water, the shorter distance a given particle of sediment travels in the water column.

higher indicated a majority of the suspended sediment dropped out in the first 300 to 400 feet from the source (Joel Casagrande, NMFS, personal observation). Based on these observations, NMFS thinks it unlikely that suspended material would travel farther than approximately 1,000 feet given lower flows than Uvas Creek.

Monitoring of newly replaced culverts within Humboldt County indicated temporary increases in turbidity following winter storm events in which the measured turbidity was generally less than the turbidity threshold commonly cited as beginning to cause minor behavioral changes (Humboldt County 2002, 2003, and 2004), and always less than turbidity levels necessary to injure or kill salmonids. Impacts associated with degraded water quality will likely be limited to behavioral effects, such as temporarily vacating preferred habitat or temporarily reduced feeding efficiency. These temporary changes in behavior may slightly reduce growth rates, but are not likely to reduce the survival chances of individual juvenile salmonids. Caltrans has included BMPs to reduce the likelihood of sediments from entering the stream. NMFS's familiarity with the results of similar BMPs indicates these actions will, if implemented appropriately, to be effective at reducing sedimentation rates. Any increases in turbidity due to the construction of cofferdams and during the initial re-wetting of the reconfigured channel will likely be minimal and temporary due the incorporation of BMP's, the low stream flows present during summer, and the adherence to the listed terms and conditions in this biological opinion. Therefore, any short-term impact associated with turbidity during implementation of this project is expected to be insignificant.

D. Habitat Loss

Impacts on riparian and aquatic habitat will occur as a result of the temporary loss of vegetation within the footprint of the proposed retaining wall and the access ramp to the channel. Riparian zones serve important functions in stream ecosystems by providing shade, sediment storage, nutrient inputs, channel and stream bank stability, habitat diversity, and cover and shelter for fish (Murphy and Meehan 1991). Small streams are especially sensitive to loss of riparian habitat and shade, which moderates stream temperatures by insulating the stream from solar radiation and reducing heat exchange with the surrounding air.

To minimize the temporal loss of riparian vegetation and the potential for incremental effects on stream temperatures, Caltrans proposes to limit the amount of vegetation removed to the least amount possible. Existing vegetation will be preserved to the extent possible by pruning or, if necessary, cutting individual plants to within a few inches of the ground to allow natural regeneration to occur following construction. In some cases, entire trees and root systems will have to be removed where they have grown in and around the failed retaining wall. Six trees along more than 130 feet of stream will need to be removed (4 red alders, 1 California bay, and 1 red willow). Most have a diameter at breast height (DBH) less than 10 inches and only two have trunks with a DBH between 10 and 14 inches. Following the construction of the retaining wall and the removal of the access ramp to the channel, all of the disturbed areas will be planted with native vegetation in accordance with a NMFS-approved re-vegetation and monitoring plan. In addition, vegetation plugs will be incorporated into the RSP. Because of the small area affected, the rapid re-growth of willows and alders, and the implementation of a re-vegetation and

monitoring plan, NMFS does not expect the effects of the small number of trees and understory species removed or trimmed along the bank of Pocket Canyon Creek will result in appreciable impacts to listed critical habitat or species.

VII. CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. 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. Caltrans is not aware of any additional actions that would cause cumulative effects beyond those that are ongoing and have been analyzed in the environmental baseline of this biological opinion (Caltrans 2011). In the long term, global climate change may produce temperature and precipitation changes that may adversely affect listed salmonids in the action area.

VIII. INTEGRATION AND SYNTHESIS

The CCC steelhead DPS is listed as threatened. Throughout the CCC steelhead DPS and the greater Russian River Watershed, stream and estuary habitats have been significantly impacted by multiple anthropogenic activities (*i.e.*, logging, urban development, agriculture, dams, stream channelization, and poor lagoon management). These have contributed to substantial declines in the abundance of CCC steelhead in many of the watersheds in this region (Good *et al.* 2005, Spence *et al.* 2008). Habitat conditions in the action area, based on observations by NMFS staff in early summer 2011, are marginally suitable for juvenile steelhead (Joel Casagrande, NMFS, personal observation, June 2011, B. Cox, personal communication, August 2011). Data on juvenile steelhead abundance during the dry season (July – October) are extremely limited for this drainage and there are no data specific to the action area. However, based on current habitat conditions NMFS expects juvenile steelhead in low densities may be present prior to dewatering the project action area.

During dewatering of the work site, fish rescue and relocation efforts will take place. Only juvenile steelhead are likely to be present at the time of construction. NMFS anticipates up to 35 juvenile steelhead may be adversely affected by the project, and no more than 2 juvenile steelhead will die as a result of the proposed activities. The action area is located in the downstream portion of the watershed and will occupy a very small portion of the total amount of potential rearing habitat available to steelhead. Therefore, a substantial amount of the watershed's rearing habitat, and presumably the steelhead utilizing these areas, will not be affected by the proposed project. The total number of juvenile steelhead relocated from the action area during the proposed project are likely to represent a small proportion of the overall Pocket Canyon Creek population and will represent a fraction of the total Russian River Watershed and CCC steelhead DPS abundance. It is unlikely the small potential loss of two juvenile steelhead as a result of the project will impact future adult returns, due to the relatively large number of juveniles produced by each spawning pair and the larger amount of rearing

habitat located elsewhere in the watershed. Therefore, NMFS does not believe the project will appreciably diminish the abundance, productivity, diversity, or spatial structure of the Lower Russian River population of CCC steelhead.

Short term effects related to turbidity and vegetation removal during the construction and removal of stream flow diversion facilities and channel access ramp are expected to be minor and temporary, and NMFS anticipates the proposed BMPs will control sediment/turbidity sufficiently to avoid significant adverse effects to listed fish species. No permanent adverse changes in stream flow are anticipated. Therefore, NMFS believes the effects of turbidity increases and flow conditions from the project activities will not have any long-term impacts to the PCEs of CCC coho salmon or CCC steelhead critical habitat. The value of critical habitat in the action area for species conservation is not likely to be appreciably reduced by the activities proposed.

IX. CONCLUSION

After reviewing the best available scientific and commercial information, the current status of the species and critical habitat, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is NMFS' biological opinion Caltrans's proposed Pocket Canyon Creek – Highway 116 bank stabilization project, in Sonoma County, California is not likely to jeopardize the continued existence of CCC steelhead.

After reviewing the best available scientific and commercial information, the current status of the critical habitat, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is NMFS' biological opinion Caltrans' proposed Pocket Canyon Creek – Highway 116 bank stabilization project, in Sonoma County, California is not likely result in the destruction or adverse modification of designated critical habitat designated for CCC coho salmon and CCC steelhead.

X. INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without 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 NMFS as an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are nondiscretionary, and must be undertaken by Caltrans, for the exemption in section 7(o)(2) to apply. Caltrans has a continuing duty to regulate the activity covered by this incidental take statement. If Caltrans, or its contractors (1) fails to assume and implement the terms and conditions or (2) fails to require its designees to adhere to the terms and conditions of the incidental take statement, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, Caltrans must report the progress of the action and its impact on the species to NMFS as specified in the incidental take statement (50 CFR §402.14(i)(3)).

A. Amount or Extent of Take

As described above in the accompanying biological opinion, the number of threatened CCC steelhead that may be incidentally taken by capture and relocation during project activities is expected to be no more than 35 individuals. NMFS anticipates no more than two juvenile steelhead present in the area will be killed during capture and relocation and channel dewatering activities.

The anticipated take will have been exceeded if more than 35 juvenile steelhead are captured or if more than 2 juvenile steelhead are killed during relocation efforts.

B. Effect of the Take

In the accompanying opinion, NMFS determined this level of anticipated take is not likely to result in jeopardy to CCC steelhead.

C. Reasonable and Prudent Measures

The following reasonable and prudent measures are necessary and appropriate to minimize the impacts of the incidental take of CCC steelhead:

1. Undertake measures to ensure harm and mortality to CCC steelhead resulting from fish relocation is low;

2. Undertake measures to maintain water quality conditions and riparian habitat conditions at pre-construction levels to avoid or minimize harm to CCC steelhead;

3. Prepare and submit plans and reports that describe specific methods and practices prior to their implementation (plans) and document (reports) the effects of the project. Notify NMFS when project activities are scheduled to begin.

D. Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, Caltrans, and their designees/contractors must comply with the following terms and conditions, which implement

the reasonable and prudent measures described above, and outline required reporting/monitoring requirements. These terms and conditions are nondiscretionary.

1. The following terms and conditions implement Reasonable and Prudent Measure 1.

   a. Caltrans will provide a list of all BMPs and the Terms and Conditions of this biological opinion to their contractors and ensure they are followed for the length of the project.

   b. The applicant and its contractors will follow NMFS Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act (NMFS 2000). All live steelhead will be handled with extreme care and kept in water to the maximum extent possible during relocation activities. All captured fish will be kept in cool, shaded, and aerated water that is protected from excessive noise, jostling, or overcrowding any time they are not in the stream, and fish will not be removed from this water except when released. If necessary, the biologist will have at least two containers and segregate young-of-year salmonids from older salmonids and other potential aquatic predators in order to avoid predation affects. Captured salmonids will be relocated as soon as possible and will be given highest priority over other non-listed fish species. Juvenile steelhead will be released upstream of the project construction area.

   c. The biologist will note the number of each species collected/observed in the affected area, the number of fish relocated, and the date and time of collection and relocation. If any dead or fatally wounded fish are observed, they will be collected and placed in an appropriately sized whirl-pack or zip-lock bag, labeled with the date and time of collection, fork length, and location of capture, and frozen as soon as possible. If any fish are fatally wounded, Caltrans will then notify the NMFS biologist, listed below, no later than two days from the occurrence for further instruction on disposition of the dead steelhead.

2. The following terms and conditions implement Reasonable and Prudent Measure 2.

   d. Caltrans, or its contractors, shall monitor in-channel activities and performance of sediment control or detention devices for the purpose of identifying and reconciling any condition that could result in take of listed salmonids. More specifically, Caltrans, or its contractors, will measure turbidity throughout the construction and removal of creek diversion facilities and for one day following both the construction and removal of the diversion facilities using either a turbidity meter or a transparency tube. The results of this monitoring will be used to confirm NMFS' assumption that increases in turbidity levels within and downstream of the action area will be temporary (*i.e.,* increases in turbidity from the construction and removal of the flow diversion facilities will be limited to one day or less).

   e. Caltrans, or its contractor, shall allow any NMFS employee(s) or any other person(s) designated by NMFS, to access the work area during the construction period for the purpose of observing monitoring activities, evaluating fish and stream conditions,

monitoring performance of BMPs, monitoring water quality, collecting fish samples, or perform other monitoring/studies. NMFS will notify the Caltrans Resident Engineer 48 hours prior to planning a site visit and will contact Caltrans personnel prior to entering the construction site.

3. The following terms and conditions implement Reasonable and Prudent Measure 3.

   f. Caltrans will provide NMFS with a final Fish Capture and Relocation Plan for review prior to the start of fish collection and relocation activities. The plan must be submitted no less than 30 days prior to the beginning of fish capture and relocation activities (*i.e.,* on or before May 15 of the year to be implemented if beginning on June 15). The plan will outline all confirmed fish relocation methods, including the location and a description of the habitat where steelhead are to be relocated. The plan will be submitted to NMFS' North Central Coast Office (see address below).

   g. As discussed above in the Project Description, Caltrans has proposed to submit a final re-vegetation plan to NMFS for approval no less than 60 days prior to project commencement. This plan shall include the general methods, estimated number of each tree and shrub species removed as a result of the project as well as the number to be planted. In addition, the plan shall outline survivorship and success monitoring including photo documentation. The plan shall be submitted to the NMFS address below.

   h. The project biologist will notify NMFS biologist Joel Casagrande at (707) 575-6016 or Joel.Casagrande@noaa.gov no later than one week prior to relocation activities in order to provide an opportunity for NMFS staff to observe the activities.

   i. Caltrans shall provide NMFS with a summary report by January 15 of the year following the completion of fish capture and relocation efforts. The report shall include the methods used during the fish capture and relocation, the location, number and species captured, number of mortalities by species, and other pertinent information (*i.e.,* water temperature) related to the fish capture and relocation activities. Reports shall be submitted to NMFS North Central Coast Office (see address below).

   j. Caltrans shall provide NMFS with a summary turbidity monitoring report by January 15 of the year following the completion of the project (removal of dewatering facilities). The report will include turbidity monitoring data collected throughout the construction and removal of the dewatering facilities as described above. The report shall be submitted to NMFS North Central Coast Office (see address below).

   k. A final report describing the re-vegetation activities and survivorship monitoring shall be submitted to NMFS at the address below on January 15th of the year following the end of the post monitoring period.

l. All reports required for the above terms and conditions shall be sent to the NMFS North Central Coast Office, Attention: Supervisor of Protected Resources Division, 777 Sonoma Avenue, Room 325, Santa Rosa, California 95404

XI. CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, or to develop information.

Caltrans, in coordination with NMFS, should identify and prioritize any maintenance and construction projects which, if implemented, can improve ESA-listed salmonid migration or in-stream environmental conditions throughout the North-Central California Coast Recovery Domain.

XII. REINITIATION NOTICE

This concludes formal consultation on Caltrans for the proposed Pocket Canyon Creek – Highway 116 bank stabilization project in Sonoma County, California. As provided in 50 CFR §402.16, reinitiation of formal consultation is required if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in this opinion; (3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, formal consultation shall be reinitiated immediately.

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