



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
West Coast Region  
650 Capitol Mall, Suite 5-100  
Sacramento, California 95814-4700

Refer to NMFS No: WCR-2019-00608

**November 7, 2019**

Laura Loeffler  
Branch Chief  
District 3  
California Department of Transportation  
703 B Street  
Marysville, California 95901

Re: Endangered Species Act Section 7(a)(2) Biological Opinion, Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response, and Fish and Wildlife Coordination Act Recommendations for the Dry Creek Greenway Trail Project.

Dear Ms. Loeffler:

Thank you for your letter of April 29, 2019, requesting initiation of consultation with NOAA's National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act of 1973 (ESA) (16 U.S.C. 1531 et seq.) for the Dry Creek Greenway Trail Project (Project).

Updates to the regulations governing interagency consultation (50 CFR part 402) were effective on October 28, 2019 [84 FR 44976]. This consultation was pending at that time, and we are applying the updated regulations to the consultation. As the preamble to the final rule adopting the regulations noted, "[t]his final rule does not lower or raise the bar on section 7 consultations, and it does not alter what is required or analyzed during a consultation. Instead, it improves clarity and consistency, streamlines consultations, and codifies existing practice." We have reviewed the information and analyses relied upon to complete this [biological opinion/letter of concurrence] in light of the updated regulations and conclude the [opinion/letter] is fully consistent with the updated regulations.

Thank you, also, for your request for consultation pursuant to the essential fish habitat (EFH) provisions in Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA)(16 U.S.C. 1855(b)) for this action.

Based on the best available scientific and commercial information, the biological opinion concludes that the proposed Project is not likely to jeopardize the continued existence of the federally listed as threatened California Central Valley steelhead distinct population segment (*Oncorhynchus mykiss*), and is not likely to destroy or adversely modify its designated critical habitat. NMFS has included an incidental take statement with reasonable and prudent measures and non-discretionary terms and conditions that are necessary and appropriate to avoid, minimize, or monitor incidental take of listed species associated with the Project.



NMFS recognizes that Caltrans has assumed the Federal Highway Administration's (FHWA) responsibilities under Federal environmental laws for this project as allowed by a Memorandum of Understanding (NEPA Assignment) with the FHWA effective December 23, 2016. As such, Caltrans serves as the lead Federal Action Agency for the proposed Project.

Because the proposed action will modify a stream or other body of water, NMFS also provides recommendations and comments for the purpose of conserving fish and wildlife resources under the Fish and Wildlife Coordination Act [16 U.S.C. 662(a)].

Please contact Lyla Pirkola in NMFS' California Central Valley Office via email at [lyla.pirkola@noaa.gov](mailto:lyla.pirkola@noaa.gov) or by phone at 916-930-5615, if you have any questions concerning this consultation, or if you require additional information.

Sincerely,



Maria Rea  
Assistant Regional Administrator  
California Central Valley Office

Enclosure

cc: To the file 151422-WCR2019-SA00521

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**Endangered Species Act Section 7(a)(2) Biological Opinion, and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response and Fish and Wildlife Coordination Act Recommendations**

Dry Creek Greenway Trail Project

National Marine Fisheries Service Tracking Number: WCRO-2016-00608

Action Agency: California Department of Transportation (Caltrans)

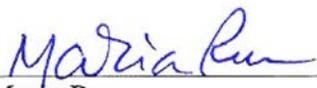
Affected Species and NMFS' Determinations:

ESA-Listed Species	Status	Is Action Likely to Adversely Affect Species?	Is Action Likely To Jeopardize the Species?	Is Action Likely to Adversely Affect Critical Habitat?	Is Action Likely To Destroy or Adversely Modify Critical Habitat?
California Central Valley steelhead Distinct Population Segment (DPS) ( <i>Oncorhynchus mykiss</i> )	Threatened	Yes	No	Yes	No

Fishery Management Plan That Identifies EFH in the Project Area	Does Action Have an Adverse Effect on EFH?	Are EFH Conservation Recommendations Provided?
Pacific Coast Salmon	Yes	Yes

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

Issued By:

  
 Maria Rea  
 Assistant Regional Administrator

Date: November 7, 2019



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**LIST OF ACRONYMS**

AAM	avoidance and minimization measure
ACID	Anderson-Cottonwood Irrigation District Diversion Dam
BA	biological assessment
BMP	best management practice
°C	degrees Celsius
CCV	California Central Valley
CDEC	California Data Exchange Center
CDFW/CDFG	California Department of Fish and Wildlife
cfs	cubic feet per second
CRs	Conservation Recommendations
CVP	Central Valley Project
dB	decibels
Delta	Sacramento-San Joaquin River Delta
DOC	dissolved organic carbon
DPS	distinct population segment
DQS	Data Quality Act
EFH	essential fish habitat
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
ESU	evolutionary significant unit
°F	degrees Fahrenheit
FHWG	Fisheries Hydroacoustic Working Group
FWCA	Fish and Wildlife Coordination Act
HAPCs	Habitat Areas of Particular Concern
ITS	incidental take statement
LID	low impact development
mg/L	milligram per liter
MS4	Phase II MS4 General Permit
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSD	Mossdale Bridge station
NPDES	National Pollutant Discharge Elimination System
NMFS	National Marine Fisheries Service
NTU	nephelometric turbidity units
OHWM	ordinary high water mark
Opinion	biological opinion
PAHs	polyaromatic hydrocarbons
PBFs	physical or biological features
RBDD	Red Bluff Diversion Dam
RMS	root-mean-square
RPMs	reasonable and prudent measures
sDPS	southern distinct population segment
SFS	Stockton Fire Station precipitation station
SJR	San Joaquin River
SJRRP	San Joaquin River Restoration Program

**LIST OF ACRONYMS CONTINUED**

SOC	Stockton Airport precipitation station
SRA	shaded riverine aquatic
SWE	snow water equivalent
SWRCB	State Water Resources Control Board
THMFP	total trihalomethane formation potential
TMDL	Total Maximum Daily Load
TOC	total organic carbon
UC Davis	University of California at Davis
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
VSP	viable salmonid population
WOUS	Waters of the United States
YOY	young-of-the-year
µg/L	microgram per liter

## 1. INTRODUCTION

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

### 1.1 Background

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

We also completed an essential fish habitat (EFH) consultation on the proposed action, in accordance with section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. 1801 et seq.) and implementing regulations at 50 CFR 600.

Because the proposed action would modify a stream or other body of water, NMFS also provides recommendations and comments for the purpose of conserving fish and wildlife resources, and enabling the Federal agency to give equal consideration with other project purposes, as required under the Fish and Wildlife Coordination Act (FWCA) (16 U.S.C. 661 et seq.).

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

### 1.2 Consultation History

- On January 8, 2015, NMFS, the City of Roseville, Caltrans, Psomas, Ascent, and ECORP met on-site to tour the three locations where in-water work activities were anticipated. NMFS provided feedback regarding preferred methodology for impact assessment.
- In August of 2015, NMFS and Caltrans engaged in technical assistance meetings/calls.
- On June 26, 2017, Caltrans sent NMFS a Biological Assessment (BA) and letter requesting initiation of informal consultation.
- On April 3, 2018, NMFS responded with a letter of insufficiency requesting more information about the project and stating NMFS does not concur with the determination that the project is not likely to adversely affect critical habitat for ESA listed species.
- On April 29, 2019, NMFS received a new request for formal consultation from Caltrans for project effects to California Central Valley (CCV) steelhead and their critical habitat for the Dry Creek Greenway Trail Project (Project).
- Sufficient information was received on May 15, 2019, and consultation was initiated at this time.

### 1.3 Proposed Federal Action

“Action” means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies (50 CFR 402.02).

Under the Magnuson-Stevens Act, Federal action means any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken by a Federal Agency (50 CFR 600.910).

Under the FWCA, an action occurs whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose whatever, including navigation and drainage, by any department or agency of the United States, or by any public or private agency under Federal permit or license” (16 USC 662(a)).

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

#### *Project Description*

Caltrans is proposing to construct a 4.25-mile multi-use trail from the existing Saugstad/Royer Park trail to the City of Roseville limits just past the Old Auburn Road/South Cirby Way intersection. The trail would follow creek corridors along portions of Dry Creek, Cirby Creek, Linda Creek and Strap Ravine (the creeks) and require eight bridges for stream crossings. The proposed trail would be 10-feet wide, paved, with two-foot shoulders (decomposed granite and aggregate base) on each side for a total width of 14 feet. This would be widened in areas where additional shoulder or trail width is needed for safety or comfort, in these instances shoulder width could be increased to between 5 and 10 feet on one or both sides of the trail.

#### *Staging Areas, Equipment, and Materials*

There would be seven temporary construction staging areas, at 50 feet from any of the creeks, where equipment and materials would be stored, four of which are city owned properties. Equipment would include a grader, loader/backhoe, excavator, vibratory rollers/compactors, pickup trucks, a drill rig, a truck mounted crane, concrete delivery trucks, water trucks, hydro-seeding trucks, and various generators and hand equipment. Materials would include concrete, asphalt, aggregate base, decomposed granitic base, and prefabricated metal bridges.

#### *Roadway Undercrossings (where the trail bridge passes under existing vehicle bridge structures)*

The construction of the trail includes undercrossings at the following roadways:

- Darling Way, east of Riverside Avenue
- Interstate-80, north of Cirby Way
- Sunrise Avenue, south of Coloma Way
- Rocky Ridge Drive\*, north of Cirby Way
- Old Auburn Road, north of South Cirby Way

\*Rocky Ridge Drive undercrossing, uses a series of box culverts for passage of Linda Creek flows. This location would utilize one of the existing box culverts or install a new box culvert,

with culvert improvements designed to accommodate trail use. All the other undercrossings, would cross over creeks utilizing a clear span bridge.

### *Bridges*

Construction of the trail would include construction or modification of eight bridges to provide creek crossing throughout the trail alignment. Bridge locations are listed in the table below, bridges #1, #21, and Marlin Drive/Tina Way are existing structures proposed to be modified, the remaining five locations are proposed new structures.

Table 1: Proposed Bridges

<b>Bridges</b>	<b>Width</b>	<b>Span length</b>	<b>Type</b>
#1- Darling Way	Existing 35 feet Proposed 43 feet	128 feet	Flat slab reinforced concrete bridge supported on piles
<i>Proposed</i> #2- Dry Creek (North)	16 feet	110 feet	Prefabricated steel on abutment piles
<i>Proposed</i> #4- Cirby Creek	16 feet	160 feet	Prefabricated steel on abutment piles
Marlin Drive/Tina Way	Existing 5 feet	129.5 feet	Timber bridge on two concrete seat abutments, timber pile extensions at each bent.
<i>Proposed</i> #14- Linda Creek	16 feet	100 feet	Prefabricated steel on abutment piles
<i>Proposed</i> #20- Linda Creek	16 feet	100 feet	Pre-cast I-girder/reinforced concrete deck on abutments on piles
# 21- Linda Creek (Strap Ravine)	Existing 9.5 feet Proposed 12 feet	60 feet	Wood deck and two new glulam beams. Increasing width to 12 feet
<i>Proposed</i> #30- Linda Creek	16 feet	80 feet	Prefabricated steel on abutment piles

With the exception of #20, all new bridges are proposed to be prefabricated and supported by abutments outside of the floodway. Darling Way (#1) would include widening the bridge by eight feet to accommodate the trail. This would require installing a row of concrete piles at each location. These piles would also be used for the abutments for all the new pedestrian bridges located within the floodplain. Piles would be drilled and would not require any impact pile driving.

### *Diversions and Dewatering*

For Project locations requiring in-water work, a clear water diversion using a cofferdam or gravel bag berm, would be used. This diversion would intercept all surface water upstream of the site and transport it around the work area to discharge it downstream. Clean water diversions would follow the guidelines set by the California Stormwater Quality Association (CASQA) construction best management practices (BMPs) to provide minimal water quality degradation.

Project sites requiring dewatering would also use CASQA guidelines on the discharge of non-stormwater. Discharge would use methods such as sediment basins, sediment traps, or dewatering tanks.

Fish screens would be installed to preclude fish from the work area before construction activities and dewatering. A NMFS approved biologist will be on site to monitor the installation of fish screens, diversion structures, and any in-water work. Prior to the installation of fish screens or temporary stream diversion structures the biologist would visually survey the work area for CCV steelhead, once the biologist confirms no listed species are present, fish screens or temporary diversion devices would be installed in a downstream direction. The biologist would conduct a second visual survey before the downstream portion of the fish screen or temporary stream diversion is installed. If fish are present within the diversion area, the fish will be guided out with nets by the qualified biologist.

#### *Retaining Walls*

Proposed wall types include gravity walls (retaining wall that holds the earth mainly through its own weight- built using reinforced concrete) and anchored walls (retaining wall that holds in place using soil nail and tie backs using cables and anchors). Where the trail alignment passes under existing structures, tie-back retaining walls would be constructed to reinforce the structure's integrity. Concrete cut-off walls would be used on steep cross slopes and where the trail alignment is adjacent to the creek to prevent undercutting of the trail along the bank.

#### *Benches*

Benches made of wood, stone, or iron would be placed at key areas and viewpoints; those within the 100-year floodplain would be anchored to avoid movement during high water events.

#### *Lighting*

Lighting would be installed on the bridges. For pedestrian safety lighting would be low-level and downward facing to prevent excessive nighttime light. All lighting would be directed away from the creeks to the extent possible.

### **1.3.1 In-water work**

Work within the creeks' corridors include bridge construction, erosion protection, and retaining walls. Clearing and grubbing of trees/vegetation immediately adjacent to the creek would be necessary to accommodate the trail alignment. Project elements with in-water impacts include temporary water diversions, low water crossings and staging areas, as well as the permanent placement of new abutments, rock walls, gabions, and rock slope protection. The proposed in-water work window is June 15 to October 15, over three seasons. The anticipated work for each of the in-water sites and the associated creek are described below:

- **Darling Way Bridge (Dry Creek)**
  - The Darling Way bridge would be widened by 8 feet on the north side to accommodate the new trail. This requires the addition of two 15-inch diameter concrete piles within the Dry Creek ordinary high water mark (OHWM).
  - A temporary creek crossing would be required.
  - Construction is anticipated to take 12 to 16 weeks.

- 0.119 acre of dewatering area.
  - 0.011 acre of RSP placement.
- **Bridge #2 (Dry Creek)**
  - This new bridge would be prefabricated and span the creek entirely with piles located outside the OHWM.
  - RSP would be placed around the abutment and may encroach within the OHWM.
  - Construction is anticipated to take 8 to 12 weeks.
  - 0.168 acre of dewatering area.
  - 0.039 acre of RSP placement.
- **Bridge #4 (Cirby Creek)**
  - This new bridge would be prefabricated and span the creek entirely with piles located outside the OHWM.
  - RSP would be placed around the abutment and may encroach within the OHWM.
  - A temporary crossing of approximately 25 feet would be required.
  - Construction is anticipated to take 8 to 12 weeks.
  - 0.041 acre of dewatering area.
  - 0.074 acre of RSP placement.
- **Gabion Wall and Secondary Channel Bank Stabilization (Cirby Creek)**
  - A gabion basket wall would be constructed along with grading to create a secondary low flow channel in Cirby Creek. The purpose of this construction is to prevent the erosion of the creek bank, as the trail alignment is located directly above the creek bank where on-going erosion typically occurs.
  - This work would all be conducted within the OHWM.
  - 0.155 acre of dewatering area.
  - 0.145 acre of cut/fill and gabion basket placement for bank stabilization.
- **Gabion Wall and Rock Vane Channel Bank Stabilization (Linda Creek)**
  - A gabion basket wall and rock vane would be constructed within the creek channel to protect the proposed trail alignment and sewer line located adjacent to the creek bank which experiences on-going erosion.
  - This work would all be conducted within the OHWM.
  - 0.098 acre of dewatering area.
  - 0.019 acre of gabion basket placement.
- **Rocky Ridge Undercrossing Culvert (Linda Creek)**
  - Improvements would be made to the existing box culvert on the north side of the structure to serve as an undercrossing for the trail alignment. This would require work within the OHWM. Retaining walls would be constructed on the entrance approaches down to the undercrossing.
  - Temporary stream diversions would be put into place to guide flow away from the work area.
  - RSP would be placed adjacent to the trail as it approaches low flow elevation.
  - Construction is anticipated to take 8 to 12 weeks.
  - 0.391 acre of dewatering area.
  - 0.028 acre of RSP placement.
- **Bridge #20 (Linda Creek)**
  - This new bridge would be prefabricated and span the creek entirely with piles located outside the OHWM.

- RSP would be placed around the abutment and may encroach within the OHWM.
- Construction is anticipated to take 8 to 12 weeks.
- 0.112 acre of dewatering area.
- 0.044 acre of RSP placement.
- **Bridge #21** (Linda Creek/Strap Ravine)
  - This location would require improvement to the existing 60-foot rail car structure. Bridge width would be increased to 12 feet using wood deck and installation of two new glulam beams with wood picket rail fence.
  - RSP would be placed around the abutment and may encroach within the OHWM.
  - A temporary crossing of approximately 25 feet would be required.
  - Construction is anticipated to take 8 to 12 weeks.
  - 0.012 acre of RSP placement.
- **Tina Way** (Cirby Creek)
  - The 129-foot long timber bridge that connects Marlin Drive to Tina Way would be rehabilitated by replacement of the bridge deck.
  - RSP would be placed around the existing wooden columns at bents and abutments and may encroach within the OHWM.
  - Construction is anticipated to take 8 to 12 weeks.
  - 0.119 acre of dewatering/ area between fish screens.
  - 0.008 acre of RSP placement.
- **Bridge #14** (Linda Creek)
  - This new bridge would be prefabricated and span the creek entirely with piles located outside the OHWM.
  - 0.165 acre of dewatering area.
  - 0.018 acre of RSP placement.
- **Old Auburn Road Undercrossing** (Linda Creek)
  - The trail would pass under the existing bridge and require construction of a bench including construction of tie-back retaining walls and cut off walls. These would not be within the OHWM.
  - RSP would be placed around the abutment and may encroach within the OHWM.
  - Construction is anticipated to take 6 to 8 weeks.
  - 0.172 acre of dewatering area.
  - 0.012 acre of RSP placement.
- **Gabion Wall Bank Stabilization** (Linda Creek)
  - A gabion wall would be constructed within the creek channel to protect the proposed trail alignment, located on the creek bank where on-going erosion typically occurs.
  - This would occur within the OHWM.
  - 0.090 acre of dewatering area.
  - 0.015 acre of gabion basket placement.
- **Bridge #30** (Linda Creek)
  - This new bridge would be prefabricated and span the creek entirely with piles located outside the OHWM.
  - RSP would be placed around the abutment and may encroach within the OHWM.
  - Construction is anticipated to take 8 to 12 weeks.
  - 0.049 acre of dewatering area.

- 0.010 acre of RSP placement.

To compensate for impacts to CCV steelhead resulting from the proposed action, off-site mitigation credits for salmonids will be purchased from a NMFS-approved mitigation bank. Credit purchase ratios will vary based on habitat type and permanent or temporary impacts. Credits will be purchased at a 1:1 ratio for permanent non-shaded riverine aquatic (SRA) habitat impacts (0.55 acre), a 1.7:1 ratio permanent for SRA habitat impacts (0.31 acre); permanent impacts occur at various sites for placement of RSP, rock walls, gabions, bridge piles, and abutments. Credits will be purchased at a 0.5:1 ratio for temporal impacts (2.683 acres) in either SRA or non-SRA riparian habitat such as temporary low water crossings, staging areas, and water diversions. A total of 2.419 acres  $((0.55 \text{ acre} \times 1) + (0.31 \text{ acre} \times 1.7) + (2.683 \text{ acres} \times 0.5))$  of credits will be purchased. Table 3 (Section 2.5.3) outlines proposed permanent and temporary impacts to SRA and non SRA habitat types within the project area. NMFS-approved mitigation banks with service areas that include the proposed action area are the Fremont Landing Conservation Bank and the Bullock Bend Mitigation Bank.

#### **1.4 Avoidance and Minimization Measures**

The following are BMPs proposed by Caltrans, intended to minimize or avoid overall impacts associated with the proposed action:

- Construction will occur in the period between June 15 and October 15.
  - Construction activities occurring within the creeks banks and channel beds will be limited to the low-flow period when the creeks are less likely to support CCV steelhead.
- Installation of fish screens/temporary stream diversions/dewatering.
  - Fish screens and temporary diversions would be installed to exclude CCV steelhead from areas where in-water or near-water construction activities are conducted.
- Qualified biologist present for in or near water construction activities
  - The City will retain a NMFS-approved biologist on site to monitor the installation of fish screens, diversion structures, and any in-water work (installation of RSP, installation of low water crossings, placement of new abutments, rock walls, gabions, water diversions, etc.)
  - Prior to the installation of fish screens or temporary stream diversion structures the biologist will survey the in-water work area for CCV steelhead. Once confirmed that no CCV steelhead have been observed, fish screens or diversions would be installed in a downstream direction. A second visual survey would be conducted before the downstream portion is installed. If fish are present they would be guided out of the work area with nets by the qualified biologist.
  - Fish relocation is unlikely as CCV steelhead are unlikely to be present during the work window (June to October) however if needed, relocation would be conducted according to a NMFS-approved plan.
- Installation of fencing along construction limits
  - High visibility orange construction fencing would be installed along the perimeter of environmentally sensitive areas under the supervision of the qualified biologist.

- Fencing would be maintained for the duration of construction and removed upon completion.
- Fencing would be installed along the limits of construction in riparian habitat, minimizing the disturbance of or encroachment on sensitive aquatic and riparian habitats.
- Implementation of erosion control BMPs and Stormwater Pollution Prevention Plan (SWPPP) measures
  - Temporary BMPs, groundcover, and stabilization measures would be used to minimize soil erosion. These may include mulches, soil binders, erosion control blankets, silt fencing, fiber rolls, temporary berms, sediment desilting basins, sediment traps, and check dams.
  - If stockpiles are used, BMPs will be in place to prevent soil or other material from entering drainages or waterways.
  - Plastic monofilament netting will not be used. Substitutes could include jute, coconut coir matting, or hydroseed.
  - Energy dissipaters and erosion control pads would be placed at the bottom of slope drains. Other flow conveyance control mechanisms may include earth dikes, swales, or ditches.
  - Existing vegetation would be protected where feasible. Vegetation would be preserved by installing temporary fencing around areas to be protected. Where complete removal is not necessary, vegetation would be cut to ground level with the root system left intact to prevent erosion and facilitate the recovery of riparian vegetation after Project activities are complete.
  - Exposed soil would be stabilized to prevent movement of dust caused by wind or construction activities. They would also be covered during rainfall events to reduce erosion and runoff.
  - All construction roadway areas, entrances and exits, would be properly protected with erosion control measures to prevent excess erosion, and water pollution.
  - The contractor would conduct periodic maintenance of erosion and sediment control measures and all must be properly maintained through Project completion.
  - The City of Roseville will develop and implement a Trail Operation and Maintenance Water Quality Protection Plan.
    - The plan will include a schedule of regular periodic inspections to assure trail components and surfaces area stable and that required repairs are implemented.
    - The plan will include an adaptive management approach and establish performance indicators and/or monitoring metrics that identify conditions that would necessitate change such as: accumulation of litter, development of social trails, trampling or destruction of vegetation, increased erosion, or accumulation of sanitary/pet waste.
- Implementation of pollution prevention and control BMPs
  - A spill prevention and control plan will be developed and implemented for the duration of the Project.
  - To the extent possible, all equipment and materials will be stored at least 50 feet from waters unless the equipment is on established paved areas. If storage within 50 feet is necessary, secondary containment will be utilized to contain equipment

- and prevent discharge. Staging and storage areas for equipment, materials, fuels, lubricants, and solvents will be located outside of the channel and banks of the creeks.
- Any equipment or vehicles operated within or adjacent to aquatic habitat will be checked and maintained daily for leaks and to ensure proper working conditions.
- No fueling, cleaning, or maintenance will occur within 50 feet of wetlands or waterways.
- If work will occur on existing structures over the creeks a method of containment such as netting or tarps will be used to catch debris and prevent materials from falling into the water.
- Conduct worker environmental awareness training.
  - Prior to the onset of work, the qualified biologist will conduct a mandatory worker environmental awareness training to educate the workers about the importance of avoiding impacts to CCV steelhead and habitats in the work area.
  - The training will cover relevant permit conditions and avoidance and minimization measures that protect sensitive species and habitats, as well as the penalties for non-compliance with state and federal laws.
  - The training will include information about the life history and habitat requirements of CCV steelhead, potential to occur in the work area, and the terms and conditions of the biological opinion.
- Design of night lighting on bridges
  - Night lighting would include measures to limit the amount of light shining on water surfaces at night that could lead to predation of juvenile salmonids.
  - The City will use amount of lighting necessary to safely and effectively illuminate pedestrian areas while focusing lights on the bridge surface and away from water surfaces, minimizing bridge lighting from directly radiating on the water surfaces of the creeks.
- Minimize cofferdam footprint
  - The extent of cofferdam footprints and dewatering would be kept to the minimum necessary to support construction activities, and creek flow will not be interrupted or reduced as a result of construction activities.
  - Any fill material used in association with the cofferdams, such as gravel bags, will be composed of washed, rounded, spawning-sized gravel between 0.4 and 4 inches in diameter. Any of this gravel in contact with flowing water will be left in place and distributed manually with hand tools to allow passage for all life stages of fish.
  - Installation and removal of cofferdams and/or gravel bag berms would occur during the summer low-flow period.
- Avoid impacts to riparian vegetation and develop/implement a restoration plan for riparian impacts
  - The Project will avoid impacts to riparian vegetation where feasible and will incorporate restoration and enhancement of the riparian corridor into the final design plans and construction specifications. A Riparian and Restoration Plan (RRP) would include onsite replanting and purchase of mitigation credits to compensate for permanent and temporal loss of riparian and SRA cover.

- Onsite measures will include planting native shrubs, trees, and understory species to create a diverse vegetation structure. Willows or other fast growing native riparian species will be planted to minimize temporal loss. Willows will be utilized where erosion control (RSP, slope pavement, etc.) is installed along stream banks.
- To compensate for impacts to CCV steelhead resulting from the proposed construction, off-site mitigation credits for salmonids will be purchased from a NMFS-approved mitigation bank for permanent loss at a 1:1 ratio for riparian, 1.7:1 for SRA cover, and 0.5:1 ratio for temporal loss of riparian/SRA.

A total of 2.419 acres of credit will be purchased. NMFS-approved mitigation banks with service areas that include the proposed action area are the Fremont Landing Conservation Bank and the Bullock Bend Mitigation Bank.

## **2 ENDANGERED SPECIES ACT: BIOLOGICAL OPINION AND INCIDENTAL TAKE STATEMENT**

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

### **2.1 Analytical Approach**

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

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

The designation of critical habitat for species use the term primary constituent element (PCE) or essential features. The 2016 critical habitat regulations (50 CRF 424.12) replaced this term with physical or biological features (PBFs). The shift in terminology does not change the approach used in conducting a "destruction or adverse modification" analysis, which is the same regardless of whether the original designation identified PCEs, PBFs, or essential features. In this biological opinion, we use the term PBF to mean PCE or essential feature, as appropriate for the specific critical habitat.

The 2019 regulations define effects of the action using the term "consequences" (50 CFR 402.02). As explained in the preamble to the regulations (84 FR 44977), that definition does not change the scope of our analysis and in this opinion we use the terms "effects" and "consequences" interchangeably. We use the following approach to determine whether a proposed action is likely to jeopardize listed species or destroy or adversely modify critical habitat:

- Evaluate the rangewide status of the species and critical habitat expected to be adversely affected by the proposed action.
  
- Evaluate the environmental baseline of the species and critical habitat.

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

## **2.2 Rangewide Status of the Species and Critical Habitat**

This opinion examines the status of each species that would be adversely affected by the proposed action. The status is determined by the level of extinction risk that the listed species face, based on parameters considered in documents such as recovery plans, status reviews, and listing decisions. This informs the description of the species' likelihood of both survival and recovery. The species status section also helps to inform the description of the species' current "reproduction, numbers, or distribution" as described in 50 CFR 402.02. The opinion also examines the condition of critical habitat throughout the designated area, evaluates the conservation value of the various watersheds and coastal and marine environments that make up the designated area, and discusses the current function of the essential PBFs that help to form that conservation value. Table 2 contains information on species and critical habitat.

Table 2. Description of species, critical habitat, current ESA listing classification, summary of species and habitat status.

Species Name	Current Final Listing Status	Status Summary	Critical Habitat Designated	Critical Habitat Status Summary
California Central Valley Steelhead	1/5/2006 71 FR 834 Threatened	According to the NMFS (2016) 5-year species status review, the status of CCV steelhead appears to have changed little since the 2011 status review that concluded that the DPS was in danger of extinction. Most wild CCV populations are very small, are not monitored, and may lack the resiliency to persist for protracted periods if subjected to additional stressors, particularly widespread stressors such as climate change. The genetic diversity of CCV steelhead has likely been impacted by low population sizes and high numbers of hatchery fish relative to wild fish. The life-history diversity of the DPS is mostly unknown, as very few studies have been published on traits such as age structure, size at age, or growth rates in CCV steelhead. CCV steelhead is likely to become endangered within the foreseeable future through all or a significant portion of its range.	9/2/2005 70 FR 52488	Critical habitat for CCV steelhead includes stream reaches of the Feather, Yuba, and American rivers, Big Chico, Butte, Deer, Mill, Battle, Antelope, and Clear creeks, the Sacramento River, as well as portions of the northern Delta. Critical habitat includes the stream channels in the designated stream reaches and the lateral extent as defined by the ordinary high-water line. In areas where the ordinary high-water line has not been defined, the lateral extent will be defined by the bankfull elevation. PBFs considered essential to the conservation of the species include: spawning habitat; freshwater rearing habitat; freshwater migration corridors; and estuarine areas. Many of the PBFs of CCV steelhead critical habitat are currently degraded and provide limited high quality habitat. Although the current conditions of CCV steelhead critical habitat are significantly degraded, the spawning habitat, migratory corridors, and rearing habitat that remain in the Sacramento/San Joaquin River watersheds and the Delta are considered to have high intrinsic value for the conservation of the species as they are critical to ongoing recovery effort.

### 2.2.1 Global Climate Change

One major factor affecting the rangewide status of the threatened and endangered anadromous fish in the Central Valley and aquatic habitat at large is climate change. Warmer temperatures associated with climate change reduce snowpack and alter the seasonality and volume of seasonal hydrograph patterns (Cohen et al. 2000) Central California has shown trends toward warmer winters since the 1940s (Dettinger and Cayan 1995). Projected warming is expected to affect Central Valley Chinook salmon. Because the runs are restricted to low elevations as a result of impassable rim dams, if climate warms by 5°C (9°F), it is questionable whether any Central Valley Chinook salmon populations can persist (Williams 2006).

CCV steelhead will experience similar effects of climate change to Chinook salmon, as they are also blocked from the vast majority of their historic spawning and rearing habitat, the effects

may be even greater in some cases, as juvenile CCV steelhead need to rear in the stream for one to two summers prior to emigrating as smolts. In the Central Valley, summer and fall temperatures below the dams in many streams already exceed the recommended temperatures for optimal growth of juvenile CCV steelhead, which range from 14°C to 19°C (57°F to 66°F).

In summary, observed and predicted climate change effects are generally detrimental to the species (McClure 2011, Wade et al. 2013), so unless offset by improvements in other factors, the status of the species and critical habitat is likely to decline over time. The climate change projections referenced above cover the time period between the present and approximately 2100. While there is uncertainty associated with projections, which increases over time, the direction of change is relatively certain (McClure et al. 2013).

### **2.3 Action Area**

“Action area” means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02).

The proposed trail would extend 4.25 miles from the existing Saugstad/Royer Park trail eastward to Roseville City limits. The trail would follow creek corridors along portions of Dry, Cirby, and Linda Creeks, the action area includes the immediate construction area for the 13 areas in/or near the creeks and extends both upstream and downstream to the outer limits of the effects from construction activities. The action area includes 100 feet upstream and downstream of potential impacts for effects due to in-water construction activities, such as placement of fill, bank disturbance, dewatering or turbidity. The action area also includes land disturbance due to staging and equipment access.

Since Caltrans plans to purchase mitigation credits from a mitigation bank, the action area also includes the area affected by the Bullock Bend Mitigation Bank and the Fremont Landing Conservation Bank. Both banks have service areas relevant to the project. The Bullock Bend Mitigation Bank is a 119.65-acre floodplain site along the Sacramento River at the confluence of the Feather River and the Fremont Landing Conservation Bank is a 100-acre floodplain site along the Sacramento River at the confluence of the Feather River.

### **2.4 Environmental Baseline**

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

### **2.4.1 Status of Listed Species and Critical Habitat in the Action Area**

The action area, which includes Dry Creek, Cirby Creek, Linda Creek, Strap Ravine, and associated floodplains and riparian areas at and adjacent to the Project work area, functions primarily as rearing and migratory habitat for CCV steelhead. Within the action area, the two in-water work locations on Dry Creek are located in designated critical habitat for CCV steelhead. Cirby Creek, Linda Creek, and Strap Ravine do not contain designated critical habitat. CCV steelhead may be present in all three creeks. CCV steelhead spawning may occur in Linda Creek. Spawning adults, holding post-spawn adults, and rearing juveniles may utilize the area on their way to the estuary. Due to the life history timing of CCV steelhead, it is possible for one or more of the following life stages to be present within the action area throughout the year: adult migrants, rearing juveniles, or emigrating juveniles.

The “Recovery Plan for the Evolutionary Significant Units of Sacramento River winter-run Chinook salmon and Central Valley spring-run Chinook salmon and the Distinct Population Segment (DPS) of California Central Valley steelhead” (NMFS 2014, herein referred to as “Recovery Plan”) provides a watershed profile for Dry Creek. The Recovery Plan identifies the Dry Creek watershed as a Core 3 watershed, meaning CCV steelhead populations are present on an intermittent basis. These populations aid in recovery of the species by providing genetic diversity and dispersal connectivity to the greater DPS.

The Physical or Biological Features (PBFs) of CCV steelhead designated critical habitat within the action area include freshwater rearing habitat and freshwater migration corridors. The essential features of these PBFs include: water quality and forage, water quantity and floodplain connectivity, water temperature, riparian habitat, natural cover, and access to and from spawning grounds. The intended conservation roles of habitat in the action area are to provide appropriate freshwater rearing and migration conditions for juveniles and unimpeded freshwater migration conditions for adults. However, the condition and function of this habitat has been severely impaired through several factors, including mining, agriculture, urbanization, and removal of riparian vegetation. Similar activities throughout the Dry Creek watershed have resulted in degradation of these PBFs across the entire region. Conditions for juvenile rearing in the action area are poor and likely contribute to reduced growth and survival of CCV steelhead.

### **2.4.2 Factors Affecting Listed Species and Critical Habitat in the Action Area**

Dry Creek watershed is a 100-square mile, low gradient watershed spanning Placer and Sacramento counties. The watershed contains four sub-watersheds: Cirby/Linda Creeks, Antelope Creek, Secret Ravine, and Miners Ravine. This watershed has a history of augmentation due to mining and agricultural uses. More recently, the Dry Creek watershed has undergone significant urbanization. All of the main creek corridors receive surface runoff from adjacent developed areas via City culverts and sheet flow from residential areas. Tributaries within the watershed are known to support salmonids or have historically supported anadromous fish but many have passage barriers or contain habitat which has been so degraded that they no longer support fish. The mainstem of Dry Creek is not ideal habitat, but is considered a migratory passage for CCV steelhead. Linda Creek has two sites that may be suitable for spawning and rearing, however, most of it is degraded habitat with sedimented streambed, steep eroding banks, high summer temperatures, and variable width riparian corridor. Cirby Creek is

an urban stream and it is unlikely than salmonids use this tributary any more (Placer and Sacramento Counties 2003).

Construction of impervious hardscape cover within a 100-foot buffer of the creek can result in loss of in-stream cover, bank stability, and affect percent of silt, sand, and fine gravel in the watershed. These changes can also result in higher water temperatures. Impervious cover (in this case a proxy for urban development) is a source of aquatic life impairment in urbanized watersheds such as the Dry Creek watershed which can result in reduction of habitat quality and quantity for CCV steelhead.

Riparian vegetation is important to aquatic habitats because it provides overhanging cover for rearing fish, streamside shading, and a source of terrestrial and aquatic invertebrate contributions to the fish food base. Riparian vegetation is also an important source of future large woody material contributions to the aquatic system. Removal of vegetation through bank modification has reduced habitat quality and the productivity of the Dry Creek watershed. The result of these changes has been the reduction in quantity and quality of several essential features of migration and rearing habitat required by CCV steelhead to grow and survive.

### **2.4.3 Mitigation Banks and the Environmental Baseline**

Mitigation banks present a unique factual situation, and this warrants a particular approach to how they are addressed. Specifically, when NMFS is consulting on a proposed action that includes mitigation bank credit purchases, it is likely that physical restoration work at the bank site has already occurred and/or that a section 7 consultation occurred at the time of bank establishment. A traditional reading of "environmental baseline" might suggest that the overall ecological benefits of the mitigation bank actions therefore belong in the environmental baseline. However, under this reading, all proposed actions, whether or not they included proposed credit purchases, would benefit from the environmental 'lift' of the entire mitigation bank because it would be factored into the environmental baseline. In addition, where proposed actions did include credit purchases, it would not be possible to attribute their benefits to the proposed action, without double-counting. These consequences undermine the purposes of mitigation banks and also do not reflect their unique circumstances. Specifically, mitigation banks are established based on the expectation of future credit purchases. In addition, credit purchases as part of a proposed action will also be the subject of a future section 7 consultation.

It is therefore appropriate to treat the beneficial effects of the bank as accruing incrementally at the time of specific credit purchases, not at the time of bank establishment or at the time of bank restoration work. Thus, for all projects within the service area of a bank, only the benefits attributable to credits sold are relevant to the environmental baseline. Where a proposed action includes credit purchases, the benefits attributable to those credit purchases are considered effects of the action. That approach is taken in this biological opinion.

The Project occurs within the service area of two banks approved by NMFS, with available credits for purchase:

***Fremont Landing Conservation Bank:*** Established in 2006, the Fremont Landing Conservation Bank is 100-acre floodplain site along the Sacramento River at the confluence of the Feather River (Sacramento River Mile 80) and is approved by NMFS to provide credits for impacts to Sacramento River winter-run Chinook salmon, CV spring-run Chinook salmon and CCV steelhead. There are off-channel shaded aquatic habitat credits, riverine shaded aquatic habitat credits and floodplain credits available. All features of this bank are designated critical habitat for the species analyzed in this biological opinion. The ecological value (increased rearing habitat for juvenile salmonids) of the credits that have been sold to date are part of the environmental baseline.

***Bullock Bend Mitigation Bank:*** Established in 2016, the Bullock Bend Mitigation Bank is a 119.65-acre floodplain site along the Sacramento River at the confluence of the Feather River (Sacramento River Mile 106) and is approved by NMFS to provide credits for impacts to Sacramento River winter-run Chinook salmon, CV spring-run Chinook salmon and CCV steelhead. There are salmonid floodplain restoration, salmonid floodplain enhancement and salmonid riparian forest credits available. All features of this bank are designated critical habitat for the species analyzed in this opinion. The ecological value (increased rearing habitat for juvenile salmonids) of the credits that have been sold to date are part of the environmental baseline.

## **2.5 Effects of the Action**

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

### **2.5.1 Effects of the Proposed Action to CCV Steelhead**

The effects of the proposed action are based on best available life history information and monitoring data on CCV steelhead for which ESA designated critical habitat and geographical range occurs in the action area. In-water work would occur between June 15 and October 15. Life stages of CCV steelhead that are expected to occur during this time include juveniles and adults. Although there is potential spawning habitat in Linda Creek the proposed work window would exclude potential impacts or mortality of eggs to occur as it is outside the range of steelhead spawn timing. The following analysis includes potential sources of take for the species resulting from the proposed action, as well as the likelihood of those sources contributing to overall take associated with the proposed action.

#### *Hydroacoustic impacts*

Widening of the Darling Way Bridge would require two 15-inch diameter concrete piles to be installed within Dry creek’s OHWM. Construction of bridges # 2, 4, 20, 14, and 30 would span Dry, Cirby and Linda creeks and piles would be outside of the OHWM. When piles are driven into riverbed substrate, sound propagates through the water creating pressure waves that can kill,

injure, or disturb fish. When sound propagates through the water, tissues of the swim bladder may become ruptured or torn as the sound wave passes through the fish as pressure levels rapidly rise and fall, causing the swim bladder to expand and contract. Internal organs adjacent to the swim bladder may be injured as well (Gaspin 1975). The Fisheries Hydroacoustic Working Group (FHWG 2008) has established threshold sound levels in which acute injury, cumulative injury (sound exposure level (SEL) for fish either  $\geq 2$ grams (g) or  $< 2$ g), or behavioral effects (root mean squared (RMS)) may occur. Those levels are 206 decibels (dB) peak, 187 dB<sub>SEL</sub>, 183 dB<sub>SEL</sub>, and 150-dB<sub>RMS</sub> respectively. The degree to which an individual fish exposed to underwater sound will be affected is dependent on a number of variables, such as the species of fish, size of the fish, presence of a swim bladder, sound pressure intensity and frequency, shape of the sound wave (rise time), depth of the water around the pile, and the bottom substrate composition and texture. Responses can vary from a startle response to immediate mortality. Acute injury or death may occur to any sized fish if they are within range of the source of sound to the extent that the sound exceeds a threshold of 206 dB<sub>peak</sub> at any given time. Injury may also occur as a result of cumulative exposure to sound pressure if fish are exposed to levels exceeding 187 dB<sub>SEL</sub> (for fish  $\geq 2$ g) and 183 dB<sub>SEL</sub> (for fish  $< 2$ g) over time.

Behavioral effects may occur if sound levels exceed the established threshold of 150 dB<sub>RMS</sub>. These behavioral changes may have deleterious effects to growth and survival of exposed fish. Sound waves below 150 dB<sub>RMS</sub> are considered to be “effective quiet” and are not considered to be harmful to fish. Behavioral effects can include disruptions in feeding behavior, predatory avoidance behavior, and migratory behavior; impacting overall fitness of a species. “Agitation” is indicated by a change in swimming behavior, such as detected by Shin (1995) with salmonids, or “alarm” detected by McCauley (2003). Additionally, Popper (1997) observed a “startle” response indicated by a quick burst in swimming following pile strikes.

Pile installation for all sites would be achieved using cast-in-drilled hole (CIDH) and vibratory methods. Vibratory hammers and drills generally produce less sound than impact hammers and reduce potential for adverse effects to fish. In some cases, installation of sheet piles in a river has resulted in sound pressure levels that were not measurable above background levels (Caltrans 2015). Impacts to listed fish are anticipated to be minimal because of the use of drilled and vibratory installation of piles, and would be limited to behavioral changes, and are not expected to result in reduced fitness.

#### *Dewatering and Fish Relocation*

Fish screens or diversion structures would be used to preclude CCV steelhead from the work area at all in-water locations. Each location is expected to have a different dewatering area; specific acreage for each can be found in Section 1.3.1. During dewatering a fish relocation plan would be followed and would include monitoring by a NMFS-approved biologist. The in-water work window occurs when CCV steelhead are unlikely to be present. If CCV steelhead are present, their numbers are expected to be low. Installation of the fish screens and diversion structures may entrap some juvenile CCV steelhead. Fish would be captured with a net and relocated. Some incidental injury or mortality may occur during this process as fish experience abrasion from handling, exposure to air, and close proximity to one another as they are relocated downstream.

### *Increased Sedimentation and Turbidity*

Increased sedimentation and turbidity may occur at all in-water work locations during construction. Work will include clearing and grubbing along stream banks, pile driving, installation of RSP and gabion baskets, placement of dewatering structures, and construction of temporary low-water creek crossings. Increased sedimentation and turbidity could have direct and indirect adverse effects to adult fish through gill fouling, reduced foraging ability, and reduced predator avoidance (Kemp et al. 2011). Juvenile salmonids are unlikely to avoid increased levels of turbidity below a level of 70 nephelometric turbidity units (NTU) (Bash et al. 2001). As a result, they may be at greater risk to turbidity and sediment-related effects than adults. One effect of increased turbidity that has important implications for juvenile salmonids is that predator avoidance behavior has been shown to decrease (Gregory 1993). Growth and survival amidst increased sediment and turbidity have also been shown to decrease resulting from reduced prey detection and availability. Physical injury is also possible due to increased activity, aggression, and gill fouling (Suttle et al. 2004, Kemp et al. 2011). Potential direct and indirect effects of increased sedimentation and turbidity would be minimized through implementation of proposed BMPs including groundcover and stabilization measures, silt fencing and fiber rolls. All in water work would be conducted between June 15 and October 15 to minimize exposure to fish. Although there is potential for impact to adult and juvenile fish due to temporary, localized plumes of turbidity during these processes, BMPs will minimize the extent of the effects of sedimentation and turbidity caused by the proposed action and impacts to listed fish are expected to be minimal and temporary.

### *Contaminants and Pollution-Related Effects*

The proposed action would involve heavy construction equipment and activities that could impair water quality if a spill were to occur. Potential sources of pollutants include gasoline, diesel, hydraulic fluid, lubricants, concrete, and asphalt. BMPs and a Spill Prevention and Control Plan would be implemented, minimizing the probability of pollutant incursion into the creeks. However, unlike sedimentation and turbidity-related effects, potential pollution-related effects have the potential to be persistent in the action area and may affect multiple species and life stages if they were to occur. High concentrations of contaminants can cause direct and indirect effects to fish. Direct effects include mortality from exposure or increased susceptibility to disease that reduces the overall health and survival of the exposed fish. The severity of these effects depends on the contaminant, the concentration, duration of exposure, and sensitivity of the affected life stage. A potential indirect effect of contamination is reduced prey availability (invertebrate prey survival could be reduced following exposure) making food less available for fish. Fish consuming affected prey may also absorb toxins indirectly. For CCV steelhead, potential direct and indirect effects of reduced water quality during Project construction will be minimized with proposed BMPs, including measures to control non-storm water management practices. Equipment will be in good working order and free of leaking fluids. Any necessary equipment washing will be conducted where water is prevented from flowing into the drainage conveyance systems and receiving waters. Fueling will occur at least 50 feet from a waterway in an area that is not upslope of a waterway. An emergency response plan will also be put into place including: strict onsite handling procedures to prevent construction and maintenance materials from entering the river, procedures related to refueling, operating, storing, and staging construction equipment, as well as preventing and responding to spills. BMPs will be followed in

the event a spill were to occur. With these BMPs in place, impacts to adult or juvenile CCV steelhead from contaminants are not expected to occur.

### **2.5.2 Effects of the Proposed Action to Critical Habitat**

Critical habitat has been designated for CCV steelhead in the action area. The specific PBFs of CCV steelhead critical habitat applicable to the action area include freshwater rearing sites and migration corridors.

Designated critical habitat for CCV steelhead is present in a small portion of the action area that includes the two Dry Creek locations (Section 1.3, sites 1 and 2). Rearing and migratory corridor PBFs for CCV steelhead are expected to be affected by the proposed action. In-water work is expected to temporarily affect 0.33 acres of critical habitat, and permanently affect 0.023 acres.

#### *Riparian Vegetation Removal*

Removal of riparian vegetation will occur during the clearing of staging areas and access roads, grading activities, and installation of temporary creek crossings. These activities have the potential to result in direct or indirect adverse effects to critical habitat PBFs. Riparian vegetation plays a key role in the conservation value of rearing habitat for many salmonid life stages. It provides shading to reduce stream temperatures, increases the recruitment of large woody material into the river, increasing habitat complexity, provides shelter from predators, and enhances the productivity of aquatic macroinvertebrates (Anderson and Sedell 1979, Pusey and Arthington 2003). It has also been shown to directly influence channel morphology and may be directly correlated with improved water quality in riverine systems through biogeochemical cycling, soil and channel chemistry, water movement, and erosion (Schlosser and Karr. 1981, Dosskey et al. 2010). The proposed action will result in the temporary loss of 0.094 acres of riparian habitat due to disturbance from Project activities. This loss of riparian habitat will result in the degradation of migratory corridors and rearing habitat PBFs for CCV steelhead. A riparian and restoration plan will be implemented to return all disturbed areas to pre-Project conditions. However, return to pre-Project conditions may take 1-5 years. With implementation of a restoration plan, impacts to critical habitat due to riparian habitat removal are expected to be minimal.

#### *Sedimentation and Turbidity*

The action area contains rearing habitat and a migratory corridor for CCV steelhead in Dry Creek. There is potential for degradation of PBFs resulting from turbidity and sedimentation associated with the proposed action. Kemp et al. (2011) describe a suite of physiochemical effects to lotic aquatic systems resulting from increased sedimentation and turbidity-related events. Sedimentation events in a system that shares both lotic and estuarine characteristics have the potential to increase turbidity on a broad temporal scale and reduce oxygen supply. These impacts could degrade the PBFs for CCV steelhead such as riparian habitat that provides for successful juvenile development and survival. BMPs and minimization and avoidance measures such as groundcover and stabilization using silt fencing and fiber rolls will be implemented during construction to minimize Project-disturbed soil on land from entering the water (see Section 1.4). Potential adverse effects to critical habitat PBFs for the species addressed in this biological opinion resulting from turbidity and sedimentation are not expected to occur at a scale in which critical habitat will be permanently impacted or reduce the conservation value. With the

minimization and avoidance measures included in the proposed action, turbidity and sedimentation are expected to result in minor and short-term effects to PBFs of designated critical habitat for CCV steelhead in the action area.

#### *Night Lighting*

The design of the new bridges includes the installation of night lighting. Night lighting has the potential to result in permanent adverse effects to critical habitat PBFs. Night lights can shine onto waters during nighttime hours and may facilitate increased predation on juvenile CCV steelhead by predatory fish, birds, and mammals (Kahler et al 2000). BMPs, including limitation of night work and placement of permanent lighting away from water surfaces will be implemented to incorporate night lighting designs which limit the amount of light shining on water surfaces. The lights will be shielded and focused on the bridge away from water surfaces. This action will minimize the extent of any negative effects associated with night lighting.

#### *Loss and Degradation of River Habitat*

Two 15-inch concrete piles will be placed within the OHWM of Dry Creek at the proposed Darling Way Bridge Widening location, totaling 0.00014 acres. At the two Dry Creek locations, a total of 0.05 acres of RSP will be placed. Widening of the Darling Way Bridge will result in a total of 0.023 acre of overwater structure shading the creek. Placement of these materials will reduce natural cover and may facilitate increased predation on juvenile CCV steelhead, this permanently degrades rearing habitat quantity and quality.

### **2.5.3 Mitigation/Conservation Bank Credit Purchase**

To address permanent impacts of the proposed action to riparian and aquatic habitats, the proposed action includes purchase of mitigation bank credits at a 1:1 ratio for non-SRA riparian habitat, 1.7:1 for SRA, and 0.5:1 for temporal loss of riparian and SRA habitat impacts (Table 3). Both the riparian and aquatic habitat impacts affect designated critical habitat, as well as listed fish species, described above in this biological opinion. The purchase of mitigation credits will address the loss of ecosystem functions due to the modification of the riverbank. These credit purchases are ecologically relevant to the PBFs of critical habitat and the species affected by the proposed action because both banks include SRA, riparian forest and floodplain credits with habitat values that are already established and meeting performance standards. Also, the banks are located in areas that will benefit the CCV steelhead DPS affected. The purchase of mitigation credits at one of these banks is expected to benefit the PBFs of freshwater rearing habitat and migration corridors for juvenile CCV steelhead by providing suitable floodplain and riparian habitat. The floodplains and riparian forest in the bank benefit the growth and survival of rearing salmonids by providing habitat with abundant food in the form of aquatic invertebrates, structural diversity such as instream woody material (IWM), and cooler stream temperatures.

The purchase of credits provides a high level of certainty that the benefits of a credit purchase will be realized because both of the NMFS-approved banks considered in this opinion have mechanisms in place to ensure credit values are met over time. Such mechanisms include legally binding conservation easements, long-term management plans, detailed performance standards, credit release schedules that are based on meeting performance standards, monitoring plans and annual monitoring reporting to NMFS, non-wasting endowment funds that are used to manage and maintain the bank and habitat values in perpetuity, performance security requirements, a

remedial action plan, and site inspections by NMFS. In addition, each bank has a detailed credit schedule and credit transactions and credit availability are tracked on the Regulatory In-lieu fee and Bank Information Tracking System (RIBITS). RIBITS was developed by the U.S. Army Corps of Engineers with support from the Environmental Protection Agency, the U.S. Fish and Wildlife Service, the FHWA, and NMFS to provide better information on mitigation and conservation banking and in-lieu fee programs across the country. RIBITS allows users to access information on the types and numbers of mitigation and conservation bank and in-lieu fee program sites, associated documents, mitigation credit availability, service areas, as well information on national and local policies and procedures that affect mitigation and conservation bank and in-lieu fee program development and operation.

Table 3: CCV Steelhead Habitat Impacts (Caltrans BA 2019)

<b>Habitat Types</b>			
<b><i>Shaded Riverine Aquatic Habitat (SRA)</i></b>	Permanent Impact (acres)	Temporary Impact (acres)	Total (acres)
Other Waters Totals (Dry, Cirby, and Linda Creeks and Strap Ravine)	0.211	1.527	1.738
Riparian	0.035	0.137	0.172
Valley Oak Woodland	0.063	0.273	0.337
<i>Total SRA Impacts</i>	<i>0.310</i>	<i>1.937</i>	<i>2.247</i>
<b><i>Non-SRA</i></b>			
Riparian	0.550	0.746	1.296
<b><i>Estimated Compensatory Mitigation for Steelhead Habitat Impacts (SRA and Non-SRA Riparian)</i></b>			
<i>SRA (1.7:1 permanent/ 0.5:1 temporary)</i>	0.527	0.969	<b>1.496</b>
<i>Non-SRA Riparian (1:1 permanent, 0.5/1 temporary)</i>	0.550	0.373	<b>0.923</b>

## 2.6 Cumulative Effects

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

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

### *Water Diversions*

Water diversions for municipal and industrial use are found in action area. Depending on the size, location, and season of operation, any of the diversions that are unscreened may entrain and kill many life stages of aquatic species, including juvenile listed anadromous fish species.

### *Increased Urbanization*

Increases in urbanization and housing developments can affect habitat by altering watershed characteristics, and changing both water use and storm water runoff patterns. Increased growth will place additional burdens on resource allocations, including natural gas, electricity, and water, as well as on infrastructure such as wastewater sanitation plants, roads and highways, and public utilities. Some of these actions, particularly those that are situated away from waterbodies, will not require Federal permits, and thus will not undergo review through the ESA consultation process with NMFS.

### *Rock Revetment and Levee Repair Projects*

Cumulative effects include non-Federal riprap projects. Depending on the scope of the action, some non-Federal riprap projects carried out by state or local agencies do not require Federal permits. These types of actions and illegal placement of riprap occur within the Dry Creek watershed. The effects of such actions result in continued degradation, simplification and fragmentation of riparian and freshwater habitat that affect salmonids in ways similar to the adverse effects associated with this Project.

## **2.7 Integration and Synthesis**

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

In our *Rangewide Status of the Species* section, NMFS summarized the current likelihood of extinction of CCV steelhead. We described the factors that have led to the current listing of CCV steelhead under the ESA and across their range. These factors include past and present human activities and climatological trends and ocean conditions that have been identified as influential to the survival and recovery of the listed species. Beyond the continuation of the human activities affecting the species, we also expect that ocean condition cycles and climatic shifts will continue to have both positive and negative effects on the species' ability to survive and recover. The *Environmental Baseline* section reviewed the status of the species and the factors that are affecting their survival and recovery in the action area. The *Effects of the Action* section reviewed the exposure of the CCV steelhead and critical habitat to the proposed action. NMFS then evaluated the likely responses of individuals, populations, and impacts to critical habitat.

The *Cumulative Effects* section described future activities within the action area that are reasonably certain to have a continued effect on listed fish.

In order to estimate the risk to CCV steelhead as a result of the proposed action, NMFS uses a hierarchical approach. The condition of the DPS is summarized in the *Status of the Species* section of this opinion. We then consider how the status of populations in the action area are affected by the proposed action, as described in the *Environmental Baseline* section. Effects on individuals are summarized, and the consequence of those effects is applied to establish risk to the DPS.

#### *Status of the Species and Environmental Baseline*

The status of the CCV steelhead DPS appears to have remained unchanged since the 2016 status review and the DPS is likely to become endangered within the near future throughout all or a significant portion of its range (NMFS 2016). Many of the PBFs of CCV steelhead critical habitat are degraded and provide limited high quality habitat. These rearing and migratory corridor PBFs that support CCV steelhead will be negatively impacted through bridge shading. These permanent impacts only represent a small loss in the scope of the available habitat for CCV steelhead, but the intrinsic value of the area for the conservation of fish remains high.

The evidence presented in the *Environmental Baseline* section indicates that past and present activities within the Dry Creek basin have caused significant habitat loss, degradation, and fragmentation. This has significantly reduced the quality and quantity of the remaining PBFs within the action area for the population of CCV steelhead that utilizes this area. Alterations in flow regimes, removal of riparian vegetation and shallow water habitat, reduced habitat complexity, construction of armored levees for flood protection, and the influx of contaminants from agricultural and urban discharges have also substantially reduced the functionality of the waterways.

#### *Cumulative Effects*

Water diversions, increased urbanization, and rock revetment projects are reasonably expected to continue in the future in the action area. The effects of these actions result in the continued degradation, simplification, and fragmentation of the riparian and freshwater habitat. Some of these actions, particularly those that are situated away from waterbodies, will not require federal permits, and thus will not undergo review through the ESA section 7 consultation process with NMFS.

#### *Summary of the Effects of the Proposed Action*

CCV steelhead may be harassed, injured, or killed during completion of the proposed action through various pathways. Direct effects from Project activities could result in negative effects through behavioral responses from noise, or prey items killed from sediment or pollutant buildup. Any spills or leaks of toxic substances from construction equipment could cause direct or indirect effects to fish that risk mortality or reduces the overall health and survival of exposed fish. A dewatering and relocation plan involves capturing fish and physically handling and relocating them, which risks injury and death. Construction-related increases in sedimentation and siltation above background level could potentially affect fish species and their habitat, reducing survival of juveniles or interfering with feeding, migrating, and rearing activities.

Avoidance and mitigation measures, as well as BMPs, will be implemented to minimize any negative effects to listed species.

Critical habitat has been designated in the action area for CCV steelhead, PBFs affected for each species are described in section 2.5.2. The proposed action will temporarily and permanently affect the action area, which already contains degraded PBFs. Bridge widening and placement of structure/RSP in the channel will impact Dry Creek. The migratory corridors and rearing habitat that remain are considered to have high intrinsic value for conservation of the species. Therefore, the loss of any amount of these PBFs in the action area is expected to negatively affect CCV steelhead.

As discussed in Section 2.5.3 above, as mitigation for these impacts, Caltrans plans to purchase credits from either the Bullock Bend Mitigation Bank or the Fremont Landing Conservation Bank at a 1:1 ratio for non-SRA riparian, 1.7:1 for SRA, and 0.5:1 for temporal loss of riparian and SRA habitats impacted. The purchase of mitigation credits at one of these banks is expected to benefit the PBFs of freshwater rearing habitat and migration corridors for CCV steelhead by providing suitable floodplain and riparian habitat. The floodplains and riparian forest in the bank benefit the growth and survival of rearing salmonids by providing habitat with abundant food in the form of aquatic invertebrates, structural diversity such as IWM, and cooler stream temperatures.

#### *Effects to the DPS*

According to the most recent status reviews (NMFS 2016) CCV steelhead are at risk of becoming endangered, due to past and present activities causing habitat loss, degradation and fragmentation.

The Recovery Plan (NMFS 2014) designates the CCV steelhead population in Dry Creek as a Core 3 population. A Core 3 population is characterized as being dependent on other nearby populations for their existence. The presence of these populations provide increased life history diversity to the DPS. Restoring Core 3 populations such as CCV steelhead in Dry Creek may enhance genetic diversity and connectivity between populations benefitting the DPS as a whole.

Although there are long-term and short-term impacts to the DPS, the impacts are expected to be minor, and will occur during seasons when fish abundance is very low. To mitigate the effects of the project, Caltrans plans to purchase mitigation credits off-site at a 1:1 ratio for non-SRA riparian, 1.7:1 for SRA, and 0.5:1 for temporal loss of riparian and SRA habitats impacted, for a total of 2.419 acres purchased. These compensatory mitigation credits serves as a form of advanced mitigation because the habitat at the bank was restored between five years (Bullock Bend Mitigation Bank) and fifteen years (Fremont Landing Conservation Bank) before the impact of the construction activity will occur. The purchase of mitigation bank credits will improve floodplain and shaded aquatic and riverine habitat for CCV steelhead. Therefore, the proposed project is not expected to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild, nor appreciably diminish the value of designated or proposed critical habitat for the conservation of the species.

## **2.8 Conclusion**

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

## **2.9 Incidental Take Statement**

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

### **2.9.1 Amount or Extent of Take**

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

NMFS anticipates that juvenile and adult CCV steelhead will be killed, injured, harassed, or harmed as a result of Project implementation due to expected presence in the action area during the scheduled in-water work window. Take is expected to occur in the form of injury, death, and harm resulting from dewatering activities. Additionally, take is expected as a result of placing bridge piles and increasing bridge shade in critical habitat. This is expected to reduce the primary productivity of the affected habitat and increase the number of predatory fishes and their ability to prey on listed fish species resulting in injury, death and harm to listed species.

It is not practical to quantify or track the amount or number of individuals that are expected to be incidentally taken as a result of the proposed action due to the variability associated with the response of CCV steelhead to the effects of the proposed action, annual variations in the timing of spawning and migration, individual habitat use within the action area, and difficulty in observing injured or dead fish.

However, it is possible to estimate the extent of incidental take by designating ecological surrogates, and it is practical to quantify and monitor the surrogates to determine the extent of incidental take that is occurring. The most appropriate threshold for incidental take is an ecological surrogate of temporary habitat disturbance expected to occur during dewatering

activities and permanent habitat disturbance expected to occur due to the bridge shade and placement of piles in critical habitat.

Dewatering, capture, and handling result in fish behavioral modifications or stranding leading to harm or death. Bridge piles and shade reduce primary productivity of affected habitats and increases the number of predatory fishes in the action area and/or their ability to prey on listed fish species leading to injury. NMFS anticipates incidental take will be limited to the following forms:

- 1) Take in the form of harm, injury and death to CCV steelhead due to handling or stranding during the dewatering of approximately 1.56 acres of river habitat. This habitat disruption will affect the behavior of listed fish resulting in displacement and increased predation, and decreased feeding, which will result in decreased survival, reduced growth and reduced fitness, respectively.
- 2) Take in the form of harm to CCV steelhead from loss and degradation of river channel habitat that may lead to injury and death by creating habitat conditions that increase predation associated with the new bridge components. The increased spatial footprint of the bridge is a total of 0.023 acres, placement of bridge piles total approximately 0.00014 acres, and placement of RSP totals 0.05 acres.

If the total acreage of dewatering areas for the Project exceeds 1.56 acres by more than 20 percent, or if any of the individual sites exceed the associated stated acreage by more than 20 percent, the anticipated take levels described are also exceeded, triggering the need to reinitiate consultation. If the bridge footprint exceeds 0.025 acres; or if bridge piles or RSP within the OHWM exceed 0.05014 acres by more than 20 percent, the anticipated incidental take levels described are also exceeded, triggering the need to reinitiate consultation.

### **2.9.2 Effect of the Take**

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

### **2.9.3 Reasonable and Prudent Measures**

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

1. Fish relocation operations shall be conducted according to specifications approved by NMFS. The supervising biologist(s) shall oversee all aspects of dewatering and fish handling operations.
2. Measures shall be taken to minimize habitat impacts from placement of RSP and structures on banks and over creeks.
3. Caltrans shall monitor construction and dewatering design and processes, and report on any incidence of take to NMFS within 24 hours.

4. Caltrans shall provide a report of Project activities to NMFS by December 31 of each construction year.

#### **2.9.4 Terms and Conditions**

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

1. The following terms and conditions implement reasonable and prudent measure 1:
  - a. All aspects of dewatering and fish relocation operations shall be supervised by at least one NMFS-approved biologist who will be personally on site throughout each phase of the relocation operation.
  - b. A written plan for a fish relocation operation specific to this project shall be provided to NMFS for approval 45 days prior to implementation of the project. The plan shall be thoroughly understood by all individuals that are to be involved and operations shall be conducted in strict accordance with the written plan.
2. The following terms and conditions implement reasonable and prudent measure 2:
  - a. Caltrans shall limit the amount of RSP used for instream protection to the minimum amount needed for erosion and scour protection. Engineering plans shall be provided to the contractors that clearly show the amount of RSP to be placed.
  - b. Caltrans shall develop and implement a Riparian and Restoration Plan addressing onsite habitat enhancement and purchase of mitigation bank credits to compensate for permanent and temporal loss of habitat. As proposed by Caltrans, credits will be purchased at ratios of 1.7:1 for permanent SRA impacts, 1:1 for permanent non-SRA impacts, and 0.5:1 for all temporary impacts (SRA and non-SRA). The plan shall also include monitoring for revegetated onsite locations. The plan shall be approved by NMFS 30 days prior to implementation.
3. The following terms and conditions implement reasonable and prudent measure 3:
  - a. Caltrans shall monitor the design of the cofferdam and dewatering operation as well as RSP removal and replacement to ensure the habitat disturbance does not exceed the proposed area (1.65 acre for dewatering, 0.05 acre for RSP/fill placement). If the area is exceeded Caltrans shall contact NMFS within 24 hours.
  - b. Caltrans shall record the date, number, and specific location of all listed fish that are relocated from the cofferdam in addition to any direct mortality observed during in-water work and relocation. If a listed species is observed, injured, or killed by project activities, Caltrans shall contact NMFS within 24 hours, notification shall include

species identification, the number of fish, and a description of the action that resulted in take.

4. The following terms and conditions implement reasonable and prudent measure 4:
  - a. A report shall include a summary description of in-water construction dates and activities, avoidance and minimization measures taken, mitigation credits purchased, and any revegetated areas on-site. Updates and reports required by these terms and conditions shall be submitted by December 31 of each year during the construction and monitoring period to:

Maria Rea  
Central Valley Office  
National Marine Fisheries Service  
650 Capitol Mall, Suite 5-100  
Sacramento California 95814  
FAX: (916) 930-3629 and Phone: (916) 930-3600

## **2.10 Conservation Recommendations**

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

- 1) Caltrans should consider using alternative methods to traditional RSP for bridge projects and incorporate geotextiles for bank erosion control and prevention. Bioengineered products are available that can be used to protect areas against erosive forces along shorelines and are alternatives to using RSP. Implementation of RSP alternatives in design considerations is consistent with agency requirements set forth in section 7(a)(1).
- 2) Caltrans should continue to work cooperatively with other State and Federal agencies, private landowners, governments, and local watershed groups to identify opportunities for cooperative analysis and funding to support priority recovery actions for salmonid and sturgeon, including habitat restoration projects within the Sacramento River Basin. Implementation of future restoration projects is consistent with agency requirements set forth in section 7(a)(1).

## **2.11 Reinitiation of Consultation**

This concludes formal consultation for the Dry Creek Greenway Trail Project.

As 50 CFR 402.16 states, 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 taking specified in the ITS is exceeded, (2) new information reveals effects of the agency action that may affect listed species or critical habitat in

a manner or to an extent not considered in this opinion, (3) the agency action is subsequently modified in a manner that causes an effect on the listed species or critical habitat that was not considered in this opinion, or (4) a new species is listed or critical habitat designated that may be affected by the action.

### **3. MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT ESSENTIAL FISH HABITAT RESPONSE**

Section 305(b) of the MSA directs Federal agencies to consult with NMFS on all actions or proposed actions that may adversely affect EFH. The MSA (section 3) defines EFH as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” Adverse effect means any impact that reduces quality or quantity of EFH, and may include direct or indirect physical, chemical, or biological alteration of the waters or substrate and loss of (or injury to) benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects on EFH may result from actions occurring within EFH or outside of it and may include site-specific or EFH-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) also requires NMFS to recommend measures that can be taken by the Action Agency to conserve EFH.

This analysis is based, in part, on the EFH assessment provided by Caltrans and descriptions of EFH for Pacific Coast salmon (PFMC 2014) contained in the fishery management plan (FMP) developed by the PFMC and approved by the Secretary of Commerce.

#### **3.1 Essential Fish Habitat Affected by the Project**

EFH designated under the Pacific Coast Salmon FMP may be affected by the proposed action. Additional species that utilize EFH designated under this FMP within the action area include fall-run/late fall-run Chinook salmon. Habitat Areas of Particular Concern (HAPCs) that may be either directly or indirectly adversely affected include (1) complex channels and floodplain habitats, (2) thermal refugia, (3) spawning habitat.

#### **3.2 Adverse Effects on Essential Fish Habitat**

The effects of the proposed action on Pacific Coast salmon EFH will be similar to those discussed in the Effects of the Action section (2.5) for CCV steelhead. Based on the information provided, NMFS concludes that the proposed action would adversely affect EFH for federally managed Pacific salmon. Adverse effects to HAPCs are appreciably similar to effects to critical habitat, therefore no additional discussion is included. Listed below are the adverse effects on EFH reasonably certain to have occurred and/or occur in the future as a result of the Project. Affected HAPCs are indicated by number in parentheses, corresponding to the list in Section 3.1:

1. De-watering/relocation
  - Degraded water quality (1,2)
  - Temporary loss of habitat (1,2)
2. Placement of fill (RSP, baskets, walls, piles)
  - Permanent loss of natural substrate (1,3)
  - Reduced habitat complexity (1)
  - Increased predator habitat (1)
3. Sedimentation and Turbidity
  - Reduced habitat complexity (1)

- Degraded water quality (1,2,3)
  - Reduction in aquatic macroinvertebrate production (1)
4. Contaminants and Pollution-related Effects
- Degraded water quality (1,2,3)
  - Reduction in aquatic macroinvertebrate production (1)
5. Removal of Riparian Vegetation
- Reduced shade (2)
  - Reduced cover (1,2)
  - Reduced supply of terrestrial food resources (1)
  - Reduced supply of instream woody materials (1)

### **3.3 Essential Fish Habitat Conservation Recommendations**

The following conservation recommendations are necessary to avoid, mitigate, or offset the impact of the Project on EFH:

- (1) The applicant should incorporate educational elements pertaining to Pacific Coast salmon and habitat stewardship. NMFS should be included in coordination when creating the trail theme.
- (2) Any gravel used for construction structures such as low water creek crossings or cofferdams should be clean spawning-sized gravel between 0.4 and 4 inches in diameter and should be distributed into the creek using hand tools following construction.
- (3) Caltrans should use a soil-rock mixture to facilitate re-vegetation in areas where RSP is placed above the water. A ratio of rock to soil of 70:30 is recommended. We suggest the addition of soil on the top of the soil-rock mixture to emulate natural streambank conditions.
- (4) Caltrans should revegetate areas adjacent to the creeks with native plant species.

Fully implementing these EFH conservation recommendations would protect EFH, by avoiding or minimizing the adverse effects described in section 3.2 for approximately 3.5 acres of designated EFH for Pacific Coast salmon.

### **3.4 Statutory Response Requirement**

As required by section 305(b)(4)(B) of the MSA, Caltrans must provide a detailed response in writing to NMFS within 30 days after receiving an EFH Conservation Recommendation. Such a response must be provided at least 10 days prior to final approval of the action if the response is inconsistent with any of NMFS' EFH Conservation Recommendations unless NMFS and the Federal agency have agreed to use alternative time frames for the Federal agency response. The response must include a description of measures proposed by the agency for avoiding, minimizing, mitigating, or otherwise offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the Conservation Recommendations, the Federal agency must explain its reasons for not following the recommendations, including the scientific justification for any disagreements with NMFS over the anticipated effects of the action and the measures needed to avoid, minimize, mitigate, or offset such effects (50 CFR 600.920(k)(1)).

In response to increased oversight of overall EFH program effectiveness by the Office of Management and Budget, NMFS established a quarterly reporting requirement to determine how many conservation recommendations are provided as part of each EFH consultation and how many are adopted by the Action Agency. Therefore, we ask that in your statutory reply to the EFH portion of this consultation, you clearly identify the number of conservation recommendations accepted.

### **3.5 Supplemental Consultation**

Caltrans must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH Conservation Recommendations (50 CFR 600.920(l)).

#### **4. FISH AND WILDLIFE COORDINATION ACT**

The purpose of the FWCA is to ensure that wildlife conservation receives equal consideration, and is coordinated with other aspects of water resources development (16 USC 661). The FWCA establishes a consultation requirement for Federal agencies that undertake any action to modify any stream or other body of water for any purpose, including navigation and drainage (16 USC 662(a)), regarding the impacts of their actions on fish and wildlife, and measures to mitigate those impacts. Consistent with this consultation requirement, NMFS provides recommendations and comments to Federal action agencies for the purpose of conserving fish and wildlife resources, and providing equal consideration for these resources. NMFS' recommendations are provided to conserve wildlife resources by preventing loss of and damage to such resources. The FWCA allows the opportunity to provide recommendations for the conservation of all species and habitats within NMFS' authority, not just those currently managed under the ESA and MSA.

The following recommendations apply to the proposed action:

- Caltrans should post interpretive signs within the action area to help educate greenway trail users about the ecological and cultural value of the anadromous fish species and critical habitat in Dry Creek and the greater watershed.

The Action Agency must give these recommendations equal consideration with the other aspects of the proposed action so as to meet the purpose of the FWCA.

This concludes the FWCA portion of this consultation.

## 5. DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW

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

### 5.1 Utility

Utility principally refers to ensuring that the information contained in this consultation is helpful, serviceable, and beneficial to the intended users. The intended users of this opinion is Caltrans. Other interested users could include the Cities of Roseville and Sacramento, as well as Placer and Sacramento Counties. Individual copies of this opinion were provided to Caltrans. The format and naming adheres to conventional standards for style.

### 5.2 Integrity

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

### 5.3 Objectivity

Information Product Category: Natural Resource Plan

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

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

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

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

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