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-2019-02020

December 13, 2019

Mr. Zachary Fancher
Senior Project Manager
Enforcement/Special Projects Branch
Sacramento Regulatory Office
U.S. Army Corps of Engineers
1325 J Street, Suite 1350
Sacramento, California 95814-2922

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 Stanislaus River Crossing Pipeline Decommissioning Project

Dear Mr. Fancher:

Thank you for your letter of July 18, 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 Stanislaus River Crossing Pipeline Decommissioning Project (Project). This consultation was conducted in accordance with the 2019 revised regulations that implement section 7 of the ESA (50 CFR 402, 84 FR 45016).

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 action. However, after reviewing the proposed action, we concluded that it would not adversely affect EFH, therefore, no EFH consultation is required.

Based on the best available scientific and commercial information, the biological opinion concludes that the Project is not likely to jeopardize the continued existence of the federally listed as threatened California Central Valley (CCV) steelhead Distinct Population Segment (DPS) (*Oncorhynchus mykiss*). The biological opinion concludes also, that the Project is not likely to adversely affect the federally listed as threatened Southern DPS of North American green sturgeon (*Acipenser medirostris*), and CCV steelhead DPS designated critical habitat.

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 (16 U.S.C. 661 et seq.).

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.

Please contact Kate Spear at the California Central Valley Office at 916-930-3683 or Kate.Spear@noaa.gov 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-SA00529

Ms. Kathleen Caringi, Pacific Gas and Electric Company, KMHo@pge.com

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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

Stanislaus River Crossing Pipeline Decommissioning Project

National Marine Fisheries Service Consultation Number: WCRO-2019-0529

Action Agency: U.S. Army Corps of Engineers

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 (*Oncorhynchus mykiss*)	Threatened	Yes	No	No	n/a
Southern DPS of North American green sturgeon (*Acipenser medirostris*)	Threatened	No	n/a	n/a	n/a

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

Issued By:

Maria Rea
Assistant Regional Administrator

Date: ***December 13, 2019***

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.

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 (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 June 25, 2019, the U.S. Army Corps of Engineers (USACE) requested concurrence from NMFS, that the proposed issuance of a permit to the Pacific Gas and Electric Company (PG&E), for the Stanislaus River Crossing Pipeline Decommissioning Project (Project), was not likely to adversely affect listed species and critical habitat. Potential impacts to California Central Valley steelhead (CCV) (*Oncorhynchus mykiss*) and Southern Distinct Population Segment (sDPS) of North American green sturgeon (*Acipencer mediorostris*), critical habitat for CCV steelhead, and EFH for Pacific Coast Salmon were considered in the biological assessment (BA).

Between June 25 and July 17, 2019, USACE and NMFS discussed the Project activities as outlined in the BA and potential clarifications needed in a series of phone and email exchanges. USACE decided they would resubmit a request for formal consultation due to the likelihood of adversely affecting a listed species or designated critical habitat.

On July 18, 2019, USACE contacted NMFS to request formal consultation for the Project and submitted a complete initiation package. NMFS initiated consultation on this date.

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 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 the proposed action would cause any other activities and determined that it would not.

1.3.1 PROJECT LOCATION

The proposed Project is located on the Stanislaus River and its shorelines between the City of Ripon and the City of Salida, in Stanislaus County, California. The approximate coordinates are latitude 37°43'22.64" N and longitude 121°07'47.08" W and the site is located in the Ripon, California U.S. Geological Survey 7.5-minute topographic quadrangle (Figure 1).

1.3.2 PROPOSED ACTION DESCRIPTION

PG&E is proposing to decommission and remove the previously retired PG&E 12-inch nominal Stanislaus River pipeline crossing to adhere with general California pipeline river crossing abandonment protocols. The Project involves removal of a section of the pipeline that is exposed at the south end of the crossing. This crossing was retired and replaced prior to this consultation with a new 12-inch nominal crossing installed using horizontal direction drilling approximately 150 feet east of the original crossing. When the original crossing was retired and replaced, it was separated from the pipeline at two onshore points where the replacement crossing was tied in to the existing pipeline. The retired crossing segment is now isolated from the carrier pipeline. The onshore ends of the retired crossing are assumed to be capped with steel plates, as is generally required for PG&E pipeline abandonments.

The onshore, north and south ends of the retired crossing segment will be excavated in order to prepare the ends with installation of the flanges for use in pigging and flushing the crossing segment and for use in installing a cement slurry plug the length of the retired crossing segment. The entire length of the retired pipeline will be pigged (a device called a "pig" sweeps the inside of the pipeline, scraping the sides and pushing any debris ahead) and flushed to ensure that total petroleum hydrocarbon (TPH) levels are below 15 parts per million (PPM). The entire 40-foot pipeline will be filled with cement slurry. A low-pressure air test to the retired crossing would ensure that the pipeline is watertight through the underground river crossing, ensuring there will be no leakage of TPH or concrete slurry. Once filled with cement slurry, the flanged pipeline ends will be removed, and steel caps will be welded to each end to permanently seal the pipeline.

Upon completion of the concreting operation, the approximately 40-foot long section of exposed pipeline on the southern shoreline of the river will be removed. Construction crews and divers will install a turbidity curtain to control fluidized sediment during excavation. A Regional Water Quality Control Board (RWQCB)-approved turbidity monitoring program will also be implemented. Divers will excavate the riverbed around the pipe crossing segment that rises out

of the riverbed and cut the pipeline riser a minimum of 5 feet below the existing riverbed elevation. Onshore construction crews and equipment will excavate the bank on the south shoreline where the exposed pipeline enters that bank and cut this horizontal section of pipeline at a point where there is a minimum of 5 feet of cover over the pipeline. A 1/2-inch steel plate will be welded on the end of the remaining onshore pipeline and the excavation will be backfilled and compacted in 6-inch lifts using the excavation spoils to original contours. The remaining underwater pipeline termination end will be left in place at a minimum depth of five feet.

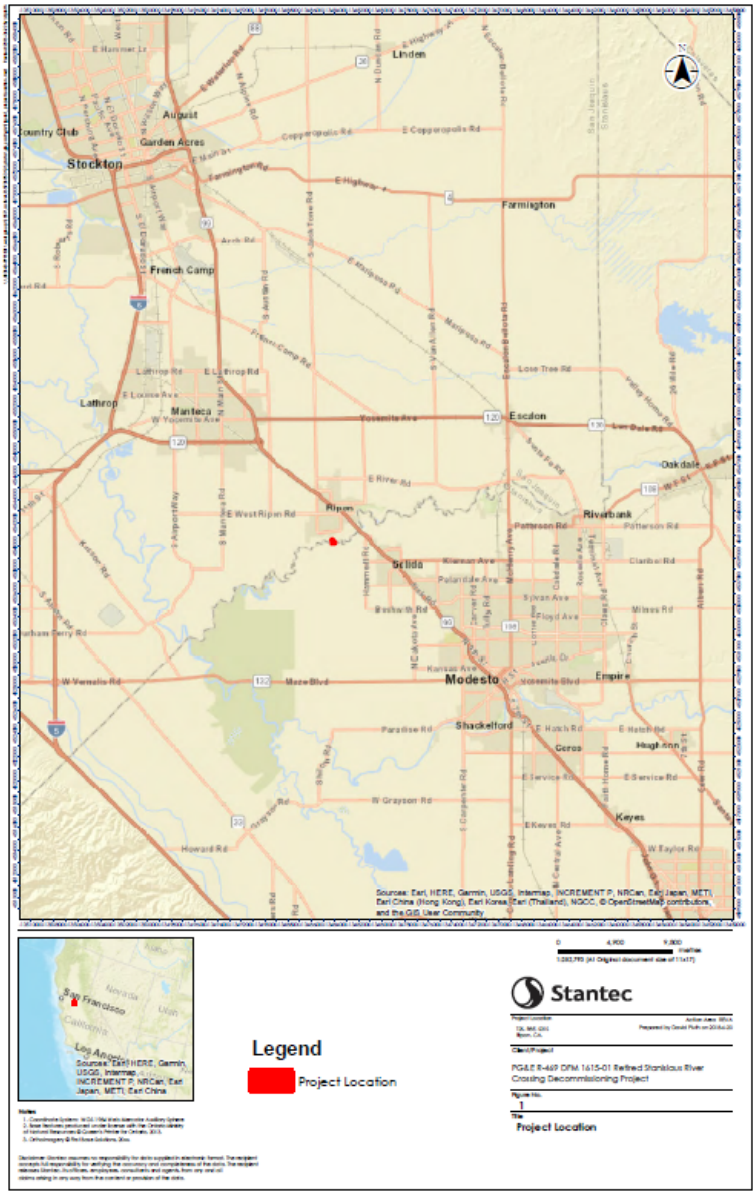

Figure 1. Project Location

1.3.3 CONSTRUCTION ACTIVITIES

Decommissioning
This phase will begin once Federal permits are provided and the Project Work and Safety Plan, environmental compliance plan, and PG&E's Environmental Release to Construction have been approved. In this phase, the retired crossing will be decommissioned in keeping with general California pipeline river crossing abandonment protocols and prepared for opening to the river when the pipeline is cut underwater during the removal phase.

The final disposition of the retired crossing will consist of an underground concrete filled pipe capped with 1/2-inch steel plates at the three onshore ends (northern worksite, southern worksite, and the cut point inside the upper bank at the shoreline worksite), with an approximately 40-foot long segment of this concrete filled pipe removed at the southern shoreline. Basic decommissioning phase activities will consist of the actions identified below.

Pigging and Flushing
Before the retired crossing pipeline can be opened to the river it must be pigged and flushed to ensure that TPH levels in the pipeline are less than 15 PPM. This will be accomplished by pressing a soft pig through the pipeline from the northern to the southern end of the retired crossing. The soft pig will be pressed through the pipeline with approximately 4,550 gallons of freshwater supplied by truck to the northern worksite. Once the pig has been pressed through the pipeline, it will be flushed with additional freshwater as needed to ensure that the TPH level of the water is less than 15 PPM as tested by a state certified laboratory. The wastewater will be captured by a vacuum truck and transported to approved offsite treatment and disposal. Total flush water volume to occur is estimated at less than 5,000 gallons.

The process of pigging and flushing is proposed as follows:

Step 1 – Excavate the onshore ends of the retired crossing segment, remove any caps on those ends, and install temporary slip-on flanges for use in pigging and flushing the retired crossing segment and for use in installing a concrete slurry plug the length of the retired crossing segment. The crossing segment ends may be the existing pipe ends at the north and south ends of the retired crossing, or, if found more convenient upon completion of the pre-decommissioning topographic and pipeline location survey, pipeline end points may be selected, excavated and cut at points closer to the river than the existing retired crossing ends. Setup tankage at the southern pipe end to receive and store flush water.

Step 2 – Remove the drip line from the bend in the exposed segment of the crossing at the south shoreline and install a temporary plate patch where the drip line was removed from the pipeline.

Step 3 – Install temporary flanges on the northern and southern ends of the pipeline. Apply a low-pressure air test to the retired crossing to ensure that the crossing is watertight through the underground river crossing. This will be done to ensure that there is no chance of release of flush water or concrete during the flushing operations and later concreting operations.

Step 4 –Install a pre-fabricated pig launcher on the northern pipe end and a pre-fabricated pig receiver on the southern pipe and press a foam pig with freshwater (approximately 4,550 gallons trucked to the site) from north to south. The flush water will be captured at the south end in portable tankage. Additional flushing will be conducted until the flush water appears to be clean (visually and relatively odor free). The flush water will be sampled at the pig receiver at the south end of the retired crossing and tested for TPH content by a state certified laboratory.

Cement Slurry Fill
Once the retired crossing flush water has been certified at less than 15 PPM, the retired crossing will be filled with cement slurry.

Step 1 – Insert a second foam pig into the pig launcher at the north end of the retired crossing.

Step 2 – Bring in a trailered concrete pump at the northern end and connect to pig launcher end with concrete hoses. Hook up the pig receiver at the southern end to the onsite tankage to receive the wastewater in the pipeline as the cement slug displaces the wastewater at the southern end.

Step 3 – Pump cement slurry into the northern end and press the foam pig to the southern end of the retired crossing with the cement slurry. Displace the wastewater in the retired crossing to the onsite tankage at the southern end. Approximately 23 cubic yards (three Ready-Mix truckloads) will be required. The cement slurry shall consist of a neat one-sack cement mix, or equivalent.

Step 4 – Once the cement slurry in the retired crossing has cured sufficiently (approximately 48 hours), the flanged pipe ends will be cut off by oxy-acetylene torch and the ends will be capped with welded 1/2-inch thick A36 steel plates.

Step 5 – The excavations at the northern and southern pipe ends will be backfilled, compacted, and returned to pre-project contours. Within the southern shoreline work area, up to approximately 1,000 square feet of vegetation may need to be removed to access the retired pipeline. The vegetation in this work area consists of riparian vegetation such as mugwort (*Artemisia douglasiana*) and wild grape (*Vitis californica*) and non-native annual grasses.

Southern Shoreline Removal of Exposed Segment
This phase will begin once the retired crossing has been cleaned and filled with cement. The focus of this phase is the removal of the exposed segment of pipe at the southern shoreline.

In-Water Work

Step 1 – Working from the southern shoreline and from a skiff, the crew will install a Type 2 turbidity curtain around the riverbed excavation site. The curtain will enclose an approximately 40-foot by 40-foot area around the excavation to capture fluidized sediment. A turbidity monitoring plan, approved by the RWQCB, will also be employed whenever in-channel work is taking place.

Step 2 – Working from the southern bank above the shoreline, the excavator will excavate the riverbed around the pipeline where it emerges from the river bottom to a depth approximately 7

feet below the surface of the riverbed. The excavation walls will be cut back on an approximately 2:1 slope. Excavation cuttings will be side cast on the riverbed outside of the excavation. Divers will complete the excavation by hand.

Step 3 – Setup a dive spread (personnel and equipment) at the southern shoreline. The dive spread will include a jet pump with hand jetting equipment which will be used to perform underwater excavation, if necessary. The dive spread will also include air operated chippers for removing pipeline weight coating and a diesel-driven welding machine with oxy-arc tubular electrode underwater cutting equipment to cut the pipeline.

Step 4 – The divers will complete the excavation of the riverbed around the vertical pipe riser to a point approximately 7 feet below the surface of the riverbed and ensure that the excavation walls are cut back on an approximately 2:1 slope. Excavation cuttings will be side cast on the riverbed outside of the excavation.

Step 5 – Once the excavation around the pipeline has been established, the divers will remove a ring of weight coating from the pipeline at an elevation approximately 1 to 2 feet above the bottom of the trench floor. The coating chips will be recovered to the extent that the underwater river conditions and water currents will permit. The divers will cut the steel pipe at this location using oxy-arc underwater cutting equipment. The exposed segment will not be in danger of toppling when the underwater cut is made because the above-water cut at the upper bank will not be made until the underwater cut has been completed. The underwater excavation will be backfilled with 3/4-inch minus washed local gravel. Upon completion of all underwater work, divers and construction crew will remove the turbidity curtain.

Above water Work

Step 1 – Onshore, once the underwater work is completed, the excavator will be positioned over the pipeline alignment where it enters the upper bank. The excavator will expose the pipeline 5-feet back into the upper bank. A bell hole will be dug around the horizontal pipeline and this final segment of pipeline will be cut and removed. The excavator will be used to hold and lift pipe sections as they are cut from the waterline back to the shoreline. The cut segments will be set on the upper bank and transported by truck to an approved offsite disposal site.

Step 2 – A 1/2 -inch thick steel plate will be welded on the end of the remaining on-shore pipeline and then the excavation will be backfilled and then the excavation will be backfilled in 6-inch lifts using the spoils from the trench excavation and compacted. Because a steel cap is not required for an underwater termination of a concreted in-place pipeline segment buried 5 feet or more, the remaining underwater pipeline end will remain as is (i.e., filled with cement). The removed pipeline segment will be taken offsite and disposed of at an approved facility. The upper bank excavation will be backfilled using spoils from the trench excavation and compacted. Additional native backfill will be trucked in if needed to return the excavation to pre-removal contours.

Step 3 – Bank restoration, site clean-up and restoration.

Hazardous Substances Management
To address the potential release of hazardous substances, PG&E has prepared a Hazardous Substances Spill Contingency Plan for the Project. A release will typically occur as a relatively small or slow release of hydrocarbons in aqueous solution that can be contained, that may occur during the cleaning process and/or slurry-fill activities. A leak response plan will beimplemented during these activities.

Groundwater Management
As per statewide programmatic permit for gas projects (Water Quality Order 2017-0029-DWQ), construction activities may discharge filtered groundwater to land and/or surface waters as long as the filtered effluent water meets criteria outlined in the permit, following consultation with the California RWQCB.

Vegetation Management
Access to the northern worksite will be from Vera Avenue and along private dirt roads. Access to the southern worksite will be from a dirt road on private property located off Hall Road. No vegetation removal is anticipated for this Project along the access roads for construction equipment and vehicles.

Within the southern shoreline work area, up to approximately 1,000 square feet of vegetation may need to be removed to access the retired pipeline. The vegetation in this work area consists of riparian vegetation such as mugwort (*Artemisia douglasiana*) and wild grape (*Vitis californica*) and non-native annual grasses.

Construction Schedule
Construction activities are scheduled for August to September 2020. Work within the river channel and shoreline area is expected to last no more than 20 days. All in-water work would be completed by September 15, 2020, and is anticipated to last no more than one week.

Construction Equipment Anticipated
- 2 Crew Trucks
- 2 Water Trucks (4,000 gallon)
- 2 Vacuum Trucks (4,000 gallon)
- 2 Welding Trucks
- 2 Cat 345 Excavator
- 2 Cat 320 Long Reach Excavator
- 3 Cement Trucks
- 1 Cement Pump
- 1 Shallow Air Dive System
- 1 Excavation Pump
- Turbidity Mitigation Equipment

1.3.4 SPECIES SPECIFIC AVOIDANCE AND MINIMIZATION MEASURES

In assessing the potential environmental effects of the proposed Project, PG&E identified that the Project vicinity could potentially support CCV steelhead and sDPS green sturgeon, both listed as threatened under the ESA. A number of construction best management practices (BMPs) and other measures to avoid or minimize impacts to surrounding resources, including the listed species and critical habitat, will be implemented as part of the proposed action. These construction BMPs and other conservation measures are described below for each of the potential impacts to resources, including listed species and critical habitat, that they are designed to address.

Conservation Measure 1 – Limited In-Channel Work Period
Under the proposed action, all in-water work will occur between July 15 and September 15. In a typical year, during this time period, water temperatures are usually too warm for salmonids to persist in the action area. As such, the limited work window will function to avoid or minimize impacts to listed fish species because the proposed timeframe is when these fish species are unlikely to be present in the action area.

Conservation Measure 2 – Erosion and Sedimentation Control
Erosion control measures to protect water quality and aquatic habitat will be implemented during construction of the proposed action. Such provisions will include the preparation of a Storm Water Pollution Prevention Plan (SWPPP), which will describe and illustrate best management practices. Erosion control measures typically included in the SWPPP or otherwise implemented by PG&E include the following:

• To the extent practicable, activities that increase the erosion potential will be restricted to the relatively dry summer and early fall period to minimize the potential for rainfall to transport upland sediment to surface water features. If these activities must take place during the late fall, winter, or spring, temporary erosion and sediment control structures will be in place and operational at the end of each construction day and will be maintained until permanent erosion control structures are in place.

• Suitable BMPs will be implemented, such as placing silt fences, straw wattles, or catch basins below all construction activities at the edge of surface water features to intercept sediment before it reaches the waterway. These structures will be installed prior to any clearing or grading activities.

• If spoil sites are used, they will be placed where they drain away from a surface water feature, if possible. If a spoil site would drain into a surface water feature, catch basins will be constructed to intercept sediment before it reaches the feature.

• Sediment control measures will be in place prior to the onset of the rainy season and will be monitored and maintained in good working condition until disturbed areas have been revegetated.

• No monofilament plastic will be used for erosion control. Materials used would include burlap, coconut fiber, or other material as identified in the SWPPP.

PG&E's proposal includes compliance with the terms of a Clean Water Act (CWA) Section 404 permit issued by the USACE and Section 401 water quality certification issued by the RWQCB for activities involving the discharge of fill material in the Stanislaus River. For activity in and along the Stanislaus River, PG&E will also comply with the terms of a Streambed Alteration Agreement with the California Department of Fish and Wildlife (CDFW). Prior to any discharge of dredged or fill material into wetlands and other waters located in the action area, the required permits and authorizations will be obtained from the respective agencies. All terms and conditions of the required permits and authorizations will be implemented.

Conservation Measure 3 – Prevention of Accidental Spills and Release of Hazardous Materials

PG&E will implement the conservation measures listed below to prevent hazardous materials from entering surface and ground waters during all construction activities:

• Develop and implement site-specific BMPs, a Hazardous Substances Spill Contingency Plan, a water pollution control plan, and emergency spill control plan to contain and remove any toxic materials released into the Stanislaus River.

• Vehicles and equipment used during construction will receive proper and timely maintenance to reduce the potential for mechanical breakdowns leading to a spill of fuel, lubricants and other automotive fluids.

• All construction equipment will be inspected daily for leaks prior to the start of any activities.

• Equipment operating within the river channel will use non-toxic vegetable oil for operating hydraulic equipment instead of conventional hydraulic fluids.

• Vehicular and equipment refueling will not occur within 100 feet of a wetland, vernal pool, stream, drainage, or other waterway unless secondary containment is constructed (e.g., a berm and lined refueling area) or the topography of the site drains away from a wetland/waterway. Proper spill prevention and cleanup equipment must be maintained in all refueling areas.

• Any stationary equipment that may be used (e.g., pumps, generators, compressors, lights) must be positioned over secondary containment.

• Water storage tanks and poly tanks if used, must be positioned over drip or spill protection.

• Apply a low-pressure air test to the retired crossing to ensure that the crossing is watertight through the underground river crossing, to ensure there will be no leakage of TPH or concrete slurry.

• PG&E and its decommissioning contractor will maintain an onsite spill response team to and clean up spills during decommissioning activities. The onsite response team is responsible for

reporting any spills as well as containment and cleanup of any small spills using onsite equipment and procedures. The onsite team will be supervised by the decommissioning Project manager and will include all qualified decommissioning contractor personnel working onsite at the time of the spill.

• The onsite spill response team will have access to an appropriate quantity of sorbent pads, sorbent boom, and containment boom, which will be maintained onsite during decommissioning activities. In the event of a spill, the decommissioning Project manager will immediately cease Project operations in order to deploy boom or apply sorbent pads.

Conservation Measure 4 – Prevention of Spread of Invasive Species
The following measures will be implemented to prevent the spread of invasive species in the action area:

• All equipment used for off-road construction activities will be weed free prior to entering the action area.

• Any seed mixes or other vegetative material used for re-vegetation of disturbed sites will consist of locally adapted native plant materials to the extent practicable.

• Construction equipment will be properly disinfected or cleaned according to guidance provided by the State of California Aquatic Invasive Species Management Plan (CDFG 2008) prior to in-channel work to prevent the spread of aquatic invasive species.

Conservation Measure 5 – Turbidity Curtain Use and Turbidity Monitoring Plan
To minimize issues with turbidity from underwater excavation during the pipeline removal phase, a turbidity curtain will be installed around the excavation area. This curtain will consist of a DOT Type 2 floating turbidity barrier designed to contain silt and turbidity in moving water applications, such as rivers. This curtain should contain the suspended silts and materials. However, to ensure that the silt curtain is mitigating the turbidity, a Turbidity Monitoring Plan (TMP) will also be implemented to confirm turbidity levels outside of the curtained area.

The TMP will be implemented by an onsite environmental monitor when conducting in-channel work on the Project. The purpose of the TMP is to present the procedures and protocols that will be used to monitor the turbidity levels in the Stanislaus River during the proposed Project and to establish thresholds for increases in background turbidity during the proposed Project activities. This TMP is being prepared to address the concerns of all involved agencies that the Project activities could cause a harmful increase in turbidity levels in the Stanislaus River. It will provide a method other than visual observation that the environmental monitor can employ to determine when an increase in turbidity exceeds the allowable thresholds established for in-channel work.

Conservation Measure 6 – Fish Entrapment Prevention
While it is unlikely that any ESA-listed fishes would be present in high numbers during the limited in-channel construction work window, measures would be taken in the event any listed fish occur near the proposed Project and could be entrapped within the turbidity curtain. To reduce this potential, the small area where the turbidity curtain would be installed (a 40 by 40-

foot curtain, likely only partially in the wetted channel, allowing for fish passage around the curtain), will be visually inspected for fish presence prior to installation. Any fish that may incidentally get trapped within the curtain would be carefully herded out of the area to be enclosed by qualified biologists using a beach seine. A minimum of three passes to ensure removal of all fish potentially present would be implemented. Any fish that cannot be herded by seines away from the work area, would be captured and immediately released in suitable habitat away from the action area, with comparable habitat and water quality conditions. Immediately following completion of the in-water work (in-water work would not exceed one week), the curtain would be removed allowing access and free fish passage throughout the action area. The curtain would only be installed in a small portion of the channel and will not completely block fish passage in the channel while it is installed.

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 habitat. 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 could adversely affect CCV steelhead, their critical habitat, and sDPS green sturgeon. We determined CCV steelhead critical habitat and sDPS green sturgeon will not be adversely affected. This determination is documented in the "Not Likely to Adversely Affect" Determinations section (2.12).

2.1 Analytical Approach

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

This biological opinion 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 and Critical Habitat

This Opinion examines the status of each species that would be adversely affected by the proposed action. The status (see Table 1) 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. Table 1. Description of species, current Endangered Species Act (ESA) listing classification and summary of species status.

Species	Listing Classification and Federal Register Notice	Status Summary
California Central Valley steelhead Distinct Population Segment (CCV steelhead)	Threatened, 71 FR 834; January 5, 2006 (Original listing – 63 FR 13347; March 19, 1998)	According to the NMFS (2016c) 5-year species status review, the status of CCV steelhead has changed little since the 2011 status review, which concluded that the DPS was likely to become endangered within the foreseeable future. Most populations of natural-origin CCV steelhead 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 natural-origin 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.

2.2.1 Recovery Plans

In July 2014, NMFS released a final Recovery Plan for endangered Sacramento River winter-run Chinook salmon evolutionarily significant unit (ESU, *Oncorhynchus tshawytscha*), threatened Central Valley spring-run Chinook salmon ESU (*O. tshawytscha*), and CCV steelhead (NMFS 2014, Recovery Plan). The Recovery Plan outlines actions to restore habitat, access, and improve water quality and quantity conditions in the Sacramento River to promote the recovery of listed salmonids. Key actions for the Recovery Plan include conducting landscape-scale restoration throughout the Delta, incorporating ecosystem restoration into Central Valley flood control plans that includes breaching and setting back levees, and restoring flows throughout the Sacramento and San Joaquin River basins and the Delta.

2.2.2 Global Climate Change

One factor affecting the range-wide status of salmonids, green sturgeon, and aquatic habitat at large is climate change.

The world is about 1.3 degrees Fahrenheit (°F) warmer today than a century ago and the latest computer models predict that, without drastic cutbacks in emissions of carbon dioxide and other gases released by the burning of fossil fuels, the average global surface temperature may rise by two or more degrees in the 21st century (IPCC 2007). Much of that increase likely will occur in the oceans, and evidence suggests that the most dramatic changes in ocean temperature are now occurring in the Pacific.

Sea levels are expected to rise by 0.5 to 1.0 meters in the northeastern Pacific coasts in the next century, mainly due to warmer ocean temperatures, which lead to thermal expansion much the same way that hot air expands. This will cause increased sedimentation, erosion, coastal flooding, and permanent inundation of low-lying natural ecosystems (*e.g.*, salt marsh, riverine, mud flats) affecting listed salmonid and green sturgeon PBFs. Increased winter precipitation, decreased snow pack, permafrost degradation, and glacier retreat due to warmer temperatures will cause landslides in unstable mountainous regions and destroy fish and wildlife habitat, including salmon-spawning streams. Glacier reduction could affect the flow and temperature of rivers and streams that depend on glacier water, with negative impacts on fish populations and the habitat that supports them.

Summer droughts along the South Coast and in the interior of the northwest Pacific coastlines will mean decreased stream flow in those areas, decreasing salmonid survival and reducing water supplies in the dry summer season when irrigation and domestic water use are greatest. Global warming may also change the chemical composition of the water that fish inhabit: the amount of oxygen in the water may decline, while pollution, acidity, and salinity levels may increase. This will allow for more invasive species to overtake native fish species and impact predator-prey relationships (Stachowicz *et al.* 2002).

In light of the predicted impacts of global warming, the Central Valley has been modeled to have an increase of between 2 and 7 degrees Celsius (between 35.6 and 44.6 °F) by 2100, with a drier hydrology predominated by rainfall rather than snowfall (Dettinger 2004, Hayhoe *et al.* 2004, VanRheenen 2004). This will alter river runoff patterns and transform the tributaries that feed the Central Valley from a spring and summer snowmelt dominated system to a winter rain dominated system. It can be hypothesized that summer temperatures and flow levels will become unsuitable for salmonid survival. The cold snowmelt that furnishes the late spring and early summer runoff will be replaced by warmer precipitation runoff. This will truncate the period of time that suitable cold-water conditions exist downstream of existing reservoirs and dams due to the warmer inflow temperatures to the reservoir from rain runoff. Without the necessary cold water pool developed from melting snow pack filling reservoirs in the spring and early summer, late summer and fall temperatures downstream of reservoirs, such as Lake Shasta, could potentially rise above thermal tolerances for juvenile and adult salmonids that must hold and/or rear downstream of the dam over the summer and fall periods.

2.3 Action Area

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

The action area (Figure 2) encompasses 7.5 acres and includes all areas proposed for ground disturbance and construction staging/storage. The action area extends 300 feet downstream of the proposed decommissioning pipeline location along the river channel to account for potential current-carried turbidity impacts during in-channel work.

Figure 2. Project Action Area

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).

The Stanislaus River is a tributary to the San Joaquin River in the southern portion of California's Central Valley. The river, which drains an approximately 1,100 square miles (2,849 square kilometers) watershed, has a north, middle, and south fork, which each originate in the Sierra Nevada range. The Middle Fork and North Fork join together to form the main Stanislaus, which then flows into New Melones Reservoir. The South Fork of the Stanislaus River also flows into New Melones Reservoir. Elevations in the watershed range from 13,000 feet (4,000 meters) at its source to 50 feet (15 meters) at the confluence with the San Joaquin River. The proposed Project is located on the Stanislaus River and its shorelines between the City of Ripon and the City of Salida, in Stanislaus County, California at the approximate coordinates of latitude 37°43'22.64" N and longitude 121°07'47.08" W.

Native fishes observed at the proposed Project site or likely present include fall-run Chinook Salmon, Rainbow Trout/Steelhead, Pacific Lamprey (*Entosphenus tridentatus*), Western Brook Lamprey (*Lampetra richardsoni*), Sacramento Pikeminnow (*Ptychocheilus grandis)*, Sacramento Sucker *(Catostomus occidentalis)*, Threespine Stickleback (*Gasterosteus aculeatus*), Riffle Sculpin (*Cottus gullosus*), Prickly Sculpin *(Cottus asper*), and Tule Perch *(Hysterocarpus traski*). Non-native fishes observed at the site or likely present include Black Bass (*Micropterus* spp.), Striped Bass (*Morone saxatilis*), Sunfish (*Lepomis* spp.), Crappie (*Pomoxis* spp.), and Bullhead (*Ameriurus* spp.) (Moyle 2002).

The riparian vegetation present at the site includes valley oak (*Quercus lobata*), interior live oak (*Quercus wislizeni*), Fremont cottonwood (*Populus fremontii*), Oregon ash (*Fraxinus latifolia*), western sycamore (*Platanus recemosa*) and willows (*Salix* spp) (Vaghti *et al.* 2015). The riparian understory is dominated by Himalayan blackberry (*Rubus armeniacus*), a non-native species, with white mulberry (*Morus alba*; non-naitve), California button-willow (*Cephalanthus occidentalis* var. *californicus*), sandbar willow (*Salix exigua*) and California wild grape (*Vitis californica*) also being common (Vaghti *et al.* 2015). Trees are present in the upland portion of the action area but not in the construction footprint on the shoreline.

Instream habitats in the Goodwin Dam to Orange Blossom Bridge reach of the lower Stanislaus River have been modified or converted for uses such as agriculture, rural residential, gravel and gold mining, water impoundments, increased water diversions, decreased instream flows, and levees. These major actions and other events have led to the deterioration of riparian and aquatic habitat conditions on the lower Stanislaus River. Many areas within the lower Stanislaus River's

historic corridor, including floodplains, side channels, and other off channel areas, are now hydrologically disconnected from the main channel during more frequent flood flows (1.5 to 5 year recurrence interval) due to channel incision, levees, and reduction in flood flows due to flow regulation (Kondolf *et al.* 2001). Various types of cover are present, including submerged terrestrial vegetation and roots, instream woody material, and overhead cover provided by low-growing riparian vegetation (Sellheim *et al.* 2015). Some locations support aquatic macrophytes that also provide cover for fish.

The Stanislaus River and its floodplain historically supported dense riparian woodland. While much of the Central Valley upland and foothills were historically covered by sparsely wooded grasslands, pre-settlement riparian zones supported dense, multistoried stands of broadleaf trees, including valley oak *Quercus lobata,* Fremont cottonwood *Populus fremontii,* western sycamore *Platanus racemosa,* willow *Salix* spp., Oregon ash *Fraxinus latifolia,* box elder *Acer negundo,* California black walnut *Juglans californica,* white alder *Alnus rhombifolia* and other species (Thompson 1961, Roberts 1984, Holland and Keil 1995). These riparian forests varied greatly in width, from a narrow strip in confined reaches to several miles wide on broad alluvial floodplains (Thompson 1961).

Local accounts of the Stanislaus River describe the rich aquatic and terrestrial fauna supported by riparian habitats (Elias 1924). Currently, the Stanislaus River downstream of Goodwin Dam generally has a narrow strip of riparian vegetation along both of its banks. Riparian habitat along the lower Stanislaus River has been reduced by approximately 50 percent due to agricultural and residential development as well as channel and flow modification (USFWS 1995).

Prior to dam construction, the Stanislaus River is believed to have supported steelhead (Zimmerman *et al.* 2008) and both spring and fall-run Chinook salmon (Yoshiyama et al. 2001).

Chinook salmon and CCV steelhead are the primary focus of management efforts today. Fall-run Chinook salmon in the Stanislaus River typically emigrate to the ocean in the spring of their first year (Watry *et al.* 2007, Watry *et al.* 2008) and spend 2 to 4 years in the ocean before returning to their natal stream to spawn (Anderson *et al.* 2007).

Goodwin Dam (RM 58.4) is the uppermost extent of fish migration, limiting all anadromous species and life stages to the low gradient lower river. Natural salmonid production is limited as the historic access to spawning and rearing habitat in higher elevation river reaches is blocked. This dramatically reduces the suitable available habitat. Chinook salmon natural production estimates during recent years have fallen considerably short of the Anadromous Fish Restoration Program production goal (22,000) for the Stanislaus River (USFWS 2001). The largest Chinook salmon escapement estimate since 1975 was 13,473 in 1985, which is still short of the production goal.

The Stanislaus River is lacking in floodplain and side channel areas that inundate regularly and in channel complexity, which has resulted in very limited juvenile salmonid rearing habitat (NMFS 2014). The primary aquatic habitat types in the action area are riffles and runs. There is one large, deep pool in the site. The north side of the channel contains a remnant vegetated floodplain that is perched and is rarely inundated under the current flow regime. The south side

of the channel has a relatively steep, vegetated bank along the majority of the Project site with a large rock outcropping that maintains the large pool. Many of the Chinook salmon and steelhead juveniles rearing within the action area are observed holding in association with submerged vegetation and woody material (Cramer Fish Sciences unpublished data). The quality and quantity of salmonid spawning habitat in the lower Stanislaus River has also been reduced by anthropogenic impacts (Kondolf et al. 2001, NMFS 2014). Patches of gravel are present in the Project area and have been observed to be used for spawning by fall-run Chinook salmon (CFS 2015).

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).

Based on the best available scientific information, the aquatic habitat in the action area is only seasonally suitable and used mainly for adult and juvenile migration of CCV steelhead, with a potential for juvenile transitory rearing in the action area. Albeit this is a low potential, due to a lack of physical cover preferred by juvenile steelhead and typically warm, unsuitable summer water temperatures.

CONSTRUCTION EFFECTS

Effects to listed CCV steelhead caused by construction activities including, but not limited to, the installation of the turbidity curtain, underwater excavation to remove the retired pipeline, and potential spills and discharges of hazardous materials (i.e., TPH, uncured concrete slurry, fuels and lubricants), have a low likelihood of occurring with implementation of the avoidance and minimization measures as described in Section 1.2. Additionally, the probability of any life stage of steelhead occurring in or near the action area during the proposed in-channel construction window is low, due to the annual periodicity of this species' life history and generally unsuitable, high water temperatures in the action area during the proposed construction window. Therefore, although there is a low risk of exposure to construction activities within the Stanislaus River channel during the proposed construction period, any juveniles present may be affected. Incorporation of minimization measures are expected to reduce effects to very low levels.

Project effects would be limited to temporary impacts to a small area of riverine habitat, which could affect CCV steelhead. The residual and delayed effects of temporary disturbance of the river bed substrate and river bank soils in the action area during construction could result in a short-term increase in suspended sediment and turbidity during construction and in surface runoff from bankside construction areas during the subsequent rain events during the winter months. The potential for, and magnitude of, this effect is considered low because of the conservation measures to be implemented (e.g., turbidity curtain installation, erosion control measures, prevention of accidental spills, and emergency spill clean-up procedures). These measures have been incorporated into the proposed Project to minimize water quality-related

impacts, minimize loss of habitat, and prevent the spread of invasive species that could degrade habitat. BMPs (e.g., development of a water pollution control plan, an emergency spill control plan, and turbidity monitoring) would minimize the potential for a hazardous materials spill, and increased turbidity and the consequent effects on aquatic resources, including listed fish species. With the implementation of the conservation measures, there would be a low potential for impacts to raise above very minimal levels.

Increased Turbidity and Fine Sediment

Suspended solids and turbidity generally do not acutely affect aquatic organisms unless they reach extremely high levels (i.e., levels of suspended solids reaching 25 mg/L). At these high levels, suspended solids can adversely affect the physiology and behavior of aquatic organisms and may suppress photosynthetic activity at the base of food webs, affecting aquatic organisms either directly or indirectly (Alabaster and Lloyd 1980). Research on exposure shows that length of exposure to total suspended solids (TSS) plays a more dominant role than TSS concentration (Anderson et al. 1996). Long-term exposure to elevated TSS conditions may cause endocrine stress responses (elevated plasma cortisol, glucose, and hematocrits), suggesting an increased physiological burden that could influence growth, fecundity, and longevity (Lloyd 1987; Redding et al. 1987).

In considering the effects of TSS on listed fish, it is important to consider the frequency and the duration of the exposure, not just the TSS concentration (Newcombe and Jensen 1996). Adverse effects can become more pronounced with increased TSS concentrations and longer exposure durations in aquatic systems where elevated TSS conditions occur infrequently. In general, elevated TSS or turbid conditions can influence fish in the following ways:

- Behavioral effects: avoidance (holding or migration changes), attraction (TSS as cover (reduced predation risk), reduced feeding success, increased “coughing” or “gill flaring;”
- Physical effects: stress, tissue damage, reduced growth, mortality; and
- Habitat effects: increased sedimentation, filling of gravel interstitial spaces, decreased intergravel dissolved oxygen concentrations, decreased residual pool volumes, decreased spawning and emergence success.

Effects to salmonids are categorized as:

• Sub-lethal Effects: Reduction in feeding rate or success, coughing and increased respiration, moderate habitat degradation, and impaired homing (Berg and Northcote 1985).

• Lethal Effects: Reduced growth, increased predation, and mortality (Newcombe and Jensen 1996).

Excavation activities related to the removal and replacement of pipeline alignments L-400 and L-401 would result in a small, localized loss of riparian vegetation and general disturbance to the soil. Construction activities are expected to result in minor increases of suspended solids and turbidity that may adversely affect low numbers of juveniles CCV steelhead present. However, the limited disturbance area within the channel and implementation of erosion control and storm water conservation measures are expected to greatly reduce effects. Additionally, it is anticipated that the 401 Certification would require turbidity monitoring so that if turbidity levels are found

to increase by 15 Nephelometric Turbidity Units over background levels during in water work, construction would pause until background turbidity levels returned to ambient levels.

Hazardous Materials Exposure

Oils and similar substances from construction equipment or in the decommissioned pipeline can contain a wide variety of polynuclear aromatic hydrocarbons (PAHs) and potentially heavy metals causing high total petroleum hydrocarbon levels (TPH) which can result in adverse impacts on salmonids and aquatic life. High TPH levels can alter salmonid egg hatching rates and reduce egg survival as well as harm the benthic organisms that are a salmonid food source (Eisler 2000). Some of the effects that metals can have on salmonids are immobilization and impaired locomotion, reduced growth, reduced reproduction, genetic damage, tumors and lesions, developmental abnormalities, behavior changes (avoidance), and impairment of olfactory and brain functions (Eisler 2000). Operation of construction equipment in or adjacent to the Stanislaus River could result in the spill of hazardous materials (i.e., oil, grease, and gasoline, solvent). An additional potential for exposure to hazardous materials is from any uncured concrete slurry used to plug the decommissioned pipeline. Very little research has been done on the potential water quality effects of uncured concrete slurry (Caltrans 2016). However, it has the potential to increase the pH level of surrounding waters, which may adversely affect osmoregulation, metabolism, respiration, and ultimately kill aquatic organisms.

Construction activities may include the refueling of construction equipment on location. As a result, minor fuel and oil spills could occur, and there would be a small risk of larger releases. Depending on the location of the spill, the materials and volume released, and proximity to the Stanislaus River, such spills could have deleterious effects on any steelhead or green sturgeon within proximity to construction activities. Conservation Measures 1 and 3 will minimize this risk, by conducting work outside the time period when listed species are likely to be present, and providing specific inspection, containment, fueling, and spill prevention and clean-up practices.

Incubating fry would be at greatest risk due to their limited mobility and the physiological kinetics of toxicant metabolism; however, fry would not be present during the proposed in-channel construction period when the risks of spills to waters are greatest. Juvenile and adult fish exhibit a greater level of mobility and thus possess a greater ability to avoid potentially hazardous materials, provided there is sufficient flow and fish passage to allow fish to move from and through the action area.

Due to the life history of CCV steelhead, a lack of sufficient complex juvenile rearing habitat, warm water temperatures through the summer period, an overall low abundance would be expected to occur during construction. However, any fish present would likely be adversely affected by a spill of hazardous materials. Implementation of BMPs and minimization measures are expected to result in an extremely low likelihood that spills would occur. Additionally, any hazardous materials spilled in upland habitats would be contained and cleaned up immediately according to Conservation Measure 3, reducing the potential for latent mobilization of materials following construction. Finally, a low-pressure air test to the retired crossing would ensure that the pipeline is watertight through the underground river crossing, ensuring there will be no leakage of TPH or concrete slurry.

Impacts to Riparian Habitat
Riparian habitat generally includes the woody vegetation and cover structures 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. Although there are trees in the upland portion of the action area, due to a lack of woody vegetation and cover structures in the construction footprint, no impact to shaded riverine aquatic habitat will occur due to Project actions. Temporary impacts from excavation within the 0.061 acre in-river work area and work area on land includes disturbances from contour work, erosion stabilization, and revegetation to match surrounding pre-construction habitat. These impacts could result in effects 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. However, given PG&E proposes to implement revegetation, the impacts would be minor, and short-term.

The proposed action is not expected to reduce the extent or function of riparian habitat in the Stanislaus River in the action area.

Fish Entrapment/Exclusion from Turbidity Curtain
Fish injury and mortality could potentially result from entrapment within the turbidity curtain. Very low numbers of juvenile CCV steelhead may be present during the Stanislaus River Crossing Pipeline Decommissioning Project, due to the seasonally suitable habitat with high water temperatures during the summer and poor rearing habitat quality in the action area. Any fish that become trapped in the turbidity curtain, will be subject to herding, and capture and handling, to safely remove them, via a beach seine. The implementation of Conservation Measure 6 would minimize the risk to any fish to become entrapped within the turbidity curtain, therefore numbers of fish expected to be captured are very low.

Direct Physical Injury by Crushing
The placement of the turbidity curtain could result in the potential for any listed species present in the action area to be crushed, resulting in injury or mortality. However, aquatic habitat in the action area is poor for salmonids due to high summer water temperatures, lack of spawning habitat, and poor rearing habitat quality (lack of cover and complexity). As a result, there is a low probability that juvenile steelhead would be present during the proposed limited in-water construction window. Any small numbers of juveniles present would likely avoid the construction activity, and move to adjacent habitat. The the probability and magnitude of potential physical injury from being crushed is anticipated to be highly unlikely.

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).

2.6.1 Agricultural Practices

Agricultural practices in the action area may adversely affect riparian habitats through upland modifications of the watershed that lead to increased siltation, reductions in water flow, or agricultural run-off. Grazing activities from 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, which can flow into the receiving waters of the associated watersheds. Stormwater and irrigation discharges related to both agricultural and urban activities contain numerous pesticides and herbicides that may adversely affect listed salmonids reproductive success and survival rates (Dubrovsky 1998, Daughton 2002).

2.6.2 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 process with NMFS.

Increased urbanization also is expected to result in increased recreational activities in the region. Among the activities expected to increase in volume and frequency is recreational boating. Boating activities typically result in increased wave action and propeller wash in waterways. This potentially would degrade riparian and wetland habitat by eroding channel banks and midchannel islands, thereby causing an increase in siltation and turbidity. Wakes and propeller wash also churn up benthic sediments thereby potentially re-suspending contaminated sediments and degrading areas of submerged vegetation. This in turn would reduce habitat quality for the invertebrate forage base required for the survival of juvenile salmonids moving through the system. Increased recreational boat operation is anticipated to result in more contamination from the operation of gasoline and diesel powered engines on watercraft entering the associated water bodies.

2.6.3 Rock Revetment and Levee Repair 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 watershed. The effects of such actions result in continued degradation, simplification and fragmentation of riparian and freshwater habitat.

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.

2.7.1 Status of the CCV Steelhead DPS

The 2016 status review (NMFS 2016) concluded that overall, the status of CCV steelhead appears to have changed little since the 2011 status review when the Technical Recovery Team concluded that the DPS was in danger of extinction. Further, there is still a general lack of data on the status of wild steelhead populations. There are some encouraging signs, as several hatcheries in the Central Valley (such as Mokelumne River), have experienced increased returns of steelhead over the last few years. There has also been a slight increase in the percentage of wild steelhead in salvage at the south Delta fish facilities, and the percent of wild fish in those data remains much higher than at Chipps Island. Although there have been recent restoration efforts in the San Joaquin River tributaries, CCV steelhead populations in the San Joaquin Basin continue to show an overall very low abundance, and fluctuating return rates.

2.7.2 Status of the Environmental Baseline and Cumulative Effects in the action area

Naturally reproducing CCV steelhead abundance is severely low within the San Joaquin watershed, and within the action area. Historical loss of spawning and rearing habitat has been highlighted as one of the major factors leading to low population abundances of the CCV steelhead DPS (NMFS 2016). The recent 5-year Status Review concluded that the overall status of the CCV steelhead DPS is in danger of becoming endangered, as reported by NMFS (2016).

CCV steelhead use the action area primarily as a migratory corridor with low potential for rearing habitat. Within the action area, the essential features of freshwater spawning, egg incubation, rearing and migration habitats for steelhead have degraded over time due to agriculture, rural residential, gravel and gold mining, water impoundments, increased water diversions, decreased instream flows, and levees. The construction of Goodwin Dam and gold mining has resulted in an essentially static channel in the lower river reach accessible to anadromous salmonids. The change in ecosystem as a result of halting the lateral migration of the river channel, the loss of floodplains, the removal of riparian vegetation, loss of gravel and instream woody material have likely affected the functional ecological processes that are essential for growth and survival of CCV steelhead in the action area.

The *Cumulative Effects* section of this Opinion describes how continuing or future effects such as the discharge of point and non-point source chemical contaminants discharges and increased urbanization affect the species in the action area. These actions typically result in habitat

fragmentation, and conversion of complex nearshore aquatic habitat to simplified habitats that incrementally reduces the carrying capacity of the spawning, rearing, and migratory corridors.

No reasonably foreseeable future projects within the proposed Project's action area are known at this time.

2.7.3 Effects of the Action on Listed Species

The action area is considered only seasonally suitable for steelhead and used mainly for adult and juvenile migration, with a potential for juvenile transitory rearing in the construction footprint. This is a low potential, due to a lack of physical cover preferred by juvenile steelhead and typically warm, unsuitable summer water temperatures.

As described in the Effects section above (2.4), effects to listed CCV steelhead caused by construction activities have a low likelihood of occurring with implementation of the avoidance and minimization measures as described in Section 1.2. The probability of any life stage of steelhead occurring in or near the action area during the proposed in-channel construction window is very low due to the annual periodicity of this species' life history and unsuitable, high water temperatures in the action area during the proposed construction window. However, a low number of juveniles are likely to be present and become trapped in the turbidity curtain. Adverse effects would include herding, capturing, and handling of the fish to relocate them downstream of the construction activities.

2.7.4 Summary of effects to DPS

Although there are potential direct short-term impacts from the proposed project, when added to the environmental baseline and cumulative effects, the adverse impacts from the proposed project in the action area are small.

Populations of CCV steelhead have declined drastically over the last century, with some populations being extirpated, mostly due to the loss of access to historical habitat after damming. This severe decline in populations over many years, and in consideration of the degraded environmental baseline, demonstrates the need for actions which will assist in the recovery of all ESA-listed species and Species of Concern in the action area, and that if measures are not taken to reverse the trends, the continued existence of CCV steelhead could be at risk.

The lower Stanislaus River CCV steelhead population is considered a "Core 2" population and is in the Southern Sierra Diversity Group. Core 2 populations have a lower potential to support viable populations than Core 1 populations, but they still provide increased life history diversity to the DPS and are likely to provide a buffering effect against local catastrophic occurrences that can affect Core 1 populations. The proposed project is likely to adversely impact individuals in the Core 2 population, but the impacts are very low and temporary. Therefore, the project is not expected to reduce appreciably the likelihood of either the survival and recovery of a listed species in the wild by reducing their numbers, reproduction, or distribution.

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, and cumulative effects, it is NMFS' biological opinion that the proposed action is not likely to jeopardize the continued existence of CCV steelhead.

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 could occur as follows:

NMFS anticipates that a small number of juvenile CCV steelhead will be killed, injured, harassed, or harmed as a result of Project implementation due to expected low presence in the action area during the scheduled in-water work window. Incidental take in the form of capture and handling is expected to occur. No more than four individual juvenile CCV steelhead are expected to be captured and handled, which could result in lethal take.

Incidental take will be exceeded if the numbers of CCV steelhead exposed to capture/relocation is greater than anticipated, 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.

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. USACE and PG&E shall take measures to ensure that all fish handling activities minimize, to the maximum extent practicable, any adverse effects to federally listed steelhead that are subject to this consultation.

2. USACE and PG&E shall take measures to ensure that contractors, construction workers, and all other parties involved with this Project implement the Project as proposed in the biological assessment and this biological opinion.

3. USACE and PG&E shall take measures to prepare and provide NMFS with turbidity monitoring and revegetation plan(s), and report(s) after completion of the project.

2.9.4 Terms and Conditions

The terms and conditions described below are non-discretionary, and the USACE and PG&E must comply with them in order to implement the RPMs (50 CFR 402.14). The USACE and PG&E have 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) The USACE and PG&E must ensure that listed species are taken only at the levels, by the means, in the areas and for the purposes stated in the BA, and according to the conditions in this biological opinion.

   b) PG&E must ensure that any fish incidentally trapped within the turbidity curtain will be carefully herded out of the area via beach seine.

   c) PG&E must handle listed fish with extreme care and keep them in cold water to the maximum extent possible when moving. When using gear that captures a mix of species, the Service must process listed fish first to minimize handling stress.

   d) The USACE or PG&E must notify NMFS within 24 hours, in the event of any listed salmonid mortality.

   e) The USACE or PG&E must notify NMFS as soon as possible but no later than two days after any authorized level of take is exceeded or if such an event is likely. The USACE must submit a written report detailing why the authorized take level was exceeded or is likely to be exceeded.

   f) The person(s) actually doing the work must carry a copy of this Opinion while conducting the proposed activities.

   g) The USACE and PG&E must allow any NMFS employee or representative to accompany field personnel while they conduct Project activities.

h) The USACE and PG&E must allow any NMFS employee or representative to inspect any records or facilities related to the proposed activities.

k) Beach Seine: Any debris (e.g. rocks, logs, abundant vegetation, etc,) trapped within the beach seine will be removed before any fish may be centralized in the net to prevent harm. Researchers will select the smallest mesh-size seine-net or dip-net that is appropriate to achieve sampling objectives while reducing the probability that smaller fish will become gilled in the net.

2. The following terms and conditions implement reasonable and prudent measure 2:

a) The USACE and P&GE shall provide a copy of this Opinion, or similar documentation, to the prime contractor, making the prime contractor responsible for implementing all requirements and obligations included in these documents and to educate and inform all other contractors involved in the Project as to the requirements of this Opinion. A notification that contractors have been supplied with this information will be provided to the reporting address below.

3. The following terms and conditions implement reasonable and prudent measure 3:

a) The USACE shall provide a turbidity monitoring plan, approved by the RWQCB; revegetation plan(s); and report(s) describing how impacts of the incidental take on listed species in the action area would be monitored and documented.

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) NMFS recommends that USACE use species recovery plans to help ensure that their actions will address the underlying processes that limit fish recovery. The final recovery plan for Central Valley listed salmonids is available at:

http://www.westcoast.fisheries.noaa.gov/protected_species/salmon_steelhead/recovery_planning_and_implementation/california_central_valley/california_central_valley_salmon_recovery_domain.html

The final recovery plan for the sDPS green sturgeon is available at:

https://www.fisheries.noaa.gov/resource/document/final-recovery-plan-southern-distinct-population-segment-north-american-green

2.11 Reinitiation of Consultation

This concludes formal consultation for the Stanislaus River Crossing Pipeline Decommissioning 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.

2.12 "Not Likely to Adversely Affect" Determinations

Southern DPS of North American green sturgeon

Green sturgeon are known to range from Baja California to the Bering Sea along the North American continental shelf. During late summer and early fall, sub-adults and non-spawning adult green sturgeon can frequently be found aggregating in estuaries along the Pacific coast (Moser and Lindley 2006). Using polyploid microsatellite data, Israel *et al.* (2009) found that green sturgeon within the Central Valley of California belong to the sDPS. Additionally, acoustic tagging studies have found that green sturgeon found spawning within the Sacramento River are exclusively sDPS green sturgeon (Lindley *et al.* 2011). In waters inland from the Golden Gate Bridge in California, sDPS green sturgeon are known to range through the estuary and the Delta and up the Sacramento, Feather, and Yuba rivers (Israel *et al*. 2009, Bergman *et al.* 2011, Seesholtz *et al.* 2014). It is unlikely that green sturgeon utilize areas of the San Joaquin River upriver of the Delta with regularity, and spawning events are thought to be limited to the upper Sacramento River and its tributaries. While extensive fisheries monitoring has been conducted on the Stanislaus River over many years, only a single green sturgeon has been observed (Anderson et al. 2018). It is therefore extremely unlikely that green sturgeon would be encountered. Therefore, activities within the Stanislaus River channel during the proposed construction period are not expected to injure, kill, displace, or otherwise adversely affect sDPS green sturgeon, because of the extreme unlikelihood of green sturgeon presence.

CCV Steelhead Designated Critical Habitat

The temporary impacts to the river bank and bed, which will be returned to pre-project conditions, would be insignificant with implementation of avoidance and conservation measures, and no permanent impact is expected. Further, the proposed action would not reduce the extent or function of riparian habitat in the Stanislaus River in the action area. The residual and delayed effects of temporary disturbance of the river bed substrate and river bank soils in the action area during construction could result in an increase in a short-term increase in suspended sediment and turbidity during construction and in surface runoff from bankside construction areas during the subsequent winter months' rain storms. The potential for, and magnitude of, this effect is

considered low because of the conservation measures to be implemented (e.g., turbidity curtain installation, erosion control measures, prevention of accidental spills, and emergency spill clean-up procedures). These measures have been incorporated into the proposed Project to minimize water quality-related impacts, minimize loss of habitat, and prevent the spread of invasive species that could degrade habitat. BMPs (e.g., development of a water pollution control plan, an emergency spill control plan, and turbidity monitoring) would minimize the potential for hazardous materials spills and increased turbidity and the consequent effects to critical habitat PBFs. With the implementation of the conservation measures, there would be a low potential for impacts to designated critical habitat to occur, and any effects in the action area are expected to be insignificant.

Thus, NMFS concludes that the proposed action is not likely to adversely affect sDPS green sturgeon and CCV steelhead designated critical habitat.

3. 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. The applicant should recommend that contractors use biodegradable lubricants and hydraulic fluid in construction machinery. The use of petroleum alternatives can greatly reduce the risk of contaminants such as polycyclic aromatic hydrocarbons (PAHs) or heavy metals 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.

4. 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.

4.1 Utility

Utility principally refers to ensuring that the information contained in this consultation is helpful, serviceable, and beneficial to the intended users. The intended user of this Opinion is the U.S. Army Corps of Engineers. Individual copies of this Opinion were provided to the U.S. Corps of Engineers. The document will be available within two weeks at the NOAA Library Institutional Repository [https://repository.library.noaa.gov/welcome]. The format and naming adheres to conventional standards for style.

4.2 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.

4.3 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 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 reviewed in accordance with West Coast Region ESA quality control and assurance processes.

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