

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: WCRO-2019-02010

January 24, 2020

Zachary Fancher Senior Project Manager Sacramento District Enforcement/Special Projects Branch U.S. Army Corps of Engineers 1325 J Street Sacramento California 95814-2922

Re: 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 for the Salt Creek Crossing Replacement Project near Red Bluff, CA.

Dear Mr. Fancher:

Thank you for your letter of June 21, 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 U.S. Army Corps of Engineers' (Corps) proposed issuance of a permit for the Salt Creek Crossing Replacement Project near Red Bluff, California. 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 in light of the updated regulations and conclude the opinion 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 (16 U.S.C. 1855(b)) for this 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)).

Based on the best available scientific and commercial information, this biological opinion concludes that the proposed Federal action, the Project to replace the Salt Creek Crossing, is not likely to jeopardize the continued existence of federally-listed as threatened Central Valley



spring-run Chinook salmon Evolutionarily Significant Unit (ESU) (*Oncorhynchus tshawytscha*), and California Central Valley steelhead Distinct Population Segment (DPS) (*O. mykiss*), and is not likely to destroy or adversely modify the designated critical habitat of Central Valley spring-run Chinook salmon. NMFS concurs with the Corps that the action is not likely to adversely affect Sacramento River winter-run Chinook salmon ESU (*O. tshawytscha*) or Southern DPS of North American green sturgeon (*Acipenser medirostris*). NMFS has included an incidental take statement for the relevant species with reasonable and prudent measures and nondiscretionary terms and conditions that are necessary and appropriate to avoid, minimize, or monitor incidental take of listed species associated with the Project.

NMFS also reviewed the likely effects of the proposed action on EFH, pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1855(b)), and concluded that the action would adversely affect the EFH of Pacific Coast Salmon. Therefore, we have included the results of that review in Section 3 of this document.

Please contact Stephen Maurano in the California Central Valley Office by phone at (916) 930-3710 or email at Stephen.Maurano@noaa.gov if you have any questions concerning this consultation or if you require additional information.

Sincerely,

Mariakea

Maria Rea Assistant Regional Administrator California Central Valley Office

Enclosure

cc: To the file 151422- WCR2019-SA00528

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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

Salt Creek Crossing Replacement Project National Marine Fisheries Service Tracking Number: WCRO-2019-02010

Action Agency: U.S. Army Corps of Engineers

I					
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?
Central Valley spring-run Chinook salmon ESU (O	Threatened	Yes	No	Yes	No
tshawytscha)					
Sacramento River winter-run Chinook salmon ESU (O. tshawytscha)	Endangered	No	NA	NA	NA
California Central Valley steelhead Distinct Population Segment DPS ( <i>Oncorhynchus</i> <i>mykiss</i> )	Threatened	Yes	No	NA	NA
Southern DPS of North American green sturgeon ( <i>Acipenser</i> <i>medirostris</i> )	Threatened	No	NA	NA	NA

Affected Species and NMFS' Determinations:

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

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

Issued By:

Ku

Marła Rea Assistant Regional Administrator

Date: January 24, 2020



# **TABLE OF CONTENTS**

1.	INTRO	DDUCTION	1
	1.1 Ba	ackground	1
	1.2 C	onsultation History	1
	1.3 P1	oposed Federal Action	2
	1.3.1	Regulatory Context	2
	1.3.2	Project Description	2
	1.3.3	Avoidance and Minimization Measures	4
2	ENDA	NGERED SPECIES ACT:	6
-	2.1 A	nalytical Approach	6
	2.1 R	angewide Status of the Species	
	2.2 R	ritical Habitat	,
	2.3 C	ction Area	10
	2.1 R 25 F <sub>1</sub>	nvironmental Baseline	12
	2.5 Li 2.5 l	Geography	12
	2.5.1 2.5.2	Hydrology	12
	2.5.2	A quatic Habitat	14
	2.5.5	Global Climata Change	15
	2.5.4	Environmental Deseline Summery	15
	2.3.3	Environmental Baseline Summary	10
	2.0 E	Lucross of Truthidity and Fine Sediment	10
	2.0.1	Increased Turbially and Fine Sediment	17
	2.0.2	Demotoring Lungests	1/
	2.0.3	Dewatering impacts	18
	2.6.4	Impacts on Riparian Areas and Stream Bank Habitat	21
	2.6.5	Effects of the Action Summary	21
	2.7 C	umulative Effects	22
	2.7.1	Agricultural Practices	22
	2.7.2	Increased Urbanization	22
	2.7.3	Future Activities	22
	2.7.4	Climate Change	22
	2.8 In	tegration and Synthesis	23
	2.8.1	Status of the Species and Environmental Baseline	23
	2.8.2	Cumulative Effects	24
	2.8.3	Effects of the Proposed Action	24
	2.8.4	Effects to the CCV Steelhead DPS & Spring-Run Chinook Salmon ESU	24
	2.9 C	onclusion	25
	2.10 In	cidental Take Statement	25
	2.10.1	Amount or Extent of Take	25
	2.10.2	Effect of the Take	26
	2.10.3	Reasonable and Prudent Measures	26
	2.10.4	Terms and Conditions	27
	2.11 C	onservation Recommendations	28
	2.12 R	einitiation of Consultation	28
	2.13 "1	Not Likely to Adversely Affect" Determinations	29

3.	MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT	
	ESSENTIAL FISH HABITAT RESPONSE	32
	3.1 Essential Fish Habitat Affected by the Project	. 32
	3.2 Adverse Effects on Essential Fish Habitat	. 32
	3.3 Essential Fish Habitat Conservation Recommendations	. 33
	3.4 Statutory Response Requirement	. 33
	3.5 Supplemental Consultation	. 34
4.	FISH AND WILDLIFE COORDINATION ACT	35
5.	DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW.	36
	1.1. Utility	. 36
	1.2. Integrity	. 36
	1.3. Objectivity	. 36
6.	REFERENCES	37

### 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

- A May 2019 Biological Assessment/Essential Fish Habitat Assessment (BA/EFH) was prepared by a consultant for the applicant, Pacific Gas and Electric Company (PG&E).
- In a June 21, 2019 letter to NMFS, the action agency, the U.S. Army Corps of Engineers (USACE), requested to initiate formal consultation. They noted in their submittal that their effect determination differs from the recommendation contained in the applicant's Biological Assessment.
- On July 26, 2019, NMFS requested a meeting to obtain additional information from the action agency.
- On July 29, 2019, a call was held between the aforementioned parties. NMFS provided information regarding critical habitat in the area and requested information regarding the work window, dewatering, bank/channel armoring, and mitigation. NMFS discussed on the call with USACE inconsistencies in the BA, most notably regarding the work window and the extent of critical habitat in the action area.
- Following the aforementioned call, NMFS requested several status updates and having not received adequate information, on September 11, 2019, NMFS emailed USACE again and detailed the insufficiency of their submittal.

- The following day, September 12, 2019, USACE responded with additional information from PG&E that had been requested by NMFS (specifically that the work window would begin June 1).
- NMFS initiated formal consultation on the same date that this information was received, September 12, 2019.

## **1.3 Proposed Federal Action**

### 1.3.1 Regulatory Context

Under the ESA, "Action" means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies (50 CFR 402.02). Under EFH, 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). The proposed Federal action is a Department of the Army, USACE Clean Water Act (CWA) Section 404 permit application (SPK-2019-00367) for the Salt Creek Crossing Replacement Project proposed by PG&E.

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)).

Under EFH, "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). 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).

We considered whether the proposed action would cause any other activities and determined that it would not. NMFS is not aware of other activities associated with the proposed action. There are similar, but independent actions, to maintain pipelines in the general area, such as the Gas Transmission Pipeline 400 and 401 Salt Creek Crossing Replacement Project (NMFS PCTS# WCR-2019-0516) about 3 miles from this proposed action.

### **1.3.2 Project Description**

The proposed Federal action would permit, for CWA Section 404 purposes, PG&E's removal and replacement of a section of gas transmission pipeline (L)-400 (R-409) between mile points 141.72 and 141.92 where it crosses Salt Creek. This is approximately 1.5 miles east of the City of Red Bluff in Tehama County, California, at Latitude 40.16341° and Longitude -122.17202°. The Project area is located within Salt Creek, which is a tributary of the Sacramento River.

In the past, PG&E has added cement erosion control matting in order to reduce erosion. Nonetheless, the pipeline, which typically requires at least four feet of cover, has been exposed and now presents a safety risk. PG&E proposes to remove the existing pipeline and cement erosion control matting, install new pipelines, and add rock slope protection (RSP) and other engineered materials along the creek to prevent future scour. The trench within the creek would be backfilled with a 2-foot layer of sand for padding, native fill to bring the backfill up to grade, a layer of high tensile woven geotextile fabric, articulating concrete revetment matting and RSP.

PG&E considered alternatives to the open trench cutting including filling the stream channel to bring the channel grades back to historical elevations, horizontal direct drilling, micro-tunneling and pipe ramming, but these were determined to result in significantly larger areas of disturbance or were infeasible given the soil type present under the creek.

Streambed stabilization would include the placement of RSP and high tensile woven geotextile fabric along the banks and within the channel of Salt Creek. Vegetation clearing would include the removal of approximately 1,375 trees from existing orchards and approximately 64 trees from the riparian area along Salt Creek. Restoration would include revegetating all disturbed areas outside of Salt Creek channel, installation of erosion control best management practices (BMPs), and replacement of the stockpiled topsoil. A revegetation plan would be prepared for the temporarily disturbed riparian areas within and along Salt Creek. The work will require opencut trenching of approximately 1,000 linear feet of the adjacent orchard and across the stream channel for installation of the new pipeline, and approximately 866 linear feet of the adjacent orchard and across the stream channel for removal of the existing pipeline. As described in the biological assessment, the proposed action would result in the permanent discharge of approximately 1,110 cubic yards of RSP fill into 0.160 acre of the stream channel and 0.023 acre of riparian habitat along the stream bank of Salt Creek. PG&E proposes to remove previously placed ercon (erosion control) matting and restore approximately 0.005 acre of Salt Creek and 0.022 acre of riparian wetland. The proposed action will also result in the placement of up to 0.55 acre of high tensile woven geotextile fabric into Salt Creek stream channel and riparian habitat. Impacts are summarized in Figure 1 of this document (which excerpts Figure 3 of Enclosure 2 of the Biological Assessment).

Summary of Project Impacts			
Impact Type/Waters of the United States	Acres Le	ngth (ft)**	
Area to be Restored/Reclaimed	0.027	95	
Intermittent Stream (Salt Creek)	0.005	40	
Riparian Wetland	0.022	55	
Permanent Impact	0.183	582	
Intermittent Stream (Salt Creek)	0.160	148	
Riparian Wetland	0.023	434	
Temporary Impact	0.521	960	
Intermittent Stream (Salt Creek)	0.376	354	
Riparian Wetland	0.145	606	

Figure 1. Summary of Project Impacts by Length/Area. See Biological Assessment Enclosure 2 Figure 3 for full details.

The construction work area is approximately 34 acres and encompasses the excavations for the removal/installation of the pipeline, staging areas, proposed access roads, and potential ground water discharge. Discharges to either land or surface waters will be authorized under an appropriate discharge permit issued by the State Water Resources Control Board or Central Valley Regional Water Quality Control Board.

Construction is planned to occur from May 24 through September 18, 2021. The Project will require approximately 17 weeks, with some activities overlapping. The in-water (i.e. in-channel) work window will be June 1 to September 15. All work would be performed during the summer and fall months when the creek channel is likely to be dry or low-flow conditions are present. If surface water were present at time of construction a dewatering plan would be implemented. Groundwater dewatering would also occur dependent on conditions at the time of construction. Upon completion of construction activities, all disturbed areas would be restored to the approximate contours as before the Project.

### 1.3.3 Avoidance and Minimization Measures

A number of avoidance and minimization measures (AMMs) will be implemented as part of the proposed action for each of the potential impacts to listed species and critical habitats.

### 1.3.3.1 In-Channel Work Period

Under the proposed action, all in-channel work will occur between June 1 and September 15, 2021. Salt Creek is an intermittent creek and the limited in-water work window is a timeframe when these fish species are least likely to be present in the action area.

### 1.3.3.2 Erosion and Sedimentation Control

Erosion control measures will be implemented during construction, managed under a Stormwater Pollution Prevention Plan (SWPPP) with BMPs that include restricting erosive activities to the dry summer and fall period, minimizing vegetation clearing and ground-disturbing activities, implementing silt fences, straw wattles, or catch basins below all construction equipment, placing spoils away from water features, monitoring sediment control measures, avoiding monofilament plastic for erosion control materials, and complying with the terms of a CWA Section 404 permit issued by the USACE and Section 401 water quality certification issued by the Regional Water Quality Control Board.

#### 1.3.3.3 Prevention of Accidental Spills and Release of Hazardous Materials

PG&E will implement the construction measures to prevent hazardous materials from entering the water channel. These include strategies such as implementing site-specific BMPs, a water pollution control plan, an emergency spill control plan to contain and remove any toxins released into Salt Creek, vehicle and equipment maintenance, leak inspection, use of non-toxic vegetable oil for hydraulic equipment below the ordinary high water mark (OHWM), no refueling within 100 feet of waterway unless secondary containment is used, and secondary containment of stationary equipment (e.g., pumps, generators, compressors, lights, storage tanks and poly tanks).

### 1.3.3.4 Prevention of Spread of Invasive Species

Measures will be implemented to prevent the spread of invasive species including weed free mulches, off-road equipment, native and locally adapted seed mixes, and disinfecting construction equipment.

### 1.3.3.5 Replacement of Lost Riparian Habitat

Measures will be implemented to reduce potential impacts on riparian habitat in the action area including minimized width of construction disturbance zone, exclusionary fencing along the boundaries of all riparian areas, revegetation using an appropriate native seed mix from locally adapted native plant materials, and a detailed revegetation plan.

### 1.3.3.6 Fish Entrainment and Injury at Stream Diversion

The following measures will be implemented to prevent fish entrainment and injury in bypass diversion pumps and construction water withdrawals, if utilized. Any withdrawal of water from the creek channel for diversion will use a pump intake with screens meeting NMFS/California Department of Fish and Wildlife criteria to prevent entrainment and impingement of fish. The NMFS Anadromous Salmonid Passage Facility Design (2011) guidelines include specific criteria for end of pipe screens and screen material for use in streams and rivers. Any required bypassing of surface water flows around the work area will insure sufficient discharge below the temporary construction-related dam to keep any fish in good condition.

#### 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.

The USACE determined the proposed action is not likely to adversely affect Sacramento River winter-run Chinook salmon ESU (*Oncorhynchus tshawytscha*) or Southern DPS of North American green sturgeon (*Acipenser medirostris*) or their critical habitat. Our concurrence is documented in the "Not Likely to Adversely Affect" Determinations Section 2.13.

# 2.1 Analytical Approach

This biological opinion includes both a jeopardy analysis and an adverse modification analysis. The jeopardy analysis relies upon the regulatory definition of "jeopardize the continued existence of" a listed species, which is "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR402.02). Therefore, the jeopardy analysis considers both survival and recovery of the species.

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

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

The 2019 regulations define effects of the action using the term "consequences" (50 CFR 402.02). As explained in the preamble to the regulations (84 FR 44977), that definition does not change the scope of our analysis and in this opinion we use the terms "effects" and "consequences" interchangeably.

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

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

### 2.2 Rangewide Status of the Species

This opinion examines the status of each species that would be adversely affected by the proposed action (Table 1). 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 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 value for the conservation of the species.

Species	Presence	Status
Central Valley	Occurs in the mainstern Sacramento	Designated threatened Sentember
snring_run	River its major perennial tributary	16 1999 per 64 FR 50394
Chinook salmon	streams and the Delta Adults	According to 5-year species
ESU	migrate unstream during the spring	status review (National Marine
(O. tshawytscha)	and spawn from mid-August to	Fisheries Service 2016a), the
(or islinity iselinity	mid-October. Spawn and rear in	status of the California Central
	mainstem Sacramento River and	Valley spring-run Chinook
	suitable perennial tributaries.	salmon ESU has improved since
	Require cool year-round water	the 2010 review. The improved
	temperatures and deep pools for	status is due to extensive
	oversummering habitat. Spawn in	restoration, and increases in
	riffles with gravel and cobble	spatial structure with historically
	substrate.	extirpated populations (Battle and
		Clear creeks) trending in the
		positive direction. Recent
		declines of many of the
		dependent populations, high pre-
		spawn and egg mortality during
		the 2012 to 2015 drought,
		uncertain juvenile survival during
		the drought are likely increasing
		the ESU's extinction risk.
California Central	Occurs in the mainstem Sacramento	Designated threatened January 5,
Valley steelhead	River and tributary streams. Adults	2006 per /1 FR 834. According
Distinct	fall/winter and anown from winter	to the 5-year species status
Population Segment DBS	through the anning Juyanilas room in	Fishering Service 2016b) the
Segment DFS	noted areas for 1 to 2 years before	status of CCV staalbaad appears
( <b>0</b> . <i>mykiss</i> )	migrating to the occur. Require	to have changed little since the
	cool swift shallow water: clean	2011 status review that concluded
	loose gravel for spawning: and runs	that the DPS was in danger of
	and suitable large pools in which to	extinction Most wild CCV
	rear and over-summer	nonulations are very small are
	feur und över summer.	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.

Table 1 Stat C. d Eich C . 0 г 1 11 **T** • 4

## 2.3 Critical Habitat

The ESA defines critical habitat as those specific areas within the geographic area occupied by the species, at the time of listing, containing physical and biological features essential to the conservation of the species that may require special management considerations; and occupied areas that are essential to the conservation of the species. Regulations state that the physical and biological features essential to the conservation of the species include, but are not limited to, space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, and rearing of offspring; and habitats that are protected from disturbance or are representative of the historical geographical and ecological distribution of a species.

The action area contains suitable habitat for the CCV steelhead and is located within critical habitat for the spring-run Chinook (Figure 2 and Figure 3). Spring-run Chinook critical habitat was designated September 2, 2005 (effective January 2, 2006) per 70 FR 52488. Designated critical habitat for spring-run Chinook salmon includes the San Francisco Bay-Delta estuary, mainstem Sacramento River upstream to Keswick Dam and the Sacramento Valley's tributaries with established spring salmon runs. This critical habitat designation in Salt Creek was verified by NMFS after reviewing the original hand-marked up field biologist maps. Additionally, the Sacramento River is located approximately 1.8 stream mile downstream from the pipeline crossing and is designated as critical habitat for both aforementioned species, as well as Southern DPS of North American green sturgeon (Figure 10) and Sacramento River winter-run Chinook salmon ESU (Figure 11).



Figure 2. Central Valley spring-run Chinook Salmon ESU Designated Critical Habitat in the Project Area.



Figure 3. Central Valley spring-run Chinook Salmon ESU Designated Critical Habitat in the Immediate Project Footprint.

#### 2.4 Action Area

"Action area" means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). The action area for the proposed action encompasses approximately 127 acres. It includes the Project footprint for ground disturbance and construction staging/storage, and all areas within approximately 250 feet of the in-stream construction components where dewatering and water quality effects on federally listed fish species and their juvenile rearing habitat are expected to occur (Figure 4). The proposed action is not expected to cause measurable dewatering, water quality, or other effects beyond this extent.



Figure 4. Action Area for Salt Creek Crossing Replacement Project.

#### 2.5 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).

### 2.5.1 Geography

The action area is located in northern Sacramento Valley approximately 270 to 290 feet above sea level. The landscape surrounding the action area consists of relatively flat grasslands and agricultural orchards with foothills of the southern Cascade Range immediately to the east. The area has a Mediterranean climate characterized by hot, dry summers and mild, rainy winters. The action area is comprised of fallow areas, orchards, and other agricultural lands.

## 2.5.2 Hydrology

The action area is located on Salt Creek approximately 1.8 stream miles upstream of the confluence with the Sacramento River. Salt Creek flows southerly through the action area. The creek is an intermittent, deeply incised, flashy, low-gradient stream that is on average approximately 20 to 30 feet wide at the OHWM. Small diversions for irrigation water exist on almost all the eastside drainages and contribute to conditions of low streamflow during the summer season. Due to the elevation of the watershed, precipitation in the action area primarily occurs as rain, with rare snowfall. During the work window, average monthly precipitation in the region is less than one-half inch (Figure 5). The monthly exceedance probability for two-thirds of an inch rainfall (equivalent to about 15 cfs in Salt Creek) is about 10 percent or less (Figure 6). However, due to the agricultural, urban and industrial landuse in the watershed, it is difficult to account for all the potential hydrologic alterations to Salt Creek (e.g. groundwater pumping, industrial discharges, stormwater runoff). Specifically, a decrease in groundwater pumping by adjacent agricultural wells or an increase in runoff/effluent from properties in the watershed, could result in higher creek base flows than expected based on precipitation patterns analyzed in the BA.



Figure 5. Average regional precipitation for the Project area, Red Bluff, Tehama County, California. Data at Red Bluff Municipal Airport, CA US (USW00024216), 03/19/2008 to 3/19/2018. From Table 3 Page 2-2 of the Biological Assessment.



Figure 6. Monthly Flow Exceedance Probability for Salt Creek. Displayed from Table 5 Page 3-6 of the BA.

# 2.5.3 Aquatic Habitat

Salt Creek provides seasonal aquatic habitat for various life stages of fish that inhabit the Sacramento River watershed. Central Valley spring-run ESU Chinook salmon (hereafter springrun Chinook) and the California Central Valley DPS steelhead (hereafter CCV steelhead) have the potential to occur in the action area. The action area is located within critical habitat for the spring-run Chinook and contains suitable habitat for CCV steelhead. Additionally, the Sacramento River is located approximately 1.8 stream mile downstream from the pipeline crossing and is designated as critical habitat for both aforementioned species, as well as Sacramento River winter-run Chinook salmon ESU (O. tshawytscha) and Southern DPS of North American green sturgeon (Acipenser medirostris). The latter two species are not likely to be present in the action area. The action area contains suitable habitat for the CCV steelhead (Figure 12) and is located within critical habitat for the spring-run Chinook salmon (Figure 2 and Figure 3). The reach provides the species with suitable non-natal rearing habitat during the winter and spring months. Studies indicate that use is significant and non-natal rearing salmon show significantly higher growth rates than fish in the Sacramento River due to better growth condition factors such as higher water temperatures and lower turbidity. Larger size at time of emigration and ocean entry has been shown to result in higher rates of survival to adulthood. For CCV steelhead, critical habitat is located approximately 0.8 stream miles downstream from the pipeline crossing, at the Salt Creek and New Creek confluence. This habitat is suitable for adult migration, juvenile rearing and migration.

# 2.5.3.1 Physical Habitat

The creek is deeply incised, with intermittent flow and flashy hydrology. Undercut banks and riffle-pool complexes within the creek channel provide habitat for aquatic species. Riparian habitat exists along the channel and ranges from moderate to dense within the Project area.

Upstream of the exposed gas pipeline, Salt Creek is moderately shaded due to riparian vegetation that generally is restricted to 30 to 50 feet wide on both banks. At the exposed gas pipeline, a section of approximately 100 feet of Salt Creek is unshaded because of clearing, likely due to past remediation work on the exposed pipeline. Downstream of the exposed gas pipeline the creek channel habitat is similar to the habitat upstream, with low sinuosity and a narrow but dense riparian habitat. However, this downstream section contains less aquatic habitat complexity (i.e., less undercut banks and riffle-pool complexes present) and is a lower gradient and more heavily silted.

# 2.5.3.2 Water Quality

Salt Creek is not listed on the most recent CWA Section 303(d) list of impaired waterbodies. Water quality sampling from nearby Antelope Creek for aquatic life beneficial uses had no exceedance for alkalinity, ammonia, and water temperature. There were some detected exceedances of dissolved oxygen, pH, chlorpyrifos, and malathion in a small percentage of samples. Biological monitoring indicated a healthy benthic macroinvertebrate community and toxicity testing indicated some plant toxicity, but no invertebrate toxicity. Based on proximity and similar land use, it is inferred that Salt Creek more likely than not has adequate

physicochemical water quality (temperature, dissolved oxygen, pH, alkalinity) to seasonally support salmon, but with some exposure to pesticides and herbicides.

#### 2.5.3.3 Fish Community

Chinook salmon and steelhead are known to use Salt Creek for non-natal rearing; however, no regular monitoring of salmonids occurs in the creek. Monitoring for some lifestages of springrun Chinook and CCV steelhead has occurred at different times on nearby Antelope Creek. Other native fishes likely present in Salt Creek include resident rainbow trout (*Oncorhynchus mykiss*), Sacramento sucker (*Catostomus occidentalis*), Sacramento pikeminnow (*Ptychocheilus grandis*), California roach (*Hesperoleucus symmetricus*), three-spine stickleback (*Gasterosteus aculeatus*), hardhead (*Mylopharodon conocephalus*), and sculpin (*Cottus spp.*). Non-native species include largemouth bass (*Micropterus salmoides*), smallmouth bass (*M. dolomieu*), green sunfish (*Lepomis cyanellus*), bluegill (*L. macrochirus*), white catfish (*Ameiurus catus*), and brown bullhead (*A. nebulosus*). At the time of the aquatic habitat assessment completed by Stantec, juvenile California roach, juvenile threespine stickleback, unidentified juvenile salmonid and an adult trout were all observed within the scour pool at the exposed gas pipeline.

### 2.5.4 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° Celsius (°C) – equivalent to 9° Fahrenheit (°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 12°C to 19°C (54°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 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).

### 2.5.5 Environmental Baseline Summary

In summary, Salt Creek is an important, although intermittent and degraded, habitat for native fish species. It has been impacted by agricultural and rural land uses in the area but provides seasonal aquatic habitat for the juvenile rearing life stage of spring-run Chinook and CCV steelhead.

## 2.6 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 activities potentially include impacts from the excavation to remove and replace the pipeline, construction of a cofferdam, water diversion and discharge, removal of erosion mats, and minor fuels and oil spills.



Figure 7. Realignment from existing (purple line) to proposed (green line) will result in permanent impact areas of rock slope protection and submar mat (orange, blue, and tan polygons) in spring-run Chinook salmon critical habitat in Salt Creek. BA enclosures Figure 2a.

The Project is anticipated to permanently impact intermittent stream (Figure 7) thereby directly affecting rearing habitat and migratory corridor PBFs of spring-run Chinook salmon critical habitat. The removal of the existing pipeline and erosion control, and the installation of the new pipeline, rock slope protection and submar mat will create permanent impacts to that bank and creekbed. The Project is also anticipated to result in temporary impacts to riverine habitat of the intermittent streambed that indirectly affects spring-run Chinook salmon and impacts CCV steelhead when they enter and use the area. The residual and delayed impacts of local streambed and bank habitat disturbances in the action area during construction could result in a loss of natural cover (leading to increased predation); increased water temperature (effecting thermal regulation), and an increase in suspended sediment and turbidity in surface runoff from the site during the subsequent winter months' rain storms. Direct effects of construction have a low likelihood of occurring because of the probability of spring-run Chinook salmon or CCV steelhead occurring in or near the action area during the proposed in-channel construction window (summer to early fall months). However, the likelihood of pools of water being present add additional risk in the event dewatering activities are needed, resulting in injury, death, or displacement of federally listed anadromous salmonids. These impacts are described in further detail below.

# 2.6.1 Increased Turbidity and Fine Sediment

Excavation activities related to the removal and replacement of pipeline alignment would result in vegetation loss and soil disturbance. Excavation could also necessitate groundwater dewatering. Long-term exposure to elevated total suspended solids (TSS) conditions can sublethally or lethally influence salmonid behavior (avoidance, holding, migration, attraction, predation, foraging, gill flaring), physiology (stress, tissue damage, reduced growth, mortality), and habitat (sedimentation, embeddedness, interstitial dissolved oxygen concentrations, decreased pool volumes, decreased spawning and emergence). Cleared and graded soils could be mobilized during rainfall and flow events in the few years following construction; however, the proposed action includes measures to control erosion and revegetation to minimize the erosion potential. Implementation of conservation measures to meet the SWPPP and CWA permit conditions would reduce the potential for turbidity and suspended sediment to reach deleterious levels. Construction activities would not result in significant increases of suspended solids and turbidity because of the limited disturbance area below the OHWM and implementation of AMM's for Erosion and Sedimentation Control (Section 1.3.3.2).

# 2.6.2 Hazardous Materials Exposure

Operation of construction equipment in or adjacent to Salt Creek could result in the spill of hazardous materials (i.e., oil, grease, gasoline, solvent, metals, polycyclic aromatic hydrocarbons (PAHs)). These pollutants can potentially alter salmonid egg hatching rates, reduce egg survival, harm the benthic organisms that are a salmonid food source, impair salmonid locomotion, reduce growth and reproduction, damage genes, stimulate tumors, lesions, and developmental abnormalities, cause behavior changes like avoidance, or impair olfactory and brain functions (Abel 2002). Spills from refueling construction equipment could have deleterious effects on any spring-run Chinook salmon and CCV steelhead within close proximity to construction activities. Implementation of conservation measures will reduce the likelihood of spills, to the extent a spill is not expected to occur. Based on the implementation of AMM's for the Prevention of

Accidental Spills and Release of Hazardous Materials (Section 1.3.3.3) spills are not expected to occur.

### 2.6.3 Dewatering Impacts

The in-water work window was selected for a period when juvenile salmonids are less likely to be present based on their life history and habitat needs (e.g. water temperature and flow). Nonetheless, aerial imagery indicates likely pools of water in a recent year during the work window and approximate location where the project is proposed (Figure 8). The presence of inundated habitat during late June 2018 indicates a possible need for dewatering during the proposed June 1 and September 15 in-water work window. Moreover, water in Salt Creek is evident in the imagery for a substantial part of the three-quarter miles from the existing pipeline crossing downstream to the New Creek confluence. Downstream of the confluence, the creek appears to be perennial, likely due to the flow contribution New Creek, a distributary of Antelope Creek, that branches off at the Edwards diversion dam. The aquatic habitat assessment in the BA also documents an unidentified juvenile salmonid and an adult trout in the scour pool at the exposed gas pipeline as of April 2018 – a pool that is still inundated in June based on the aforementioned imagery. The February 15, 2018 Water Diversion Plan prepared for PG&E accounts for the potential of 10 CFS and 3'-0" of high water (Figure 9). However, as noted in the hydrology summary (Section 2.5.2) it is difficult to account for all the potential hydrologic alterations to Salt Creek, especially adjacent agricultural land use, that could result in higher creek base flows than expected based on precipitation patterns analyzed in the BA.



Figure 8. Aerial imagery from late June of 2018 of the approximate crossing locations in late with evident pools of water.



Figure 9. Diagram of Water Diversion Plan for Salt Creek Crossing.

If water diversion pumps were used, they would be installed and operated according to NMFS' water withdrawal and fish screen guidelines, as described in the AMM for Fish Entrainment and Injury at Stream Diversion (Section 1.3.3.6). Despite these precautions, there is a substantial chance that the project could still result in handling or stranding during the dewatering of creek habitat. Anticipated dewatering impacts include fish being impaired, entrained and crushed. Although the Project is expected to remove a potential barrier (i.e., existing pipeline) to instream migration under certain low flow regimes, placement of the cofferdam or Portadam water diversion could potentially impede fish passage due to channel restriction and obstruction. Restriction or delay of passage could prevent juveniles from outmigrating in a timely manner. The construction of the cofferdam or Portadam water diversion could result in the potential for fish to be buried or crushed, resulting in injury or mortality. Additionally, juvenile fish injury and mortality could potentially result from entrainment or impingement on intakes, if water diversion pumps are required to bypass stream flow around the in-channel work area. Dewatering and relocation would involve capturing fish and physically handling and relocating them, which risks injury and death. 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. Therefore, the probability and magnitude of potential direct physical injury from dewatering is expected to be significant.

# 2.6.4 Impacts on Riparian Areas and Stream Bank Habitat

Riparian habitat generally includes the woody and cover vegetation associated with "natural" banks that function to provide shade; sediment, nutrient, and chemical regulation; stream bank stability; and input of woody debris and leaves that provide cover and serve as substrates for food-producing invertebrates. Permanent and temporary impacts to the riparian habitat along and within Salt Creek are expected to result from the proposed action. Permanent impacts on the banks of Salt Creek include the installation of RSP to stabilize the banks and channel of the creek following construction. Temporary impacts on the banks and channel of Salt Creek would occur as a result of the pipeline excavation and other work area disturbances. Following construction, the temporally disturbed areas will be re-contoured and revegetated to match surrounding pre-construction habitat to the extent practicable. The proposed action will also reclaim some riverine and riparian habitat through the removal of the existing ercon mat, which is expected to result in regrowth of riparian vegetation over the next several years. The replacement of the natural bank and channel with engineered materials, disturbance of impacts could result in effects to juvenile spring-run Chinook salmon and CCV steelhead through the disturbance of soils that could cause infrequent, but periodic increases in turbidity and suspended sediment and through physical changes to instream cover and streambed complexity from removal of trees and other vegetation. Impacts would persist post remediation because of the new pipe alignment and armoring of the channel. The magnitude of these impacts is anticipated to cause adverse effects for three to five years as vegetation is allowed to regrow.

# 2.6.5 Effects of the Action Summary

Impacts on Riparian Areas and Stream Bank Habitat will cause adverse effects to spring-run Chinook salmon habitat. Dewatering Impacts will cause adverse effects to both spring-run Chinook salmon and CCV steelhead.

## 2.7 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.

# 2.7.1 Agricultural Practices

Agricultural practices in the Sacramento River and Delta may adversely affect riparian and wetland habitats through upland modifications of the watershed that lead to increased siltation or reductions in water flow in stream channels flowing into the Delta. Unscreened agricultural diversions entrain fish including juvenile salmonids. Grazing activities from dairy and cattle operations can degrade or reduce suitable critical habitat for listed salmonids by increasing erosion and sedimentation as well as introducing nitrogen, ammonia, and other nutrients into the watershed. Stormwater and irrigation discharges related to both agricultural and urban activities contain numerous pesticides and herbicides that may adversely affect salmonid reproductive success and survival rates (Dubrovsky 1998).

## 2.7.2 Increased Urbanization

Increases in urbanization and housing developments can impact habitat by altering watershed characteristics, and changing both water use and stormwater runoff patterns. Increased growth would 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 which are situated away from waterbodies, would not require Federal permits, and thus would not undergo review through the ESA section 7 consultation processes with NMFS.

# 2.7.3 Future Activities

No future Projects within the proposed Project's action area are known at this time. However, water diversions, increased urbanization, and rock revetment Projects are reasonably expected to continue in the future in the greater area. The effects of these actions will 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.

### 2.7.4 Climate Change

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 2.5.4).

## 2.8 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 2.6) to the environmental baseline (Section 2.5) and the cumulative effects (Section 2.7), taking into account the status of the species and critical habitat (Sections 2.2 and 2.3), 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 spring run Chinook salmon and CCV steelhead. We described the factors that have led to the current listing of spring-run Chinook and 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 spring-run Chinook salmon, CCV steelhead, and spring-run Chinook salmon critical habitat from 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 Central Valley spring-run Chinook salmon and CCV steelhead as a result of the proposed action, NMFS uses a hierarchical approach. The condition of each population is summarized in the *Status of the Species* section of this opinion. We then consider how the status of populations in the action area, as described in the *Environmental Baseline* section, are affected by the proposed action. Effects on individuals are summarized, and the consequence of those effects is applied to establish risk to the DPS / ESU.

### 2.8.1 Status of the Species and Environmental Baseline

The status of the spring-run Chinook salmon and CCV steelhead appears to have remained unchanged since their 2016 status reviews and their respective ESU / DPS are likely to become endangered within the near future throughout all or a significant portion of its range (National Marine Fisheries Service 2016a, b). Many of the PBFs of spring-run Chinook salmon critical habitat are degraded and provide limited high quality habitat. These non-natal habitat PBFs that support spring-run Chinook salmon and CCV steelhead will be negatively impacted through the installation of new pipeline and bank armoring. These permanent impacts represent a small loss

in available habitat for spring-run Chinook salmon and 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 Salt 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 spring-run Chinook salmon and CCV steelhead that utilize this area. These baseline factors continue to adversely affect habitat for salmonids that intermittently inhabit Salt Creek.

## 2.8.2 Cumulative Effects

Although future water diversions, urbanization, and channel alteration are likely in the greater region, no future Projects within the proposed Project's action area, nor additional ongoing effects, are known at this time.

## 2.8.3 Effects of the Proposed Action

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 spring-run Chinook salmon. The proposed action will affect this habitat, which already contains degraded PBFs. Pipeline installation in the channel and armoring of the bank will permanently impact Salt Creek. The rearing habitats that remain across the Central Valley 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 those populations of spring-run Chinook salmon and CCV steelhead that rear in Salt Creek.

# 2.8.4 Effects to the CCV Steelhead DPS & Spring-Run Chinook Salmon ESU

Salt Creek is located at the far northwest end of the Northern Sierra Nevada diversity group defined in the recovery plan (NMFS 2014), but is not designated as a core population for either CCV steelhead or spring-run Chinook salmon. Due to its perennial nature and limited habitat, Salt Creek populations are presumably dependent on other nearby populations for their existence. The presence of these populations provide increased life history diversity to the DPS. Restoring intermittent populations in Salt Creek, namely for the juvenile lifestage, would enhance diversity and connectivity between populations benefitting the ESU/DPS as a whole.

Based on the existing conditions in the ESU/DPS, the effects of the permanent and temporary impacts on the habitat would be insignificant in size with implementation of the conservation measures and the anticipated magnitude of action-related disturbance of habitat. The impacts of the proposed project to habitat are small, considering the entire CCV steelhead DPS or spring-run Chinook salmon ESU available habitat.

The proposed Project is not expected to reduce appreciably the likelihood of both the survival and recovery of CCV steelhead and spring-run Chinook salmon in the wild by reducing its numbers, reproduction, or distribution; or appreciably diminishes the value of spring-run Chinook salmon designated critical habitat for the conservation of the species. Based on the foregoing analysis, with implementation of the proposed conservation measures described as part of the proposed action, it is determined that the proposed Salt Creek Pipe Replacement Project:

- Is likely to adversely affect the Federally listed Central Valley spring-run Chinook salmon ESU and the Federally listed California Central Valley steelhead DPS;
- Is likely to adversely affect designated critical habitat for Central Valley spring-run Chinook salmon ESU; and
- May affect, but is not likely to adversely affect designated critical habitat for California Central Valley steelhead DPS.

These determinations are based on multiple factors including: (1) irregular occupation of the action area by the listed anadromous salmonids during the summer construction season limiting direct effects to these species; (2) construction-related losses of riparian habitat would be insignificant in size relative to available habitat.

### 2.9 Conclusion

After reviewing and analyzing the current status of the listed species and critical habitat, the environmental baseline within the action area, the effects of the proposed action, the effects of other activities caused by the proposed action, and cumulative effects, it is NMFS' biological opinion that the proposed action is not likely to jeopardize the continued existence of Central Valley spring-run Chinook salmon ESU nor the California Central Valley steelhead DPS nor destroy nor adversely modify their designated critical habitat for Central Valley spring-run Chinook salmon.

### 2.10 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.

### 2.10.1 Amount or Extent of Take

In the biological opinion, NMFS determined that incidental take is reasonably certain to occur as follows. Since there is no regular monitoring of salmonids in the creek an approximation was made for the small number of salmon expected to be present. An ecological surrogate for

permanent habitat disturbance expected to occur due to the installation of the pipeline and related elements is also provided.

- 1. Take in the form of harm to spring-run Chinook salmon due to loss and degradation of stream channel habitat. Damage to non-natal tributaries decreases opportunities for juvenile rearing and growth. Fish of a smaller body size have lower rates of survival and reduced fitness. The proposed action would result in the permanent discharge of about 0.18 acre of rock slope protection and the placement of up to 0.55 acre of high tensile woven geotextile fabric into Salt Creek stream channel and riparian habitat.
- 2. Take in the form of harm, injury or death to ten juvenile CCV steelhead DPS and ten juvenile spring-run Chinook salmon ESU due to impairing passage, handling, entraining, crushing or stranding during the dewatering of creek 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.

If the footprint of the rock slope protection exceeds 0.24 acre, or the footprint of the high tensile woven geotextile fabric exceeds 0.72 acre, or if more than 13 juvenile CCV steelhead DPS or more 13 juvenile spring-run Chinook salmon ESU are observed within 2,000 feet of the cofferdams during the in-water work window, then the anticipated take levels described are exceeded triggering the need to reinitiate consultation. These levels represent 30% above the anticipated incidental take.

### 2.10.2 Effect of the Take

In this 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 CV spring-run Chinook salmon critical habitat.

### 2.10.3 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. Measures shall be taken to minimize habitat impacts from placement of the erosion control materials (rock slope protection and high tensile woven geotextile fabric) on banks and within the bed of the creek.
- 2. Dewatering and fish relocation operations shall be conducted according to specifications approved by NMFS.
- 3. Measures shall be taken to ensure reporting of Project activities to NMFS by December 31 of the year construction is completed.

#### 2.10.4 Terms and Conditions

The terms and conditions described below are non-discretionary, and USACE or any applicant must comply with them in order to implement the RPMs (50 CFR 402.14). USACE 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. PG&E shall limit the amount of erosion control materials (rock slope protection and high tensile woven geotextile fabric) 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 erosion control materials to be placed.
  - b. USACE shall ensure that PG&E employs BMPs during construction to ensure disturbance to stream banks, channels, and riparian cover are minimized to the maximum extent possible.
  - c. USACE shall ensure that PG&E monitors the area impacted by the footprint of the erosion control materials and ensure that the footprint of the rock slope protection does not exceed 0.24 acre and the footprint of the high tensile woven geotextile fabric does not exceed 0.72 acre. If either area is exceeded, USACE shall ensure that PG&E notifies NMFS.
- 2. The following terms and conditions implement reasonable and prudent measure 2:
  - a. All aspects of dewatering and fish relocation operations shall be supervised by at least one NMFS-approved biologist.
  - b. The biologist will minimize handling of salmonids. Captured fish will be held in a container with a lid that contains cool, shaded water that will be continuously aerated with a battery-powered external bubbler. Fish will not be subjected to jostling or excess noise, will not be overcrowded in the containers, and water temperature in the container will not be allowed to exceed levels allowed by NMFS. Two holding containers will be available to segregate young-of-the-year fish from larger fish to avoid predation.
  - c. USACE shall ensure that PG&E records the date, number, and specific location of all listed fish observed within 2,000 feet of the cofferdams during the in-water work window. If a listed fish is injured or killed by project activities, USACE shall ensure that PG&E contacts NMFS within 24 hours. Notification shall include species identification, the number of fish, and a description of the action that resulted in take.

- 3. The following terms and conditions implement reasonable and prudent measure 3:
  - a. USACE shall ensure that PG&E prepares a report that includes a summary description of in-water construction dates and activities, avoidance and minimization measures taken, any incidence of take (pursuant to recording requirements of RPM 2c), 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 Phone: (916) 930-3600

#### 2.11 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) USACE should require that PG&E consider using alternative methods to traditional RSP for pipeline stream crossing 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) PG&E should minimize the removal of existing riparian and native vegetation to the maximum extent practicable. The contractor should clearly mark or flag with construction tape areas containing vegetation to be protected in order to ensure these areas are not disturbed.
- 3) USACE should require PG&E to implement erosion control measures to be in place around the extent of the in-water work activities to prevent any sediment from entering waterways and causing an increase in turbidity. If silt fence or other non-biodegradable BMPs are installed, they should be removed post-construction and any disturbed soil from removal must be stabilized

### 2.12 Reinitiation of Consultation

This concludes formal consultation for the Salt Creek Crossing Replacement Project.

As 50 CFR 402.16 states, reinitiation of consultation is required and shall be requested by the Federal agency or by the Service where discretionary Federal agency involvement or control

over the action has been retained or is authorized by law and if: (1) The amount or extent of incidental taking specified in the ITS is exceeded, (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion, (3) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion, or (4) a new species is listed or critical habitat designated that may be affected by the action.

#### 2.13 "Not Likely to Adversely Affect" Determinations

Sacramento River winter-run Chinook salmon spawn and rear in main-stem Sacramento River. Adults migrate upstream during the winter and spawn from mid-April to August. They require cool water temperatures since spawning occurs during the summer and rearing in the fall. Southern DPS North American green sturgeon spawn in the Sacramento River and juveniles are thought to rear mainly in the estuary. Preferred spawning habitat includes deep runs and pools over large cobble and gravel substrates but can range from clean sand to bedrock.



Figure 10. Southern DPS of North American Green Sturgeon Designated Critical Habitat near the Project Area.



Figure 11. Sacramento winter-run Chinook Salmon ESU Designated Critical Habitat near the Project Area.



Figure 12. California Central Valley steelhead DPS Designated Critical Habitat near the Project Area.

As shown in (Figure 10 and Figure 11), the proposed action is located upstream and outside of the critical habitat for both of these species. Salt Creek's intermittent flow means that the action area does not contain suitable habitat for either species. The Project's potential effects are anticipated to be localized to the creek (e.g. temporary water quality changes, construction spills, fish passage through the creek, entrainment from creek dewatering, physical injuries, and local riparian effects along the creek bank). These potential impacts are not likely to occur or be measureable in the downstream area where Southern DPS of North American green sturgeon and Sacramento River winter-run Chinook salmon ESU occur.

NMFS concurs with the USACE determination that the proposed action is not likely to adversely affect Sacramento River winter-run Chinook salmon ESU nor Southern DPS of North American green sturgeon nor the critical habitat of either species.

Additionally, although CCV steelhead likely seasonally utilize habitat within Salt Creek and the action area, no designated critical habitat is located in the action area of the proposed project.

### 3. MAGNUSON-STEVENS 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 USACE and descriptions of EFH for Pacific Coast salmon contained in the fishery management plans developed by the Pacific Fishery Management Council (PFMC) and approved by the Secretary of Commerce (Pacific Fishery Management Council 2014).

## 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 are listed below.

Salt Creek includes EFH for salmon, primarily in the form of seasonally suitable non-natal rearing habitat for juvenile Chinook salmon, per the MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267). Chinook salmon are known to occur most commonly in the portion of Salt Creek near its confluence with the Sacramento River as non-natal rearing juveniles (U.S. Fish and Wildlife Service 1995, Maslin et al. 1997).

### 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 2.6) spring-run Chinook salmon and California 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:

- 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)

EFH is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The proposed action would result in localized temporary and permanent impacts amounting up to 0.536 acre of riverine and 1.830 acres of riparian habitat (per Biological Assessment Section 3.4), which are considered elements of EFH, during and immediately following construction; however, the magnitude of the effects on EFH would be collectively small. In summary, proposed action will adversely affect EFH for salmon because Chinook salmon are known to rear in the action area, although the proposed action will not result in significant downstream effects on spawning habitat in the mainstem Sacramento River.

### 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) USACE 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.
- (2) USACE should revegetate areas adjacent to the creek with native plant species.

Fully implementing these EFH conservation recommendations would protect EFH, by avoiding or minimizing the adverse effects described above for 0.536 acre of riverine and 1.830 acres of riparian habitat, which are considered elements of EFH for Pacific Coast salmon.

# 3.4 Statutory Response Requirement

As required by section 305(b)(4)(B) of the MSA, USACE 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

The USACE 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(1)).

### 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:

1) USACE should recommend to contractors to use biodegradable lubricants and hydraulic fluid in construction machinery. The use of petroleum alternatives can greatly reduce the risk of contaminants from directly or indirectly entering the aquatic ecosystem.

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.

## 1.1. Utility

Utility principally refers to ensuring that the information contained in this consultation is helpful, serviceable, and beneficial to the intended users. The intended users of this opinion are USACE. Other interested users could include PG&E and Regional Water Quality Control Board. Individual copies of this opinion were provided to the USACE. The document will be available within two weeks at the <u>NOAA Library Institutional Repository</u> (<u>https://repository.library.noaa.gov/</u>). The format and naming adheres to conventional standards for style.

# **1.2. 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.

### 1.3. 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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