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

July 21, 2006

In response refer to:
2006/00908:JMA

Mr. Gene K. Fong
Division Administrator
United States Department of Transportation
Federal Highway Administration, California Division
650 Capital Mall, Suite 4-100
Sacramento, California 95814

Dear Mr. Fong:

This document transmits NOAA's National Marine Fisheries Service's (NMFS) biological opinion for the Federal Highway Administration's (FHWA) and California Department of Transportation (Caltrans) proposal to replace the existing Uvas Creek Bridge on State Route 152, in Santa Clara County, California (FHWA File No. HDA-CA 04-SCL-152, Document No. P54042). The biological opinion addresses potential adverse effects of the project on the South-Central California Coast (S-CCC) distinct population segment (DPS) steelhead (*Oncorhynchus mykiss*) and their designated critical habitat, in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

NMFS concludes the FHWA's proposed funding of the project is not likely to jeopardize the continued existence of threatened S-CCC DPS steelhead or adversely modify or destroy their critical habitat. However, NMFS expects that the proposed action is likely to result in take of S-CCC DPS steelhead and, therefore, an incidental take statement is included with the biological opinion The incidental take statement includes reasonable and prudent measures necessary and appropriate to minimize incidental take of S-CCC DPS steelhead.

Please contact Mr. Jonathan Ambrose of the Santa Rosa Area Office at (707) 575-6096, or via email at Jonathan.Ambrose@noaa.gov, if you have any questions or concerns about this consultation.

Sincerely,

for Rodney R. McInnis
Regional Administrator

Enclosure

cc: Russ Strach, NMFS, Sacramento
Leland Dong, FHWA, Sacramento
David Cohen, FHWA, Sacramento
Jeffrey Jensen, Caltrans, Oakland

Enclosure 1

BIOLOGICAL OPINION

ACTION AGENCY: U.S. Department of Transportation, Federal Highway Administration, California Division

ACTION: Uvas Creek Bridge Replacement Project on State Route 152, Santa Clara County, California

CONSULTATION CONDUCTED BY: National Marine Fisheries Service, Southwest Region

PUBLIC CONSULTATION SYSTEM TRACKING NUMER: 2006/00908

DATE ISSUED: July 21, 2006

I. CONSULTATION HISTORY

On March 8, 2006, NOAA's National Marine Fisheries Service (NMFS) received the U.S. Department of Transportation Federal Highway Administration (FHWA), California Division's March 6, 2006, letter requesting initiation of formal consultation pursuant to section 7 of the Federal Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*) regarding replacement of the existing Uvas Creek Bridge on State Route 152. South-Central California Coast (S-CCC) distinct population segment (DPS) steelhead (*Oncorhynchus mykiss*) (71 FR 834; January 5, 2006) and their critical habitat (70 FR 52488; September 2, 2005) are present in Uvas Creek, a tributary of the Pajaro River. The California Department of Transportation (Caltrans), funded by FHWA, proposes to build a new, wider bridge, over Uvas Creek west of Gilroy, in Santa Clara County, California.

The February 2006 biological assessment for the Uvas Creek Scour Mitigation Project concluded the project was likely to adversely affect Federally-threatened S-CCC DPS steelhead. The biological assessment also determined the project was not likely to jeopardize the continued existence of S-CCC steelhead.

Additional information regarding the project was provided by FHWA and Caltrans to NMFS by telephone and electronic mail during April, May, June, and July, 2006. Caltrans provided a letter dated May 2, 2006, which responded to several questions raised by NMFS. Specific information regarding the construction materials and methods for the project's temporary and permanent piles was provided to NMFS by electronic mail messages and telephone on July 5, 6, and 7, 2006.

A complete administrative record of this consultation is on file at the NMFS Santa Rosa Area Office.

II. DESCRIPTION OF THE PROPOSED ACTION

FHWA and Caltrans are proposing to replace the State Route (SR) 152 bridge over Uvas Creek, west of the town of Gilroy, California. A new, 250-foot (ft) long, 55-ft wide bridge will be built 47 ft north of the present bridge the present bridge. The current bridge is about 35 ft wide, and the new bridge will be approximately 20 ft wider to provide for left turn lanes/acceleration lanes and standardized shoulders. Scour, resulting from erosion of the existing Uvas Creek Bridge pier walls, has exposed the bridge pilings that would normally lie beneath the grade of the creek bed, compromising the stability of the bridge pier walls. This project would provide a permanent solution to the scour problem. Construction will occur between June 15 and October 15 to coincide with the typical dry season for two years. The new bridge will be constructed during the first year and the demolition of the existing bridge will occur during the second year.

Removal of oak woodlands along the north side of SR 152 and east of Burchell Road is necessary to realign SR 152 with the new bridge and to accommodate the approximately 427-ft long by 20-ft high soil nail wall. The soil nail wall, located immediately east of the new bridge along the north side of SR 152, beginning at the Burchell Road intersection, is designed to reduce the amount of land acquisition and grading required for the bridge approach.

Prior to initiating construction of the new bridge during the first year of the project, Uvas Creek will be de-watered at the project site. Uvas Creek flows will be diverted into a lined and open U-channel. Pre-construction activities also include construction of a cofferdam, removal of rock slope protection and removal of sack concrete slope protection. Two access routes will be established the first year to build the new bridge and will allow for equipment egress. Pre-construction activities will also include placement of environmentally sensitive area fencing and erosion control measures. All construction related materials including the water diversion, cofferdam, and fencing will be removed by October 15th of the first year following completion of the new bridge construction activities.

To construct the new bridge, temporary piles will be installed to create falsework. The falsework will consist of four temporary support structures, each with six supporting timber or steel piles. The timber piles will be 12 inches in diameter and installed with an impact hammer. If a vibratory hammer is used to install piles for the falsework, steel piles may be used. Two permanent bridge columns will be constructed in a row perpendicular to the bridge span between the thalweg and the east bank of Uvas Creek. These two columns will be constructed of steel reinforcement and concrete. The columns will be cast-in-drilled-hole piles. A steel casing and vibratory hammer may be used during column construction. Each five-foot diameter column will extend from the surface of the creek bed and both columns together will occupy nearly 40 ft^2 of creek channel.

During the second year of construction, Caltrans proposes demolition of the existing bridge over Uvas Creek. Between June 15 and October 15, Caltrans will again construct a cofferdam and U-channel to divert the creek flow around the project site. A temporary falsework platform will be constructed horizontally and directly underneath the existing bridge deck. Two access routes will be

constructed to access the temporary falsework. Once demolition is complete, all construction related material will be removed from the project area.

Minimization and conservation measures to avoid and minimize impacts to S-CCC DPS steelhead were included in the biological assessment (BA). These include:

1. Limiting work within Uvas Creek to June 15 through October 15.

2. Minimizing the construction area to the smallest area needed to complete the project.

3. Enacting best management practices (BMPs) to ensure that project activities do not adversely impact adjacent natural resources. These will be implemented during construction to control runoff and avoid toxic fuel spills.

4. Providing an on-site biological monitor to ensure that no steelhead are impacted during cofferdam installation. Should a steelhead be encountered, a qualified biologist will remove it from the construction area and release it downstream of the project area.

5. Photo-documenting vegetation at the project site to assist in the revegetation design and implementation by providing pre-project baseline conditions and ensuring that vegetation is reestablished to the greatest extent practicable.

6. Following the Vehicle and Equipment Fueling BMPs (per letter from Margaret Gabil, Caltrans, to Gene Fong, FHWA, dated May 2, 2006).

7. Following construction, all equipment and materials will be removed from Uvas Creek.

8. Appropriate erosion control methods will be implemented during and after construction.

A. Action Area

NMFS has determined the action area to be Uvas Creek 500 ft upstream and 500 ft downstream of the proposed bridge construction. This area is considered the action area due to the nature of the proposed activity, which includes construction of cofferdams, diversion of stream flows, removal of riparian vegetation, and placement of heavy equipment in the dry stream channels. These activities have the potential to adversely affect S-CCC DPS steelhead and their designated critical habitat, both downstream and immediately upstream of the project area.

III. STATUS OF THE SPECIES AND CRITICAL HABITAT

A. S-CCC Steelhead Description and Life History

Steelhead are anadromous fish, spending some time in both fresh- and saltwater. The older juvenile and adult life stages occur in the ocean, until the adults ascend freshwater streams to spawn. Eggs (laid in gravel nests called redds), alevins (gravel dwelling hatchlings), fry (juveniles newly emerged

from stream gravels), and young juveniles all rear in freshwater until they become large enough to migrate to the ocean to finish rearing and maturing to adults. General reviews for steelhead in California document much variation in life history (McEwan 2001, Busby *et al.* 1996, Shapovalov and Taft 1954, Barnhart 1986). Although variation occurs in coastal California, steelhead usually live in freshwater for two years, then spend one or two years in the ocean before returning to their natal stream to spawn. Steelhead may spawn one to four times over their life. Steelhead from the Pajaro River system typically immigrate to freshwater between December and April, peaking in March and April, and migrate to the ocean from January through June, with peak emigration occurring in March through May (Fukushima and Lesh 1998). Given the proposed in-channel construction period – June 15 to October 15 – and the life history of steelhead, only juvenile steelhead are likely to be present in the action area during construction.

Steelhead fry rear in edgewater habitats and move gradually into pools and riffles as they grow larger. 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, Shirvell 1990). Steelhead, however, tend to use riffles and other habitats not strongly associated with cover during summer rearing more than other salmonids. Young steelhead feed on a wide variety of aquatic and terrestrial insects, and emerging fry are sometimes preyed upon by older juveniles. Rearing steelhead juveniles prefer water temperatures of 45-58 degrees Fahrenheit (° F) and have an upper lethal limit of 75° F (Bjornn and Reiser 1991, Barnhart 1986). They can survive in water up to 80.6° F with saturated dissolved oxygen conditions and a plentiful food supply. Fluctuating diurnal water temperatures also aid in survivability of salmonids (Busby *et al.* 1996).

B. Status of S-CCC Steelhead

In this BO, NMFS assessed the status of S-CCC steelhead by examining four types of information, all of which help to understand a populations ability to survive. These population viability parameters are: abundance, population growth rate, spatial structure, and diversity (McElhaney *et al.* 2000). While there is insufficient information to evaluate these population viability parameters in a quantitative sense, NMFS has used existing information to determine the general condition of the DPS. Factors responsible for the current status of the DPS are also described.

Data suggest steelhead populations exist in most streams within the geographic boundaries of the DPS, though NMFS' Biological Review Team (BRT) is concerned the two largest river systems, the Pajaro and Salinas basins, are much degraded and have steelhead runs significantly reduced in size (Good *et al.* 2005). Although some of the historical data used in estimating steelhead runs in the DPS are highly uncertain (*e.g.*, the recent estimates for the Pajaro River [1,000 to 2,000] did not include a description of the methodology and data set [Good *et al.* 2005]), there are no recent data indicating conditions in the Pajaro River have improved since the original listing decision (Boughton and Fish 2003). The Pajaro and Salinas basins are ecologically distinct from the populations in the Big Sur area and San Luis Obispo County; therefore, their degradation affects the DPS's spatial structure and diversity (Good *et al.* 2005). The strongest BRT concern was for spatial structure, but abundance and productivity were also a concern (Good *et al.* 2005).

C. Status of Steelhead Critical Habitat

Risk factors for steelhead critical habitat include migration barriers (permanent and seasonal dams), freshwater habitat deterioration (sedimentation and reduction in large woody debris) associated with poor land use practices, and predation by nonnative fishes (Good *et al.* 2005). Most areas of critical habitat have been degraded compared to conditions that once supported thriving populations of salmonids.

With the listing of S-CCC steelhead, provisions of the Federal ESA took effect to prevent Federal agencies from authorizing, funding, or carrying out actions that would jeopardize the long-term survival and recovery of the species. The designation of critical habitat for these species prevents Federal agencies from taking actions that would adversely modify or destroy critical habitat. In addition, both the State and Federal government are providing funding for habitat restoration projects in areas which encompass these, and other, DPSs. However, Federal agency actions affect only a subset of many of the critical habitat areas. Funding for restoration has been increased since the late 1990s, but it may not affect a significant portion of degraded critical habitats for several decades. Thus, it is unknown whether State management of land use, Federal agency responsibilities under the ESA, and State/Federal restoration efforts in the near future are likely to reverse the overall trend of continued habitat degradation in areas that have been designated as critical habitat for these DPSs.

IV. ENVIRONMENTAL BASELINE

A. Status of Steelhead in the Action Area

Uvas Creek is a major tributary to the Pajaro River. Steelhead populations in the Pajaro River have suffered a significant decline from historic levels. Steelhead adults and juveniles use the action area as a migration corridor and as rearing habitat. Adult steelhead are not expected to be present when the project is scheduled to occur based on the timing of adult migration (winter/spring). Both young-of-the-year and yearling juvenile steelhead may be present at the project during the two seasons of construction. Based on a survey conducted in 1998 by the Santa Clara Valley Water District (Appendix K of the BA), more than 30 juvenile steelhead were captured in a two mile stretch above and below the existing Uvas Creek bridge.

B. Status of Steelhead Critical Habitat in the Action Area

Present land use practices within the Uvas Creek Watershed have and continue to degrade its water quality. Steelhead populations in the action area have been depleted primarily by habitat damage (Nehlsen *et al.* 1991) such as upstream dams and regulated flows, riprap and channelization, urban development, and upstream agricultural practices. Upper Uvas Creek is no longer accessible to steelhead due to the presence of Santa Clara Valley Water District's Uvas Dam, and flows through the action area are regulated by a water right specifying minimum winter and summer releases (Smith 2002). Riparian vegetation is lacking in the action area due to rock and sack concrete slope protection, although some trees are present. The armored banks also impair steelhead rearing habitat and channelize the creek. Grazing practices and encroachment of croplands and urban development

have reduced the coverage of riparian habitat along considerable stretches of the creek (AMBAG 1999). The loss of the riparian vegetation has left many stream banks unvegetated, which is resulting in accelerated erosion from steep and unstable banks, significantly degrading aquatic habitats for salmonids (AMBAG 1999).

V. EFFECTS OF THE PROPOSED ACTION

The Uvas Creek Scour Mitigation Project is expected to affect S-CCC steelhead and their designated critical habitat through streamflow diversions, pile driving, degradation of water quality, loss of riparian vegetation, and loss of aquatic macro-invertebrates.

A. Loss, Alteration, and Reduction of Aquatic Habitat

Caltrans proposes to divert the streamflow of Uvas Creek during both seasons of construction (June 15-October 15) into a U-channel lined with heavy gauge plastic sheeting in order to de-water the project work site. During the first year of construction, Caltrans proposes to de-water approximately 85 feet of the Uvas Creek channel. During the second year of construction, Caltrans estimates approximately 65 linear feet of Uvas Creek will be de-watered.

Streamflow diversion and workspace dewatering is expected to cause temporary loss, alteration, and reduction of aquatic habitat, including critical habitat, in the action area. Streamflow diversions could harm individual steelhead by concentrating or stranding them in residual wetted areas (Cushman 1985) or causing them to move to adjacent habitats (Campbell and Scott 1984, Kraft 1972, Clothier 1954, Clothier 1953). Dewatering the workspace may cause harm, injury, and mortality to steelhead by temporarily confining them to areas predisposed to dewatering or desiccation, increased water temperature, decreased dissolved oxygen concentration, and predation (Cushman 1985).

Steelhead may be directly impacted by increased competition for food and space due to the temporary loss of habitat. However, the density of steelhead in this reach of Uvas Creek is likely to be low based on a 1998 survey by the Santa Clara Valley Water District (Caltrans 2006). Therefore, the number of juvenile steelhead impacted should be minimal and the effects of the temporary increase in stress should be negligible. Adult steelhead are not expected to be present in the project area during the construction seasons and thus, will not be affected by the streamflow dewatering. Spawning gravel in Uvas Creek is not likely to be effected by project construction.

Critical habitat will be temporarily and permanently impacted during construction. Twenty linear feet of riparian habitat will be permanently lost to accommodate the widened bridge, but no instream habitat will be permanently lost, altered, or reduced. During construction, portions of the action area will be less accessible to salmonids. Uvas Creek at the construction site between June 15 and October 15 will consist of a U-channel constructed with K-rails and lined with heavy plastic. Uvas Creek streamflow will continue to flow through the U-channel and there will no barriers to passage. Fish will be capable of passing upstream and downstream through the site, but 85 ft and 65 ft of channel during the first and second years of construction, respectfully, will temporarily be poor rearing habitat. Following construction, riparian vegetation will be reduced for several years while it

regrows, but due to the small area affected, the water temperatures in the creek will not likely be affected.

B. Pile Driving

Pile driving with an impact hammer may be used to install the falsework's timber piles. If a vibratory hammer is used, timber or steel piles may be used for the falsework. The falsework is a temporary structure that will be disassembled and removed following each year of construction. For the installation of the bridge's two permanent columns, a vibratory hammer may be used. Because the project site will be dewatered, no pile driving will occur in-water.

Available information indicates that fish may be injured or killed when exposed to elevated underwater sound pressure waves generated from driving steel piles with impact hammers (Abbott and Bing-Sawyer 2002, Abbott and Reyff 2004, Abbott *et al.* 2005, Caltrans 2001, Caltrans 2003, Caltrans 2004, Nedwell *et al.* 2003, Vagle 2003). Pathologies associated with very high sound levels are collectively know as barotraumas. These include hemorrhage and rupture of internal organs, including the swimbladder and kidneys in fish. Death can be instantaneous, occur within minutes after exposure, or occur several days later. High sound pressure levels can also result in hearing damage to fish.

For installation of this project's permanent and temporary steel piles, Caltrans proposes to use a vibratory hammer rather than an impact hammer. No steel piles will be installed with an impact hammer. Based on data collected during the installation of steel piles with a vibratory hammer in Richmond Inner Harbor (Reyff 2003), the adverse effects described above are not expected with the use of a vibratory hammer. Sound levels produced by vibratory hammers are not only lower, but generate different sound wave forms and lower sound frequencies that are less injurious than those produced by an impact hammer. Therefore, it is expected that underwater sound produced during the driving of the bridge's permanent piles or the temporary steel piles on the falsework will not exceed levels that result in injury or mortality of fish.

If an impact hammer is used for construction of the bridge's falsework, timber piles will be used. Caltrans estimates that pile driving associated with construction of the falsework will be completed in one to two days. The driving of wooden and concrete piles with an impact hammer generates sound wave forms that are less injurious than steel piles of similar size (Reyff and Anderson 2005). Based on the use of a timber pile installed with an impact hammer, it is anticipated that underwater sound produced during construction of the falsework will be below the threshold of physical injury to listed salmonids. Alternatively, if steel piles are used for the falsework, use of vibratory hammer will also avoid the generation of excessive underwater sound levels. All pile driving will be performed in de-watered areas which are expected to further reduce sound levels in adjacent wetted areas.

Although below the level of physical injury, juvenile steelhead could be exposed to sound pressure waves traveling through the streambed to nearby wetted habitats upstream and downstream. The degree to which individual steelhead may be affected by sound pressure waves is dependent on many variables including size of fish, peak sound pressure, frequency, *etc.* Depending on these

factors, effects on fish will likely range from a startle response to no response. Due to the short duration of the pile driving episodes and small area to be affected, no adverse effects are expected to occur.

C. Loss of Aquatic Macroinvertebrates

Caltrans proposed de-watering of the construction site will result in impacts to aquatic macroinvertebrates. Aquatic macroinvertebrates typically represent a major portion of food items consumed by juvenile steelhead at various times of the year and are an essential feature of critical habitat. Riffles are generally accepted as the principal food-producing habitat in streams, but some aquatic invertebrates inhabit runs and pools as well. Proposed de-watering activities could be expected to affect these food resources.

Aquatic macroinvertebrates will be killed when Uvas Creek is dewatered for construction at the project site. Effects to aquatic macroinvertebrates resulting from streamflow diversions and dewatering will temporarily reduce macroinvertebrate populations (Shaw and Richardson 2001). However, the impacts of de-watering will be limited to approximately 85 and 65 ft of Uvas Creek during the two seasons of construction. Macroinvertebrates may repopulate disturbed areas in as few as 19 days (Mattaei *et al.* 2000). Impacts to steelhead associated with macroinvertebrate losses are expected to be minimal, because they will be localized and temporary. If juvenile steelhead are temporarily stressed by increased competition for food in the project area, they will likely be able to find alternative habitat and food resources nearby.

D. Loss of Riparian Habitat

Riparian habitats are an essential feature of critical habitat. The functional values of riparian corridors and the benefits they provide to aquatic systems overall and stream fish populations in particular are well documented (Wang *et al.* 1997, Lowrance *et al.* 1995, Castelle *et al.* 1994, Welsch 1991, Platts 1991, Gregory *et al.* 1991, Wesche *et al.* 1987, Lowrance *et al.* 1985, Karr and Schlosser 1978, Hall and Lantz 1969). The current habitat within the footprint of, and adjacent to the new bridge structure over Uvas Creek consists of large rock slope protection at the bridge and overhanging vegetation upstream and downstream of the existing bridge. Within the area of the new bridge, approximately 771 linear ft of existing riparian vegetation will be temporarily disturbed. Of the 771 linear ft impact, 55 linear ft will be permanently lost to from construction of the new bridge. Thirty-five linear ft of riparian habitat will be restored with the removal of the existing bridge which is located 47 ft south of the proposed bridge. In total the new bridge will result in a net loss of an additional 20 linear ft or riparian habitat. When the existing bridge is removed, the riparian area at that location (35-ft wide) will be replanted with native vegetation. Removing riparian vegetation will potentially cause impacts until the replanted vegetation has established itself in three to five years.

The loss of riparian vegetation increases solar radiation and runoff-related fine sediment input into the creek, reduces insect drop, and decreases wood debris input to the creek. This loss is not expected to be adversely affect steelhead, because the overall detectable effect of riparian removal and alteration on critical habitat is expected to be short-lived and negligible. Potential impacts of increased solar input are expected to be small due to the relatively small area affected and shading

provided by the bridge. Sediment input is expected to be minimal due to extensive erosion control measures including planting of riparian vegetation and installation of erosion control devices at all locations where the likelihood of sediment input exists. Effects due to loss of wood recruitment will likely be minimal due to the small amount of vegetation that will be permanently lost in relation to vegetation that is available upstream and downstream, and short-term due to revegetation efforts that will occur following the project. The potential for insect drop will likely be eliminated until vegetation is able to reestablish itself. However, due to the relatively small area affected, this impact is expected to be negligible. Affected vegetation will be replaced with fast-growing native vegetation. Sac-concrete slope protection will be removed and replaced with rock slope protection, which will be planted with native vegetation, including big-leaf maple (*Acer macrophyllum*) and red willow (*Salix laevigata*) to allow development of mature vegetation that is currently precluded from being established. This would promote stream shading on the bridge's edges and result in a long-term benefit to critical habitat.

E. Turbidity and Sedimentation

Instream construction and streambed disturbance may result in increases in turbidity (Spence *et al.* 1996, Furniss *et al.* 1991, Reeves *et al.* 1991). Elevated levels of turbidity can disrupt normal feeding behavior and efficiency, reduce growth rates, increase stress, reduce instream dissolved oxygen, reduce respiratory functions, reduce tolerance to diseases, and can also cause mortality (Waters 1995, Velagic 1995, Gregory and Northcote 1993, Servizi and Martens 1992, Berg and Northcote 1985, Sigler *et al.* 1984, Crouse *et al.* 1981, Bjornn *et al.* 1977, Cordone and Kelly 1961). Even small pulses of turbid water will cause salmonids to disperse from established territories (Waters 1995). Newcombe and MacDonald (1991) and Waters (1995) show that turbidity-caused detrimental effects to fish are caused by increased turbidity coupled with duration of exposure.

At the Uvas Creek Scour Mitigation project, increase in turbidity is expected to be temporary and minor because Caltrans proposes to isolate the workspace from flowing water. In addition, Caltrans proposes to install erosion control devices prior to construction.

Lower gradient reaches are particularly susceptible to sediment deposition and relatively long-term storage (Montgomery and Buffington 1993). Increased sediment deposition may also fill pools and reduce the amount of cover available to fish (Alexander and Hansen 1986). The extent salmonids are harmed by sedimentation depends partially on the extent that post-project substrate conditions differ from pre-project conditions.

For Uvas Creek, specific sedimentation rates due to this project have not been estimated. However, sedimentation rates are expected to be low and temporary because the workspace will be isolated from flowing water. In addition, Caltrans will install erosion control devices and limit in-channel work to the dry season between June 15 and October 15.

Turbidity and sedimentation caused by this project are expected to have insignificant impacts to steelhead. The value of critical habitat is not expected to be diminished to the extent that any reduction or alteration of habitat will have a detectable effect on steelhead.

F. Fish Stranding

In the first year of construction approximately 85 linear ft of Uvas Creek will be de-watered and approximately 65 ft of Uvas Creek will be de-watered in the second season of construction. As streamflow is diverted away from the natural channel into a diversion pipe, some juvenile steelhead will likely find their way safely into adjacent downstream and upstream areas. However, some juvenile steelhead may become trapped in isolated pools and other areas in the de-watered reach of channel. Caltrans proposes to have an on-site monitor available to collect these fish. However, on-site monitoring is not always effective because juvenile steelhead under stress will often seek cover and hide within the gravel and cobble of the streambed. These fish will likely be lost due to thermal stress and desiccation.

Some limited information regarding Uvas Creek steelhead at the project site is available to determine the number of juvenile steelhead that may be present during de-watering. Sampling in the fall 2005 found 2.3 juvenile steelhead per 100 ft around SR 152 (Joel Casagrande, San Jose State University, personal communication). Based on this density, NMFS anticipates two juvenile steelhead to be present in the construction area the first year and two juvenile steelhead in the second year. Thus, it is anticipated that up to four juvenile steelhead will be lost during de-watering during the two construction seasons combined.

G. Toxic Fuels

Use of heavy equipment in and near streams has the potential for an accidental spill of fuel, lubricants, hydraulic fluid, and similar contaminants into the riparian area, the water, or the dry streambed where they could destroy habitat, injure or kill aquatic food organisms, or directly impact listed species. To keep toxic materials from aquatic habitat, the applicant has established several special conditions to be implemented. These minimization measures included in the project description are expected to sufficiently address the handling of toxic fuels near and in the creek channel and avoid potential impacts to critical habitat.

H. Interdependent and Interrelated Actions

NMFS does not anticipate any interdependent or interrelated actions associated with the proposed action.

I. Integration and Synthesis of Effects

This project is likely to adversely affect S-CCC DPS steelhead, and their critical habitat. Anticipated impacts are primarily associated with de-watering the construction site and loss of riparian vegetation along the banks of Uvas Creek.

Up to six juvenile steelhead may be lost during de-watering of the project site prior to construction. Approximately 85 and 65 ft of rearing habitat during the first and second seasons of construction, respectfully, will be lost due to the placement of the U-channel water diversion. Upstream and downstream movement of juvenile steelhead will likely be impaired during the two seasons of construction at the U-channel water diversion.

Adult steelhead migration and spawning are not expected to be effected since construction will be limited to the period between June 15 and October 15. Adult steelhead will have completed spawning and passed through the action area before the construction period.

Impacts from turbidity or toxins related to construction activities are temporary and will be minimized by specific project design considerations, such as dewatering the construction site, and implementation of BMPs.

Approximately 771 linear ft of riparian vegetation will be temporarily disturbed along the creek during construction. The area will be replanted with native species, improving critical habitat for steelhead once the vegetation has established. A total of 20 linear ft of riparian vegetation will be permanently lost. Critical habitat in this area is primarily used for rearing and migration.

The anticipated loss of four juvenile steelhead present in the action area during the two years of construction make up a small proportion of steelhead population in Uvas Creek, the Pajaro River, or the S-CCC steelhead DPS. Although the abundance of S-CCC steelhead is reduced from historic levels throughout the DPS, including the Pajaro River and its tributaries, the species remains well distributed, reducing extinction risk. It is unlikely that the loss of four juveniles, two during each year of construction, will impact future adult returns due to the relatively large number of juveniles produced by each spawning pair. Furthermore, no adverse impacts to populations in the Uvas Creek watershed in future years are expected from this project

Regarding S-CCC steelhead critical habitat, temporary impacts will not reduce the value of steelhead critical habitat once the project is complete. In the long-term, improvement to critical habitat value will occur in the action area, including the reestablishment of riparian vegetation upstream and downstream of the bridge, and a wider low flow channel.

VI. CUMULATIVE EFFECTS

NMFS is not aware of any future State or private activities that will not require Federal permits. The human population in the area is expected to continue increasing, increasing the demand for water in the region, and gradually placing more of a strain on the listed salmonids in the Pajaro River watershed.

VII. CONCLUSION

After reviewing the best available scientific and commercial information, the current status of S-CCC DPS steelhead, the environmental baseline for the action area, the effects of this project, and the cumulative effects, it is NMFS' biological opinion that the Uvas Creek Bridge Replacement Project on State Route 152 is not likely to jeopardize the continued existence of the S-CCC DPS steelhead.

After reviewing the best available scientific and commercial information, the current status of S-CCC DPS steelhead critical habitat, the environmental baseline for the action area, the effects of this project, and the cumulative effects, it is NMFS' biological opinion that the implementation of the Uvas Creek Bridge Replacement Project on State Route 152, as described, is not likely to adversely modify the designated critical habitat of S-CCC DPS steelhead.

VIII. 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 the purpose 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 the FHWA and its funding recipient(s) for the exemption in section 7(o)(2) to apply. The FHWA has a continuing duty to regulate the activity covered by this incidental take statement. If the FHWA: (1) fails to assume and implement the terms and conditions, or (2) fails to require any funding recipient(s) to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to any permit, grant document, or contract, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the FHWA 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

NMFS estimates the number of steelhead potentially present within the area of the construction footprint for Uvas Creek to be two the first year and two the second year, totaling four juvenile steelhead. Mortality of these four juvenile steelhead may occur during de-watering over the two years of construction.

B. Effect of the Take

In the accompanying BO, NMFS determined the level of anticipated take is not likely to result in jeopardy to the species.

C. Reasonable and Prudent Measures

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

1. The FHWA shall ensure that Caltrans minimizes the amount and extent of temporary and permanent changes to quality and quantity of instream and riparian habitat.

2. The FHWA shall ensure that Caltrans minimizes the loss of juvenile S-CCC steelhead during de-watering and cofferdam construction.

3. The FHWA shall ensure that Caltrans employs a qualified biologist for the purpose of monitoring the action area during construction activities.

4. The FHWA shall ensure that Caltrans reports to NMFS activities associated with minimizing and monitoring proposed action effects on S-CCC DPS steelhead.

D. Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the FWHA, its funding recipient(s), and their designees 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.

The following Terms and Conditions implement Reasonable and Prudent Measure number 1 (habitat).

a. Cofferdam construction and removal will take place by hand. No mechanized equipment will be used during cofferdam construction or removal. The dam will be removed so that surface elevations of water impounded above the cofferdam will not be reduced at a rate greater than one inch per hour. This will minimize the risk of beaching and stranding fish as the area upstream becomes dewatered.

b. During construction, the operator will not dump any trash or construction debris into the wetted channel. All such debris will be picked up daily and disposed of at an appropriate site.

c. During the project activities, all trash that may attract potential predators of salmonids (*e.g.*, raccoons, piscivores, *etc.*) will be properly contained, removed from the work site, and disposed of daily.

The following Terms and Conditions implement Reasonable and Prudent Measure number 2 (fisheries biologist).

a. Pre-construction activities during both years shall include the collection and relocation fish by qualified fisheries biologists from the construction site prior to and during de-watering.

b. At least one fisheries biologist shall be familiar with the life history and identification of S-CCC DPS steelhead with a minimum of three years field experience and a minimum of three years field experience with electrofishing techniques.

c. Fish collection shall occur by electrofishing and netting. A minimum of one assistant will aid the biologist during electrofishing by netting stunned fish and other aquatic vertebrates.

d. No electrofishing shall occur if water conductivity is greater than 350 seconds/centimeter or when instream water temperatures exceed 18° Celsius (C) (64.4° F). Only direct current (DC) shall be used. If steelhead in the dewatered section of Uvas Creek are removed with a backpack electrofisher, it will be set as follows:

   A) Voltage: 100V initial (IN) - 300V max (MX)
   B) Frequency: 500s IN- 5ms MX
   C) Duration: 30 Hz IN - 70 Hz MX

e. Block nets shall be placed at the upper and lower extent of the areas electrofished. Block net mesh will be sized to ensure salmonids upstream or downstream do not enter the areas proposed for dewatering between passes (at least three passes required) with the electrofisher. Block nets will extend across the entire wetted channel and will remain in place until cofferdam and culvert installation is completed.

f. All captured fish will be held in well oxygenated water with temperatures equivalent to ambient instream temperatures.

g. All captured fish will be allowed to recover from electrofishing before being returned to the stream. Once recovered, they will be placed in suitable habitat (instream cover and pools greater than one foot deep) downstream of the project area. All fish must be processed and released before conducting another pass of electrofishing.

h. If any steelhead are found dead or injured, the biologist shall immediately contact Jonathan Ambrose at (707) 575-6091 or NMFS Santa Rosa Area Office at (707) 575-6050. The purpose of the contact is to review the activities resulting in take and to determine if additional protective measures are required.

i. All salmonid mortalities shall be retained, placed in an appropriately sized whirl-pak or zip-lock bag, labeled with the date and time of collection, fork length, location of capture, and frozen as soon as possible. Frozen samples must be sent to:

   Chris Donohoe
   Fisheries Ecology Division
   Southwest Fisheries Science Center
   National Marine Fisheries Service
   110 Shaffer Rd.
   Santa Cruz, CA 95060

The following Terms and Conditions implement Reasonable and Prudent Measure number 3 (qualified biologist).

a. A qualified biologist shall monitor the action area at least three times per week during construction for the purpose of identifying and reconciling any condition that could adversely affect salmonids or their habitat.

b. If any unanticipated (unauthorized) threat to steelhead and/or their designated critical habitat is observed or believed likely to occur, the qualified biologist shall have the authority to stop all construction activities until the threats to steelhead and/or their habitat are fully addressed and reconciled.

The following Terms and Conditions implement Reasonable and Prudent Measure number 4 (pile driving).

a. A written monitoring report shall be provided to NMFS (Jonathan Ambrose) within 90 working days following the completion of the proposed action. The report shall include the number of S-CCC DPS steelhead killed or injured during the proposed action; the number and size (in millimeters) of S-CCC DPS steelhead captured and removed; any effect of the proposed action on S-CCC DPS steelhead not previously considered; the peak and RMS dB levels from pile driving and impacts to steelhead; and photographs taken before, during, and after the activity from photo reference points.

b. The FHWA shall include all applicable terms and conditions of this BO and all project design and mitigation measures from the BO in any permit, grant, or contract issued for the implementation of this project.

c. The applicant shall provide a yearly written report to Mr. Jon Ambrose at 777 Sonoma Avenue, Rm. 325, Santa Rosa, California, 95404, describing results of the revegetation project for a minimum of two calendar years upon completion of the proposed project.

d. If plantings do not successfully establish themselves after one calendar year of project completion, additional revegetative efforts will be required. Success is determined as 85 percent regeneration after two years.

IX. 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, to help implement recovery plans, or develop information.

NMFS recommends that FHWA and Caltrans, as they develop further plans for bridge retrofit and replacement projects and other projects impacting riparian habitats, work to increasingly incorporate revegetation of native riparian species with project plans, at project sites. Revegetation plans utilizing a mix of local, native riparian species (*e.g.*, willow, alder, sycamore, California bay laurel, redwood, *etc.*) of diverse sizes, vegetative types and water requirements to mimic natural riparian transects, should be developed. To improve survival, plans should include irrigation (drip systems, regular truck irrigation, or other systems). Caltrans should address control of invasive alien plants, and include monitoring over an extended establishment period, project success criteria, and contingency replanting plans. The minimum target for revegetation plans should be "no net loss" of riparian habitat, but since many riparian areas adjacent to Caltrans-maintained roadways are already degraded, opportunity exists to make substantial improvements to the quality and quantity of riparian habitat.

In addition, NMFS recommends FHWA and Caltrans develop plans to address sources of chronic erosion exacerbated by their routine road maintenance practices. NMFS recommends Caltrans evaluate their road maintenance practices to determine the extent and potential effects of stock piling spoils and creating artificial berms adjacent to watercourses having potential to deliver sediment into streams supporting anadromous salmonids. Many of the coastal streams and rivers in California are Total Maximum Daily Load listed by the U.S. Environmental Protection Agency as sediment impaired. NMFS believes Caltrans' contribution of sediment from their routine road maintenance and emergency road repair practices may negatively affect listed salmonids in many watersheds. By reducing the rate of sedimentation from road maintenance and repair practices, FHWA and Caltrans will help facilitate the recovery of listed species in California.

In order for NMFS to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, NMFS requests notification of the implementation of any conservation recommendations.

X. REINITIATION NOTICE

This concludes formal consultation on the proposed replacement of the Uvas Creek Bridge Replacement Project on State Route 152 in Santa Clara County. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental 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; (3) the identified action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in the BO; or (4) a new species is listed or critical habitat designated that may be affected by the identified action. In instances where the amount or extent of incidental take is exceeded, formal consultation shall be reinitiated immediately.

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