UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
777 Sonoma Avenue, Room 325
Santa Rosa, California 95404-4731

September 1, 2021 **Refer to NMFS No:** WCRO-2021-02091

Keith Pelfrey, Branch Chief
North Region of Environmental Management-R2 Branch
California Department of Transportation, District 2
1031 Butte Street, MS 30
Redding, California 96001

Re: Endangered Species Act Section 7(a)(2) Biological Opinion, and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for Caltrans' Cade and Portuguese Fish Passage Project (EA 02-1H590)

Dear Mr. Pelfrey:

Thank you for your letter of August 20, 2021, requesting 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 Cade and Portuguese Fish Passage Project, California Department of Transportation (Caltrans[1]) reference EA 02-1H590. 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. This letter transmits NMFS' final biological opinion and EFH response for the proposed Cade and Portuguese Fish Passage Project.

The enclosed biological opinion describes NMFS' analysis of effects on threatened Southern Oregon/Northern California Coast (SONCC) coho salmon (*Oncorhynchus kisutch*) and its designated critical habitat in accordance with section 7 of the ESA. Based on the best scientific and commercial information available, NMFS concludes that the action, as proposed, is not likely to jeopardize the continued existence of the SONCC coho salmon, nor is the project likely to destroy or adversely modify designated critical habitat for this species. NMFS expects the proposed action would result in incidental take of SONCC coho salmon. An incidental take statement with terms and conditions is included with the enclosed biological opinion.

[1] Pursuant to 23 USC 327, and through a series of Memorandum of Understandings beginning June 7, 2007, the Federal Highway Administration (FHWA) assigned and Caltrans assumed responsibility for compliance with Section 7 of the federal Endangered Species Act (ESA) and the Magnuson-Stevens Fishery Conservation and Management Act (MSA) for federally-funded transportation projects in California. Therefore, Caltrans is considered the federal action agency for consultations with NMFS for federally funded projects involving FHWA. Caltrans proposes to administer federal funds for the implementation of the proposed action and is, therefore, considered the federal action agency for this consultation.

The enclosed EFH consultation was prepared pursuant to section 305(b) of the MSA. The proposed action includes areas identified as EFH for species managed under the Pacific Coast Salmon Fishery Management Plan (FMP). Based on our analysis, NMFS concludes that the project would adversely affect Pacific Coast Salmon EFH and we have provided one EFH Conservation Recommendation.

Please contact Mike Kelly at (707) 825-1622, Northern California Office, Arcata, or via email at Mike.Kelly@noaa.gov if you have any questions concerning this section 7 consultation, or if you require additional information.

Sincerely,

Alecia Van Atta
Assistant Regional Administrator
California Coastal Office

Enclosure

cc: Marla Despas, Caltrans, District 2, Eureka, CA
Dr. Richard Lis, California Department of Fish and Wildlife, Yreka, CA
NMFS ARN# 151422WCR2021AR00160

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

Cade and Portuguese Fish Passage Project
Siskiyou County, California

NMFS Consultation Number: WCRO-2021-02091
Action Agency: California Department of Transportation

Affected Species and NMFS' Determinations:

| ESA-Listed Species | Status | Is Action Likely to Adversely Affect Species or Critical Habitat? | Is Action Likely to Jeopardize the Species? | Is Action Likely to Destroy or Adversely Modify Critical Habitat? |
|---|---|---|---|---|
| Southern Oregon/North California Coast (SONCC) coho salmon (*Oncorhynchus kisutch*) | Threatened | Yes | No | No |

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

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

**Issued By**:

Alecia Van Atta
Assistant Regional Administrator
California Coastal Office

**Date**: September 1, 2021

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# 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

NOAA's 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.

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 Northern California Office in Arcata, California.

## 1.2. Consultation History

On June 12, 2018, NMFS Fish Biologist Mike Kelly visited both project locations with the California Department of Transportation (Caltrans) staff.

On February 12, 2020 Caltrans Biologist Marla Despas, NMFS Fish Biologist Mike Kelly, and NMFS Hydraulic Engineer John Wooster discussed the potential stream realignment at Cade Creek.

On October 19, 2020, Marla Despas and Mike Kelly discussed the results of the hydroacoustic analysis for impact pile driving at Cade Creek. Based on the analysis. Fish relocation was identified to have a higher potential to adversely affect SONCC coho salmon than the proposed impact pile driving. Therefore, Caltrans agreed to forego fish relocation during pile driving.

On July 20, 2021, Caltrans provided a draft BA to Mike Kelly for review.

On July 23, 2021, Mike Kelly provided comments on the draft BA via email.

On July 29, 2021, Marla Despas provided an email to Mike Kelly which included a schedule for stream channel reconstruction design review by NMFS' and California Department of Fish and Wildlife (CDFW) engineers.

On August 23, 2021, Caltrans submitted a revised BA and requested initiation of formal section 7 consultation for adverse effects to SONCC coho salmon and Pacific Salmon EFH. NMFS accepted the BA and notified Caltrans that we had initiated formal consultation.

On August 25, 2021, NMFS emailed Caltrans' Branch Chief of North Region Environmental Management, Keith Pelfrey, to request the following additions: (1) Caltrans will provide NMFS' engineers a minimum of three weeks to review and comment on each phase of design plans for the stream channel reconstructions, and Caltrans will provide written confirmation that the changes have been adopted, or will provide rationale for why the comments weren't adopted; and (2) Caltrans would provide monitoring of the stream channel reconstruction by a qualified channel restoration and fish passage specialist both during and after construction, and will provide a stream channel monitoring plan at least 30 days before construction for NMFS' review and comment.

On August 26, 2021, Keith Pelfrey responded to NMFS' August 25, 2021 email to confirm that Caltrans had accepted our suggestions of August 25 and agreed that these items are now part of the proposed action as described in detail in section 1.3 of this opinion.

### 1.3. Proposed Federal Action

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 MSA, 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 action is described in detail in Caltrans' BA (Caltrans 2021). Project elements that may affect coho salmon, and accompanying measures to minimize impacts, are summarized below, while the remaining project description is incorporated by reference to Caltrans' BA. In the following descriptions, "Caltrans" refers to Caltrans and their construction contractor(s).

Caltrans proposes to replace two high priority fish passage barrier culverts with bridges that will fully span the channels at Portuguese Creek and Cade Creek. Caltrans proposes to construct the abutments for each bridge during the first year of construction in 2023, and will complete bridge construction during the second year in 2024. All work within the stream channels, or that may affect fish in the streams (e.g., pile driving) will occur between June 15 and October 15.

Caltrans is still in the process of designing the stream channels, including rock slope protection (RSP) at both locations, and have committed to working closely with NMFS' hydraulic engineers to create channels that will provide optimal hydraulic function and fish passage according to a schedule as detailed in section 1.3.2.

### 1.3.1 Construction Staging, Access, and Vegetation Removal

*Cade Creek*

The project requires approximately 3,600 square feet of permanent impacts to riparian habitat within the footprint of the new bridge. The project also requires approximately 1,600 square feet of temporary riparian impacts within the footprints of the detour route and equipment access roads. Where possible, trees will be replanted with appropriate native species. Vegetation consists of a thick stand of small diameter hardwood trees such as willows and alders with a few small conifer trees interspersed. Caltrans notes that most of the riparian trees on the upstream side of the roadway burned in the Slater Fire in 2020.

Material and equipment will be stockpiled and staged within Caltrans' right-of-way in turnouts within the project limits and on private land adjacent to a nearby motel. No trees will be removed; however, grass and herbaceous vegetation may be removed or otherwise impacted by staging of equipment and stockpiling of materials.

In the second year of construction, prior to in-channel work, a stream diversion system will be installed and Cade Creek in the action area will be temporarily dewatered. It is likely that two sequential diversions, one upstream and one downstream, will be required as the channel is reconstructed. Caltrans anticipates that the contractor will use a dewatering system of up- and downstream cofferdams with a 24-inch, gravity flow plastic pipe, which would allow any downstream-migrating salmonids to pass through the site. The exact methods and dimensions of the diversion system have not been determined, but the contractor will prepare stream diversion and fish relocation plans, and Caltrans will provide these plans to NMFS for review of consistency with the anticipated effects analyzed in this opinion a minimum of 30 days prior to construction. See Section 1.3.6 for details of aquatic species relocation.

*Portuguese Creek*

The project requires approximately 3,400 square feet of permanent impacts to riparian habitat within the footprint of the new bridge. The project also requires approximately 1,850 square feet, of temporary riparian impacts within the footprints of the detour route and equipment access roads. Where possible, trees will be replanted with appropriate native species. Vegetation on the downstream side of the crossing consists of a thick stand of small diameter hardwood trees and conifer trees. The upstream side of the crossing consists of small willows and maples in the stream channels, and mostly herbaceous and grassy vegetation above the channel banks.

Material and equipment will be stockpiled and staged on U.S. Forest Service (USFS) land adjacent to the project site. No trees will be removed; however, grass and herbaceous vegetation may be removed or otherwise impacted by staging of equipment and stockpiling of materials.

In the second year of construction prior to in-channel work, a stream diversion system will be installed and Portuguese Creek in the action area will be temporarily dewatered. It is likely that two sequential diversions, one upstream and one downstream, will be required as the channel is reconstructed. Caltrans anticipates that the contractor will use a dewatering system of up- and

downstream cofferdams with a 24-inch, gravity flow plastic pipe, which would allow any downstream-migrating salmonids to pass through the site. The exact methods and dimensions of the diversion system have not been determined, but the contractor will prepare stream diversion and fish relocation plans, and Caltrans will provide these plans to NMFS for review of consistency with the anticipated effects analyzed in this opinion a minimum of 30 days prior to construction. See Section 1.3.6 for details of aquatic species relocation.

### 1.3.2 Removing Culverts and Reconstructing Channels

During the second year of construction, Caltrans will remove the existing culverts and reconstruct the stream channels in the affected areas. Excavated material will be stockpiled and covered so it will not reach riparian areas of the stream, and material may be re-used on site as appropriate. Excess material will be disposed of appropriately.

Design of the new channels at both creeks is currently only conceptual. However, leading up to removal of the culverts and reconstructing the channels, Caltrans has committed to working closely with fish passage engineers at NMFS and CDFW to ensure that the resulting new channel reaches and streambanks have physical characteristics that are optimal for fish passage, channel dynamics, and riparian function.

Caltrans proposes the following dates as check-in times as design proceeds through percent completion stages:

30% design by September 7, 2022,
60% design by October 7, 2022,
90% design by December 2, 2022,
100% design by January 6, 2023.

Caltrans will provide at least three weeks for NMFS and CDFW to review and comment on the designs at each phase, and Caltrans will respond to indicate which recommendations they accept, and will provide rationale for any recommendations they do not accept. Caltrans notes, however, that the condition of the channels under the culverts is currently unknown, so adjustments to design may be necessary during construction in 2024. Therefore, Caltrans will pause construction and contact NMFS and CDFW engineers to describe the channels and discuss any design alternatives that may be necessary to account for unforeseen conditions.

*Cade Creek*

Prior to removing the old culvert in season two, Caltrans will place a temporary detour bridge on the north side of the highway approximately 49 feet from the centerline of the existing roadway. The temporary detour bridge will be a clear-span steel truss bridge approximately 121 feet long and 18 feet wide. The foundations for the temporary bridge would be installed above the ordinary high-water mark (OHWM) and will be founded on spread footings so no pile installation will be required.

New RSP will be installed along the streambanks to provide scour protection for the abutments. RSP placement will be limited to the amount necessary to prevent scouring of the slopes. The locations and quantities of RSP are currently ongoing with technical assistance from NMFS and CDFW as part of the channel restoration design process described above.

*Portuguese Creek*

Prior to removing the old culvert in season two, Caltrans will place a temporary detour bridge on the north side of the highway approximately 50 feet from the centerline of the existing roadway. The temporary detour bridge will be a clear-span steel truss bridge approximately 81 feet long and 18 feet wide. The foundations for the temporary bridge would be installed above the OHWM and will be founded on spread footings so no pile installation will be required.

New RSP will be installed along the streambanks to provide scour protection for the abutments. RSP placement will be limited to the amount necessary to prevent scouring of the slopes. The locations and quantities of RSP are currently ongoing with technical assistance from NMFS and CDFW as part of the channel restoration design process described above.

### 1.3.3 Bridge Construction

*Cade Creek*

Caltrans proposes to replace the existing culverted highway crossing with a 44-foot-wide by 101-foot-long single-span bridge on the existing alignment. The new bridge will fully span the existing channel, so no piers are required in the channel. The bridge deck will be supported on single-span pre-cast girders, so no falsework supports in the channel will be required.

The bridge foundation (abutments) will require approximately 20 impact-driven steel H-piles above the OHWM, with 10 at each abutment. The new abutment piles will be placed, and a new abutment will be formed and poured. Impact pile driving will occur between July 15 and September 30.

In order to avoid exposing fish to potentially injurious sound pressures caused by impact pile driving; Caltrans will implement one of the following three measures:

1. The number of piles installed per day will be limited to three.
2. If water three feet or deeper is present within the radius of potentially harmful sound pressures, Caltrans may elect to perform hydroacoustic monitoring in real time and cease pile driving before injury thresholds are met. This monitoring may allow up to five piles to be installed per day.
3. If water quality and habitat conditions have deteriorated in the action area due to watershed impacts caused by the 2020 Slater fire (e.g., high water temperature, altered water chemistry, or habitat degradation due to fine sediment deposition), Caltrans will confer with NMFS and CDFW to determine whether conditions would preclude salmonid use of the action area. If NMFS and CDFW agree that no salmonids would be present, then Caltrans may drive up to five piles per day.

In addition to these measures, a qualified biologist will monitor the stream during pile driving, and if any obviously stressed or injured salmonids are observed, pile driving will cease and Caltrans will confer with NMFS and CDFW to develop alternative measures, which could include fish exclusion and relocation, and reinitiation of this consultation.

The superstructure of the bridge will be built during the second year of construction. Superstructure component will be pre-cast and delivered to the site for assembly; therefore, no additional concrete pours will be required.

Currently, stormwater flows from the road surface onto adjacent ground before flowing to the creek. Before the Slater Fire burned off the existing vegetation and duff layer, flow of stormwater over the ground likely helped treat the water to reduce discharge of road related contaminants. Caltrans proposes to construct vegetated bio-strips at either end of the bridge to capture stormwater to help improve stormwater treatment. Stormwater will not flow directly from the bridge into the stream.

*Portuguese Creek*

Caltrans proposes to replace the existing culverted highway crossing with a 44-foot-wide by 100-foot-long single-span bridge on the existing alignment. The new bridge will fully span the existing channel, so no piers are required in the channel. The bridge deck will be supported on single-span girders, so no falsework supports in the channel will be required.

Caltrans will construct the foundation abutments during the first season. The permanent abutment foundations for the new bridge will be rock-socketed cast-in-drilled-hole (CIDH) piles with permanent steel casings installed above the OHWM. All of the abutment piles will be installed on land approximately 20 feet from the edge of the water. A drill rig will be used to excavate the soil before installing the piles. Once the hole has been excavated to depth, a reinforcement cage is installed, and concrete is placed directly into the drilled hole while the casing is simultaneously removed. The piles will be approximately 32 feet deep. CIDH pile installation will occur any time between June 15 and October 15 in 2023. CIDH pile installation does not create elevated sound pressure levels in water, so Portuguese Creek would not be diverted during the pile installation operation. However, drilling spoils and any necessary drilling fluids will be fully contained.

The superstructure of the bridge will be built during the second year of construction. Superstructure component will be pre-cast and delivered to the site for assembly; therefore, no additional concrete pours will be required.

Currently, stormwater flows from the road surface onto adjacent ground before flowing to the creek. Some beneficial stormwater treatment is likely as water flows through vegetation and duff; however, Caltrans proposes to construct vegetated bio-strips at either end of the bridge to capture stormwater to help improve stormwater treatment. Stormwater will not flow directly from the bridge into the stream.

### 1.3.4 Monitoring

The contractor's Storm Water Pollution Prevention Plan will identify a site inspection schedule. Inspections will include all areas cleared, graded, or excavated where stabilization measures have been implemented, all material or equipment storage and maintenance areas; all areas where stormwater flows, including catchment/treatment areas; and all water discharge points. All stormwater controls, including pollution prevention measures, will be monitored to ensure they are operational, and working as intended. Inspections must identify all noncompliance incidents observed, and corrective action initiated if appropriate. If discharge is occurring during the site inspection, it is required that the inspector identify all points of the property where discharge is occurring and observe and document the visual quality of discharge (including color, odor, floating, settled, or suspended solids, foam, oil sheen, and other obvious indicators of pollutants). Caltrans will notify NMFS and CDFW if any discharges affect species/habitat in a manner or extent not considered in this opinion.

A qualified biologist will monitor in-stream construction activities such as installation and removal of dewatering or diversion systems, culvert removal, and pile-driving and drilling for bridge foundations. Additionally, Caltrans will provide a qualified fish passage and channel restoration engineer to monitor stream channel reconstruction at both sites, which will include monitoring for a mutually-agreed period to be determined during development of the Stream Channel Monitoring Plan. Caltrans will submit the Stream Channel Monitoring Plan, which will be developed with assistance from NMFS' and CDFW hydraulic engineers, to ensure that any impacts related to the channel reconstruction are consistent with assumptions made during development of this opinion.

As described in detail in section 1.3.3, Caltrans may perform hydroacoustic monitoring if conditions allow. Therefore, Caltrans will prepare a hydroacoustic monitoring plan that describes the monitoring methodology, frequency of monitoring, positions where hydrophones will be deployed, techniques for gathering and analyzing data, quality control measures, and reporting protocols.

### 1.3.5 Conservation Measures and Best Management Practices

Water pollution control scheduling and methods will be specified in the contractor's Storm Water Pollution Prevention Plan. Specific methods are indicated in Caltrans' Construction Site Best Management Practices (BMP) Manual (Caltrans 2017). Caltrans' BA provides details on specific measures. Most of these measures are standard practices that have proven efficacy and are familiar to NMFS' staff. Refer to Caltrans' BA and the above-referenced manuals for details.

### 1.3.6 Aquatic Species Relocation

Stream diversions may require relocation of juvenile coho salmon and other aquatic species at both bridge sites during the second year of construction. Caltrans will prepare an Aquatic Species Relocation Plan for NMFS' review a minimum of 30 days prior to implementation. Methods may include seining gear, electrofishing gear, and dip nets. Dewatering drawdown will occur incrementally to fully assess any fish not captured during initial efforts. Any remaining

fish will then be removed from the area and released to suitable habitat. Electrofishing for salmonids will comply with Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act (NMFS 2000), and any seining or other capture and removal techniques will adhere to the California Salmonid Stream Habitat Restoration Manual (Flosi et al. 2010). A qualified biologist will be present during all phases of in-stream construction to assist with relocation efforts as they arise.

### 1.3.7 Mitigation and Habitat Enhancement

CDFW may require Caltrans to fully mitigate for incidental take of SONCC coho salmon as part of an Incidental Take Permit or Consistency Determination on this opinion pursuant to the California Endangered Species Act (CESA). Mitigation for incidental take, as defined under State of California Fish and Game Code, may not be required because the project itself is intended to benefit coho salmon. However, if any mitigation measures may affect SONCC coho salmon or its critical habitat differently than analyzed in this opinion, Caltrans would contact NMFS to discuss whether reinitiation of this consultation is required.

Any required mitigation measures will be incorporated into the final construction plans and sufficient funds will be in the contract to implement these measures. Prior to beginning construction, Caltrans will submit to CDFW proof that Caltrans has contracted and provided funding to the contractor for the explicit purpose of implementing the required mitigation measures.

### 1.3.8 Other Activities Caused by the Proposed Action

We considered whether the proposed action would cause any other activities and determined that it would not. The new crossings will serve the same function as the current crossings without inducing additional traffic or facilitating use by types of vehicles unable to use the current road.

## 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 provide 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 reasonable and prudent measures (RPMs) and terms and conditions to minimize such impacts.

## 2.1. Analytical Approach

This biological opinion includes a jeopardy analysis which 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:

- Evaluate the rangewide status of the species expected to be adversely affected by the proposed action.
- Evaluate the environmental baseline of the species in the action area.
- 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, analyze whether the proposed action is likely to 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.
- 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. 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' "reproduction, numbers, or distribution" as described in 50 CFR 402.02. The opinion also examines the condition of critical habitat throughout the designated area, evaluates the conservation value of the various watersheds and coastal and marine environments that make up the designated area, and discusses the function of the PBFs that are essential for the conservation of the species.

### 2.2.1 Species Description and General Life History

*SONCC coho salmon*: Coho salmon have a generally simple 3-year life history. The adults typically migrate from the ocean and into bays and estuaries towards their freshwater spawning grounds in late summer and fall, and spawn by mid-winter. Adults die after spawning. The eggs are buried in nests, called redds, in the rivers and streams where the adults spawn. The eggs incubate in the gravel until fish hatch and emerge from the gravel the following spring as fry. These young-of-year fish typically rear in fresh water for about 15 months before migrating to the ocean during the spring months. The juveniles go through a physiological change during the transition from fresh to salt water called smoltification. Coho salmon typically rear in the ocean for two growing seasons, returning to their natal streams as 3-year-old fish to renew the cycle.

### 2.2.2 Status of Species and Critical Habitat

In this biological opinion, NMFS assesses four population viability parameters to help us understand the status of coho salmon and their ability to survive and recover. These population viability parameters are: abundance, population productivity, spatial structure, and diversity (McElhaney et al. 2000). While there is insufficient information to evaluate these population viability parameters in a thorough quantitative sense, NMFS has used existing information, including the Recovery Plan for SONCC Coho Salmon Evolutionarily Significant Unit (ESU) (NMFS 2014) to determine the general condition of each population and factors responsible for their current status. We use these population viability parameters as surrogates for numbers, reproduction, and distribution, the criteria found within the regulatory definition of jeopardy (50 CFR 402.20).

**Status of SONCC Coho Salmon**

*SONCC Coho Salmon Abundance and Productivity*: Although long-term data on coho salmon abundance are scarce, the available evidence from short-term research and monitoring efforts indicate that spawner abundance has declined since the last status review for populations in this ESU (Williams et al. 2016). In fact, most of the 30 independent populations in the ESU are at high risk of extinction because they are below or likely below their depensation threshold, which can be thought of as the minimum number of adults needed for survival of a population.

*SONCC Coho Salmon Spatial Structure and Diversity*: The distribution of SONCC coho salmon within the ESU is reduced and fragmented, as evidenced by an increasing number of previously occupied streams from which SONCC coho salmon are now absent (NMFS 2001, Good et al. 2005, Williams et al. 2011, Williams et al. 2016). Extant populations can still be found in all major river basins within the ESU (70 FR 37160). However, extirpations, loss of brood years, and sharp declines in abundance (in some cases to zero) of SONCC coho salmon in several streams throughout the ESU indicate that the SONCC coho salmon's spatial structure is more fragmented at the population-level than at the ESU scale. The genetic and life history diversity of populations of SONCC coho salmon is likely very low and is inadequate to contribute to a viable ESU, given the significant reductions in abundance and distribution. The SONCC coho salmon ESU is currently considered likely to become endangered within the foreseeable future in all or a significant portion of its range, and there is heightened risk to the persistence of the ESU as Viable Salmonid Population (VSP) parameters continue to decline and no improvements have been noted since the previous status review (Williams et al. 2016).

**Status of Critical Habitat**

NMFS considers the action areas at each of the two project locations to be designated critical habitat for SONCC coho salmon.

The condition of SONCC coho salmon critical habitat, specifically the ability to provide for their conservation, has been degraded from conditions known to support viable salmonid populations. NMFS has determined that currently depressed population conditions are, in part, the result of the following human induced factors affecting critical habitat: overfishing, artificial propagation, logging, agriculture, mining, urbanization, stream channelization, dams, wetland loss, and water withdrawals (including unscreened diversions for irrigation). Impacts of concern include altered stream bank and channel morphology, elevated water temperature, lost spawning and rearing habitat, habitat fragmentation, impaired gravel and wood recruitment from upstream sources, degraded water quality, lost riparian vegetation, and increased erosion into streams from upland areas (Weitkamp et al. 1995, 64 FR 24049, 70 FR 37160). Diversion and storage of river and stream flow has dramatically altered the natural hydrologic cycle in many of the streams within the ESU. Altered flow regimes can delay or preclude migration, dewater aquatic habitat, and strand fish in disconnected pools, while unscreened diversions can entrain juvenile fish.

2.2.3 Factors Responsible for Decline of Species and Degradation of Critical Habitat

The factors that caused declines include hatchery practices, ocean conditions, habitat loss due to dam building, degradation of freshwater habitats due to a variety of agricultural and forestry practices, water diversions, urbanization, over-fishing, mining, climate change, and severe flood events exacerbated by land use practices (Good et al. 2005, Williams et al. 2016). Sedimentation and loss of spawning gravels associated with poor forestry practices and road building are particularly chronic problems that can reduce the productivity of salmonid populations. Late 1980s and early 1990s droughts and unfavorable ocean conditions were identified as further likely causes of decreased abundance of listed salmonids (Good et al. 2005). The sustained drought in California reduced stream flows and increased temperatures, further exacerbating stress and disease. Ocean conditions have been unfavorable in recent years due to the El Niño in

2015 and 2016. Reduced flows can cause increases in water temperature, resulting in increased heat stress to fish and thermal barriers to migration.

One factor affecting the range wide status and aquatic habitat at large is climate change. Information since these species were listed suggests that the Earth's climate is warming, and that this change could significantly impact ocean and freshwater habitat conditions, which affect survival of coho salmon subject to this consultation. In the coming years, climate change will influence the ability to recover these species in most or all of their watersheds. Coho salmon are particularly vulnerable to climate change due to their need for year-round cool water temperatures (Moyle 2002). Through effects on air temperatures and stream flows, climate change is expected to increase water temperatures to the detriment of these species. Climate change effects on stream temperatures within Northern California are already apparent. For example, in the Klamath River, Bartholow (2005) observed a 0.5°C per decade increase in water temperature since the early 1960's, and model simulations predict a further increase of 1-2°C over the next 50 years (Perry et al. 2011).

In coastal and estuarine ecosystems, the threats from climate change largely come in the form of sea level rise and the loss of coastal wetlands. Sea levels will likely rise exponentially over the next 100 years, with possibly a 50-80 cm rise by the end of the 21st century (IPCC 2019). This rise in sea level will alter the habitat in estuaries and either provide increased opportunity for feeding and growth or in some cases will lead to the loss of estuarine habitat and a decreased potential for estuarine rearing. Marine ecosystems face an entirely unique set of stressors related to global climate change, all of which may have deleterious impacts on growth and survival while at sea. In general, the effects of changing climate on marine ecosystems are not well understood given the high degree of complexity and the overlapping climatic shifts that are already in place (e.g., El Niño, La Niña, Pacific Decadal Oscillation) and will interact with global climate changes in unknown and unpredictable ways. Overall, climate change is believed to represent a growing threat, and will challenge the resilience of coho salmon in Northern California.

## 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 specific action area for each site is summarized below.

*Cade Creek*
The action area at Cade Creek encompasses the entire construction footprint that would be subject to direct impacts from ground disturbance and vegetation clearing, including where staging and material storage may occur. This includes the State Route (SR) 96 roadway and shoulders extending from Post Mile (PM) 43.5, access road areas, the streambed and riparian areas that may be impacted during construction, the downstream extent of possible turbidity discharges, and the water column extending to areas where sound pressure levels would exceed behavioral thresholds (i.e., 150 dB or greater, as described in section 2.5.3), which Caltrans estimates to be 141 meters up- and downstream of the existing road centerline. Caltrans' BA (Caltrans 2021) provides a map of the potential action area.

*Portuguese Creek*
The action area at Portuguese Creek encompasses the entire construction footprint that would be subject to direct impacts from ground disturbance and vegetation clearing, including where staging and material storage may occur. This includes the SR 96 roadway and shoulders extending from PM 57.0, access road areas, the streambed and riparian areas that may be impacted during construction, and the downstream extent of possible turbidity discharges. Caltrans' BA (Caltrans 2021) provides a map of the potential action area.

## 2.4. Environmental Baseline

The "environmental baseline" refers to the condition of the listed species or its habitat in the action area, without the consequences to the listed species or 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 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).

In the action area, the threat to SONCC coho salmon from climate change is likely to include a continued increase in average summer air temperatures; more extreme heat waves; and an increased frequency of drought (Lindley et al. 2007). In future years and decades, many of these changes are likely to further degrade habitat throughout the watershed by, for example, reducing streamflow during the summer and raising summer water temperatures. Many of these impacts will likely occur in the action area via reduced flows and higher water temperatures.

### 2.4.1 Status of SONCC Coho Salmon and Critical Habitat in the Action Area

SONCC coho salmon in the action area belong to the Middle Klamath River population, which the NMFS SONCC Coho Salmon Recovery Plan indicates is at moderate risk of extinction and is likely above the depensation threshold (NMFS 2014). While the action areas lie within the geographic boundary of the SONCC coho salmon Middle Klamath River Population, non-natal rearing of SONCC coho salmon from the Upper Klamath River Population is also likely as downstream migrants seek cool water refuge from the mainstem Klamath River. The Upper Klamath River Population is considered to be at high extinction risk and is likely below the depensation threshold (NMFS 2014).

Most of the juvenile coho salmon using the lower parts of the tributaries in the Middle Klamath River are likely non-natal individuals rearing in the cool water refugia areas. Natal rearing is likely confined to those tributaries where spawning is occurring and where sufficient rearing habitat exists. The Recovery Plan lists 16 creeks in the Middle Klamath that meet these criteria for natal rearing, but Cade and Portuguese creeks are not on this list. The barrier culverts are likely a contributing factor for lack of natal rearing (NMFS 2014).

The lack of quality summer and winter rearing habitat that is protected from warm temperatures and high winter flows, respectively, is one of the most likely factors limiting coho salmon

productivity as described in the Mid-Klamath Subbasin Fisheries Resource Recovery Plan (Soto et al. 2008). The SONCC Coho Recovery Plan lists impaired water quality (high temperatures) and barriers as very high, and high stresses, respectively, and impaired water quality as a key limiting factor with the juvenile life stage being most limited. The Recovery Plan also lists Cade and Portuguese creeks as important barriers for remediation, while Soto et al. (2008) lists "Fish access: Improve fish passage at Hwy 96 crossings" as a key priority.

*Cade Creek*

SONCC coho salmon may be present both upstream and downstream of the highway crossing culvert (Soto 2011); however, upstream passage of adult coho is hindered by the crossing, and whether adult coho can pass through the culvert depends on having ideal conditions at the right time. The culvert is likely a complete barrier to juvenile coho upstream passage. The California Fish Passage Assessment Database (PAD) classifies the culvert as a total barrier, and this is likely true under most conditions in any given year. But for the purposes of this consultation, we will conservatively consider the possibility of juvenile coho being upstream of the crossing.

In addition to the juvenile passage barrier at the crossing, the neighboring landowner draws water from the creek below the crossing under an existing water right, which is facilitated by construction of an annual rock dam and excavated pool to provide adequate depth for pumping. Caltrans observed that the dam appears to be a migration barrier during the summer juvenile coho rearing period. However, as part of the proposed action, Caltrans will drill an off-channel water drafting hole to permanently eliminate the need for this juvenile barrier.

Cade Creek also provides a thermal refuge at its confluence with the Klamath River and provides adequate temperature for juvenile rearing throughout its accessible reaches (Sutton and Soto 2010). However, the Slater Fire burned much of the watershed in 2020, including the portion of the action area upstream of the highway crossing. Loss of riparian vegetation in the watershed could result in higher water temperatures in the action area, which could impact its suitability as coho rearing habitat. Fire-related debris and fine sediment could eventually affect habitat suitability in the action area.

Caltrans visited the site on August 3, 2021, and found a water temperature of 62 to 64 degrees F at 4:30PM (personal communication, Marla Despas, Caltrans), which is suitable for juvenile coho rearing. At that time, the air temperature was 90 degrees F and the sky was smoky due to a nearby wildfire, which can lower water temperature (Aaron, et al. 2018). But perhaps enough shade remains from burnt standing timber and/or geographic shading to maintain cool temperatures.

At that time, Caltrans also found that the streambed looked just as it had before the fire; i.e., the gravel and cobble substrate was free of excessive fine material. However, we note that the winter of 2020/2021 was extremely dry, so debris and fine sediment may not have mobilized yet, and conditions could change by the time of construction. We have considered this possibility in the Effects Section of this opinion.

During the August 3, 2021 site visit, Caltrans biologists found five dead juvenile trout and one dead salamander in the pool below the barrier in the action area. The trout showed varying levels of decomposition, so may not have died due to a discreet event. It is possible that these fish died of disease they contracted in the mainstem Klamath River before migrating into the action area.

Or there could be some unknown water quality problem in Cade Creek perhaps related to the Slater Fire. Or it could just be a coincidence that a population undergoing normal background levels of juvenile mortality had five fish accumulate in the same location. However, we consider the possibility that a persistent problem may occur in the action area, which could affect our analysis of potential effects of the project. For example, if unhealthy or moribund coho are in the action area at the time of fish relocation, they could experience a higher-than-normal mortality rate during their relocation.

In order to predict the number of juvenile coho salmon that may occupy the action area at Cade Creek, Caltrans examined stream survey data provided by the Karuk Tribe Fisheries Program (Soto 2011) as well as making their own observations from the streambank. The Karuk Tribe Fisheries Program biologists noted fewer than 10 juvenile salmonids in the pool below the crossing, which included at least two that were positively identified as young-of-year coho. Caltrans' observations from the streambank in August of 2021 found, in addition to the five dead trout mentioned above, a school of small fish in the pool below the crossing. Based on a photograph, it appears that the fish may not be salmonids and could be speckled dace or some other species.

While the data on fish numbers is sparse, Caltrans concludes that up to 20 juvenile coho may be present in each of the project's two years of construction. NMFS believes this is a reasonable conservative estimate based on the present quantity and quality of the accessible habitat in the action area. We do not expect that adult coho salmon would be present in the section of the action area that will be dewatered. Additionally, the action area does not provide suitable spawning habitat.

*Portuguese Creek*

Like Cade Creek, Portuguese Creek provides thermal refuge at its confluence with the Klamath River (Sutton and Soto 2010), though it is somewhat smaller than Cade Creek's thermal refuge and may exceed preferred temperatures during the warmest periods of summer. But unlike Cade Creek, the Portuguese Creek watershed has not burned recently, so we expect habitat and water quality to remain as they are depending on the water year type. Portuguese Creek in the action area does not contain significant pool habitat, though juvenile coho could inhabit suitable areas around lager rocks and under any overhead cover.

Caltrans biologists did not observe juvenile salmonids in the action area of Portuguese Creek during streambank visual surveys. However, Karuk Tribe Fisheries Program biologists observed between 10 and 50 juvenile salmonids downstream of the crossing during surveys in 2011 (Soto 2011) though they were unable to determine if any of the fish were coho salmon.

While the data on fish numbers is sparse, Caltrans concludes that up to 10 juvenile coho may be present in each of the project's two years of construction. NMFS believes this is a reasonable conservative estimate based on the present quantity and quality of the accessible habitat in the action area. We do not expect that adult coho salmon would be present in the section of the action area that will be dewatered. Additionally, the action area does not provide suitable spawning habitat.

## 2.5. Effects of the Action

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

### 2.5.1 Stream Diversion and Fish Relocation

Data on fish relocation efforts from water diversion activities since 2004 shows most average mortality rates are below three percent for salmonids. Therefore, given the measures that would be implemented to avoid and minimize impacts to fish during relocation efforts, NMFS expects no more than three percent of all relocated fish would be subject to potential injury or mortality.

However, as described in section 2.4.1, observation of dead trout in the action area, which may be the result of disease or water quality problems related to the Slater Fire, could mean that unhealthy or diseased juvenile coho salmon could be present during relocation. NMFS believes that diseased fish are unlikely to recover whether they are relocated or not, so for the purposes of our jeopardy analysis we will assume that all coho are healthy and mortality is three percent. While the mortality rate could be higher if sick fish are present, we believe that these fish would not contribute to future adult returns.

As detailed in section 1.3.1, Caltrans proposes to construct temporary stream diversion structures in order to protect the two creeks from construction work. Caltrans staff estimated numbers of coho salmon that may be handled during relocation efforts based on technical assistance with NMFS and Karuk Tribe Fisheries Program staff as described in Caltrans' BA (Caltrans 2021) and above in section 2.4.1. NMFS believes that Caltrans' estimates are reasonably conservative. The following subsections provide Caltrans' fish handling estimates and NMFS' conclusions, including the number of mortalities expected at each location.

*Cade Creek*
Caltrans' estimate for the number of fish that will be handled at Cade Creek is 20 juvenile coho salmon in the second of two construction seasons. If we apply the three-percent mortality rate (rounded up to the nearest whole number) to the total number of juvenile coho salmon that we estimate could be captured and relocated, we would expect that no more than one juvenile SONCC coho salmon would be injured or killed during relocation.

*Portuguese Creek*
Caltrans' estimate for the number of fish that will be handled at Portuguese Creek is 10 juvenile coho salmon in the second of two constructions seasons. If we apply the three-percent mortality rate (rounded up to the nearest whole number) to the total number of juvenile coho that we estimate could be captured and relocated, we would expect that no more than one juvenile SONCC coho salmon would be injured or killed during relocation.

2.5.2 Water Quality

Pollutants from construction operations, or from the mobilization of sediment both during and after construction, have the potential to impact water quality within the action areas.

*Turbidity and Sedimentation*
Short term increases in suspended sediment and turbidity are anticipated during construction and removal of the stream diversions. Additionally, there is likely to be an increase in suspended sediment and turbidity in the action area during the first flow-producing rainfall of the season as disturbed sediments mobilize and adjust.

Increases in suspended sediment or turbidity can affect water quality, which in turn can affect fish health and behavior. Salmonids typically avoid areas of higher suspended sediment, which means they displace themselves from their preferred habitat in order to seek areas with less suspended sediment. Fish unable to avoid suspended sediment can experience negative effects from exposure.

Research has shown 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 an endocrine stress response (elevated plasma cortisol, glucose, and hematocrits), suggesting an increased physiological burden that could influence growth, fecundity, and longevity (Redding et al. 1987). Therefore, when 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).

Construction of the stream diversions at each of the two locations, and their removal at the end of the construction season, could generate turbidity. However, Caltrans proposes to use techniques and materials that are proven to minimize turbidity to minor levels and durations. Therefore, NMFS considers the potential amounts and duration of turbidity to be unlikely to reduce the fitness of coho salmon in the action areas.

The first streamflow-producing rains of the season will likely produce turbidity of short duration and low concentration, and will occur when the most vulnerable life stages are not present. Additionally, through project design and implementation of standard wet-weather BMPs, as described in detail in Caltrans' BA (Caltrans 2021) and Caltrans' Manual of Construction Site Best Management Practices (Caltrans 2017), levels of suspended sediment and turbidity during rain events are likely to be controlled sufficiently to avoid exposing coho salmon to injurious durations and concentrations. Therefore, NMFS considers the potential amounts and duration of turbidity generated during rain events to be unlikely to reduce the fitness of individual SONCC coho salmon in the two action areas.

*Pollutants Associated with Stormwater Runoff and Spills*
Contaminants generated by traffic, pavement materials, and airborne particles that settle may be carried by stormwater runoff into receiving waters. Stormwater runoff can introduce contaminants (e.g., copper, zinc, cadmium, lead, nickel, and other vehicle-derived chemicals) into waterways, where aquatic species can be affected. Copper and zinc are of particular concern

due to their effect on salmonids at low concentrations. Dissolved copper and zinc in stormwater road runoff are difficult to remove, and have known negative effects on salmonids and other fishes (Sandahl et al. 2007). Additionally, Tian et al. (2021) found that a chemical called 6PPD-quinone, which derives from a preservative chemical used in tires, is associated with mortality of adult coho salmon when in high concentration.

The existing crossings presently allow sheetflow of stormwater from the road surface to enter riparian areas, and some unknown quantity of stormwater may enter the creeks. The new bridges will drain stormwater to each abutment and into newly installed biostrips. The biostrips are designed to provide stormwater treatment as the water infiltrates vegetation and the ground. Therefore, road related contaminants and particles will be less likely to reach coho salmon habitat in these streams as compared to the existing condition.

Neither of the new bridges will increase the amount of traffic on this highway, so NMFS does not expect increases of road-related contaminant deposition due to these projects. Potential delivery of traffic-related contaminants may be reduced at both creeks. Existing levels of roadway-type contaminants on the highway are unknown, but are likely to be well below harm thresholds in these rural watersheds. Additionally, any rainwater that may contain contaminants would be immediately and significantly diluted upon entrainment into the flowing streams. Therefore, NMFS does not expect reductions in fitness of individual SONCC coho salmon residing in the action areas due to toxic materials in stormwater runoff.

Accidental spills from construction equipment pose a significant risk to water quality, particularly for construction activities in or near watercourses, such as drilling for CIDH piles at Portuguese Creek, and at the onset of the rainy season when the first flush could trigger the discharge of spilled materials. However, in-stream activities would be suspended and all construction areas stabilized and cleaned prior to the onset of the rainy season. Furthermore, the proposed minimization measures are expected to prevent chemical contamination during construction. Given the proven minimization measures and BMPs proposed, NMFS expects the likelihood of an accidental spill of contaminants reaching a waterway at a level that would harm SONCC coho salmon individuals to be highly improbable.

### 2.5.3 Hydroacoustics

Caltrans conducted an analysis of potential hydroacoustic impacts that may expose fish to harmful levels of sound energy during pile driving and demolition. The analysis is provided in a report as Appendix C in Caltrans' BA (Caltrans 2021). The following effects analyses are based on this report, as well as NMFS staff's personal experience with pile driving operations.

*Vibratory Pile Driving*

Caltrans may use vibratory pile driving for initial installation of piles, and for any necessary sheet piles used for shoring. Compared to impact pile driving, vibratory pile driving generally produces more continuous, lower energy sounds below the thresholds associated with injury. There are currently no established noise thresholds associated with continuous sound waves, and vibratory methods are generally considered effective measures for avoiding or minimizing the risk of injury of fish from pile driving noise. Vibratory installation may cause behavioral

reactions; however, these behavioral impacts are likely to be minimal in terms of reducing an individual juvenile SONCC coho salmon's survival and fitness.

*Impact Pile Driving*

Sound energy levels above 150 dB (re: 1 μPa) can accumulate to cause barotrauma in exposed fish. This cumulative sound exposure level is abbreviated as cSEL. Based on accepted standards of the Fisheries Hydroacoustic Working Group (2008), fish under two grams may suffer barotrauma at a cSEL of 183 dB, and fish over two grams may experience barotrauma at a cSEL of 187 dB, though NMFS expects that all juvenile salmonids in the action area would be larger than two grams throughout the proposed in-water construction season, which includes the pile driving schedule. Therefore, we use the 187 dB cSEL threshold to evaluate physical impacts to individual coho salmon. Sound energy levels above 150 dB do not continue to accumulate toward the cSEL injury threshold if fish are not re-exposed within 12 hours.

Caltrans evaluated potential underwater noise levels generated by proposed pile driving at Cade Creek in year one, and determined that impact pile installation may exceed currently adopted cSEL thresholds that may cause injury to fish based on five piles per day and 400 strikes per pile. This analysis is presented in Appendix E of Caltrans' BA (2021). However, in order to minimize impacts to juvenile SONCC coho salmon resulting from either relocating them away from harmful noise, or exposing them to injurious sound levels, Caltrans agreed to additional measures as described in section 1.3.3, and based on the following rationale.

Caltrans' hydroacoustic analysis considered five piles per day; however, the report states: *Because the predicted single strike SELs are low, exceedances of the cumulative SEL thresholds would not occur immediately. If noise does cumulate, exceedances of the cumulative SEL thresholds would only occur after several piles were installed.*

Based on analyses provided in Caltrans' BA and adjusted for three piles per day, single strike noise levels that may cause injury to fish (>206 dB re: 1 μPa) would not reach wetted areas of the creek, and cSEL injury thresholds may extend to 39 feet from piles that are at least 30 feet from the stream channel; therefore, injury thresholds for fish over two grams could extend up to nine feet into the stream channel. However, at that short distance, the existing culvert and concrete apron in the channel would effectively preclude coho salmon from occupying the zone of potential cSEL injury threshold exceedance. Additionally, a qualified biologist will observe pile driving and stop the operation if any fish appear to be showing signs of stress. Therefore, NMFS believes that no individual SONCC coho salmon would be exposed to physically harmful sound levels.

Additionally, coho salmon could be exposed to underwater noise levels exceeding the behavior thresholds (150 dB) without reaching the injurious cSEL threshold. The hydroacoustic analysis predicts that exposure to 150 dB sound levels would occur over a radius of no more than 50 meters from percussive activity. As explained in Caltrans' hydroacoustic analysis, transmission of sound in shallow water is limited compared to transmission is deeper open water, and this estimate is likely conservative.

Temporary behavioral changes that fish may exhibit in response to percussive noise include startling, altering behavioral displays, avoidance, displacement, and reduced feeding success.

Observations of juvenile coho and steelhead exposed to pile driving noise above the 150 dB behavioral threshold at the Mad River Bridges Highway 101 project indicate that juvenile salmonids quickly habituate to sub-injurious noise and resume normal surface-feeding behavior within a few minutes of the fist pile strikes (Mike Kelly, NMFS, personal observations 2009, 2011). Therefore, NMFS believes that periodic behavioral changes caused by sub-injurious sound exposure will not result in decreased fitness or survival of individual juvenile SONCC coho salmon.

NMFS considered whether adult coho salmon might also be exposed to sub-injurious sound energy and whether this could result in deleterious behavior. Adult coho salmon could be present in the middle Klamath River toward the end of September, though the run does not typically reach the upstream Irongate Hatchery until mid-October and does not peak until typically mid-November (CDFW 2016), so coho salmon entering the middle Klamath River in September would likely be at the very beginning of the run, and numbers would be relatively low. Given the structure and depth of Cade Creek in the 50-meter radius of the behavioral sound pressure threshold; NMFS does not expect early-returning adult coho salmon to hold in this area, and any adults that attempted to enter Cade Creek would almost certainly be forced to seek spawning habitat elsewhere due to the difficulty of passing the culvert during expected low flow conditions during pile driving. Therefore, any behavioral response to pile driving noise that caused adult coho to leave Cade Creek to find other spawning habitat would be inconsequential.

*Demolition*
Caltrans will dewater and relocate fish at both locations before the old crossings are demolished. Therefore, SONCC coho salmon will not be exposed to the relatively low sound levels expected during excavation of the existing culverts and roadway.

### 2.5.4 Temporary Loss of Rearing and Holding Habitat

As described in Section 1.3.1 of this opinion, Caltrans will construct stream diversions at both locations in the second year of construction. So, instream habitat in the stream diversion footprints will be unavailable to rearing juveniles or holding adult coho salmon for some period between June 15 through October 15.

The length of the stream diversions at each creek have not been determined, but given the project footprints, NMFS expects the diversions would be well under 200 feet total at each creek. Therefore, the unavailable habitat within the diversions at each creek will be no more than 200 feet long. However, this includes the culverts as well as the concrete apron at Cade Creek, so the loss of functional habitat will be somewhat less.

The stream habitat that is temporarily unavailable is not high quality in terms of cover, depth, and structure, but it does provide important cool water refuge for juvenile coho salmon. Fish relocated from the dewatered areas will be relocated to appropriate habitat, which could include upstream reaches of each creek where competition from other salmonids is likely to be minimal. Additionally, most juvenile coho that are seeking cool water refuge from the warm mainstem Klamath River will have already entered the creeks by June 15, so few, if any, additional juvenile coho would attempt to use these reaches of the creeks after dewatering. Therefore, we believe this temporary loss of rearing habitat will not result in decreased fitness or survival of

individual juvenile SONCC coho salmon. And as explained in section 2.5.3, adult coho salmon could arrive in the action areas while the streams are diverted; however, given the low flows expected in September and October and the difficulty in passing the existing culverts at those flows, adult coho salmon would likely be forced to seek spawning habitat elsewhere regardless of whether the streams were diverted. Therefore, any impacts to adult coho salmon due to habitat in the action area being inaccessible would be inconsequential.

### 2.5.5 Effects to SONCC Coho Critical Habitat

*Riparian Vegetation Removal*
Tree and vegetation removal at each site is described in section 1.3.1. Native species will be replanted.

NMFS expects that the temporary permanent loss of this riparian vegetation will have minimal impact on the functional values of existing riparian habitat given the small scale of the impact; therefore, no measurable increase in water temperature or reduction in the amount of terrestrial food input into the streams is anticipated. No mature conifers will be removed; therefore, NMFS does not expect any appreciable changes to large woody debris recruitment to adjacent stream channels. NMFS believes that impacts to riparian vegetation will be inconsequential to the overall value of SONCC coho salmon habitat in the action area.

*Streambanks and Streambed*
Impacts to the banks and beds of the streams will be minimized per project design and BMPs. Most of the impacted streambeds will be within the footprints of the existing crossings, and each of these reaches will be rebuilt. As described in section 1.3.2, NMFS and Caltrans hydraulic engineers will continue with channel modification design, and NMFS expects the final designs to provide desired habitat and hydraulic conveyance values. Each of the bridges will fully span the channels of the respective streams. Therefore, NMFS expects that the habitat value of streambeds and banks at both locations will increase as a result of these projects.

### 2.5.6 Combined Effects

The potential exists for simultaneous construction-related impacts to have a synergistic effect that is greater or different than each stressor acting alone. Simultaneous project impacts may include visual impacts from workers and equipment working near or over the watercourses at the same time that fish may be exposed to suspended sediment, for example. Most potential project impacts would not occur simultaneously due to logistics of construction that require one phase of the project to be completed prior to starting another. Because combined effects are either unlikely or of very low intensity, NMFS does not expect any reductions in fitness of individual SONCC coho salmon from any combined effects of individual construction elements at each site.

Additionally, we considered whether impacts at each location could be additive with the other location. Both sites are in different subwatersheds and are no closer than 17 river miles apart. Therefore, NMFS believes that there will be no combined effects between individual locations.

## 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).

SONCC coho salmon in the action areas are likely to be affected by future, ongoing non-federal activities, such as timber harvest, fishing activities, agriculture and rural development, and road construction. Water diversions contribute to diminished stream flows and warmer water temperatures, while agriculture may increase nutrients and degrade dissolved oxygen or water clarity. The future effects of timber harvest include continued land disturbance, road construction and maintenance, and higher rates of erosion and sedimentation.

## 2.7. Integration and Synthesis

The Integration and Synthesis section is the final step in our assessment of the risk posed to species 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 (Section 2.2), to formulate the agency's biological opinion as to whether the proposed action is likely to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing its numbers, reproduction, or distribution.

### 2.7.1 Summary of Baseline, Status of the Species, and Cumulative Effects

We describe habitat for SONCC coho salmon at the ESU scale as mostly degraded in section 2.2.2. Although there are exceptions, the majority of streams and rivers in the ESU have impaired habitat. Additionally, this critical habitat often lacks the ability to establish fully functioning features due to ongoing and past human activities. While habitat generally remains degraded across the ESU, restorative actions have likely improved the conservation value of habitat throughout their ranges.

While the action areas lie within the geographic boundary of the SONCC coho salmon Middle Klamath River Population, non-natal rearing of SONCC coho salmon from the Upper Klamath River Population is also likely as downstream migrants seek cool water refuge from the mainstem Klamath River.

The NMFS SONCC Coho Salmon Recovery Plan (NMFS 2014) indicates that the Middle Klamath River Population is at moderate risk of extinction and is likely above the depensation threshold. However, the Upper Klamath River Population is considered to be at high extinction risk and is likely below the depensation threshold.

The cumulative effects of those state and private activities that occur in the middle Klamath River watershed may continue to impair, but not preclude the recovery of habitat in the action area. NMFS expects that ongoing improvements in legacy effects of poor timber harvest practices and agricultural development will result in improved habitat conditions for SONCC coho salmon. Focused recovery actions as identified in the Recovery Plan (NMFS 2014) are expected to further improve habitat in the middle Klamath River. Additionally, due to the negligible nature of the proposed action's long-term impacts, NMFS does not expect the proposed action to exacerbate the effects of climate change on coho salmon in the action area.

### 2.7.2 Summary of Effects to Individual SONCC Coho Salmon and Critical Habitat

NMFS anticipates miniscule effects to SONCC coho salmon and their designated critical habitat from expected levels of hydroacoustic exposure, chemical contamination, temporary loss of riparian vegetation, disturbance of streambanks and streambed, or increased sediment and turbidity during various activities. However, adverse effects are likely due to capture, handling, and relocation efforts intended to protect fish from potential exposure to in-water work activity.

*Cade Creek*
NMFS predicts that up to 20 juvenile coho salmon could be handled during relocation in the second of the two construction seasons. NMFS expects that no more than one juvenile coho salmon could be injured or killed due to handling and relocation. However, as explained in Section 2.4.1, NMFS believes that some form of water quality problem or disease may result in sick or moribund salmonids being present at the time of fish relocation, which could lead to higher-than-expected rates of mortality during fish relocation. We believe that any sick or moribund fish would have died regardless of handling stress during relocation. We have, therefore, added a Term and Condition to the Incidental Take Statement (section 2.9) that biologists shall visually assess the health of any salmonids present to help determine whether any deaths should be attributed to background causes rather than handling stress.

*Portuguese Creek*
NMFS predicts that up to 10 juvenile coho salmon could be handled during relocation in the second of the two construction seasons. NMFS expects that no more than one juvenile coho salmon could be injured or killed due to handling and relocation.

*Overall Individual and Critical Habitat Effects*
NMFS does not expect that the loss of two juvenile SONCC coho salmon would affect future adult returns regardless of whether the individuals belong to the Middle Klamath River Population or the Upper Klamath River Population. This loss of juveniles would represent a miniscule percentage of the overall number of individuals in each population. The overall number of individuals in the populations will likely provide a compensatory effect. Other areas of the Klamath River watershed are expected to continue to contribute to the populations during the time period when some juveniles in the action area may be harmed or killed as a result of this proposed project. Therefore, NMFS does not expect any appreciable effects on VSP parameters,

and thus, the proposed action is not expected to reduce the survival and recovery of the SONCC coho salmon ESU, and the project is unlikely to appreciably diminish the value of designated critical habitat for the conservation of SONCC coho salmon.

## 2.8. Conclusion

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

## 2.9. Incidental Take Statement

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

The take exemption conferred by this incidental take statement is based upon the proposed action occurring as described in section 1.3 of this opinion and in more detail in Caltrans' BA (Caltrans 2021).

### 2.9.1. Amount or Extent of Take

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

Take of juvenile coho salmon may occur in the form of capture during fish relocation. For the total of both sites combined, NMFS expects that no more than two juvenile coho salmon would be injured or killed during capture and relocation to adjacent habitat, as detailed in sections 2.5.1 and 2.7.2 above.

### 2.9.2. Effect of the Take

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

2.9.3. Reasonable and Prudent Measures

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

NMFS believes the following reasonable and prudent measures are necessary and appropriate to minimize take of SONCC coho salmon:

1. Undertake measures to ensure that harm and mortality to threatened coho salmon resulting from fish relocation activities are low.
2. Ensure construction methods, minimization measures, and monitoring are properly implemented during construction.
3. Prepare and submit a post-construction report regarding the effects of fish relocation and construction activities.

2.9.4. Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the Federal action agency must comply (or must ensure that any applicant complies) with the following terms and conditions. Caltrans 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. Qualified biologists with expertise in the areas of anadromous salmonid biology shall conduct fish relocation activities associated with construction. Caltrans will ensure that all biologists working on the project are qualified to conduct fish relocation in a manner which minimizes all potential risks to salmonids. The stream diversion and fish relocation plans shall include the qualifications of biologists conducting the fish relocation.
    b. Salmonids shall be handled with extreme care and kept in water to the maximum extent possible during rescue activities. All captured fish must be kept in cool, shaded, and aerated water protected from excessive noise, jostling, or overcrowding or potential predators any time they are not in the stream, and fish will not be removed from this water except when released. Captured salmonids will be relocated as soon as possible to an instream location in which suitable habitat conditions are present to allow for adequate survival for transported fish and fish already present. Fish will be distributed between multiple areas if biologists judge that overcrowding may occur in a single area.
    c. If any salmonids are found dead or injured, the biologist will contact NMFS biologist Mike Kelly by phone immediately at (707) 825-1622. The purpose of the contact is to review the activities resulting in the take and to determine if additional protective measures are required. All salmonid mortalities will be retained, placed in an appropriately-sized sealable plastic bag, labeled with the

date and location, fork length, and be frozen as soon as possible. Frozen samples will be retained by the biologist until specific instructions are provided by NMFS. The biologist may not transfer biological samples to anyone other than the NMFS Northern California Office in Arcata, California without obtaining prior written approval from the South Coast Branch Chief. Any such transfer will be subject to such conditions as NMFS deems appropriate.

d. Qualified fish biologists shall visually assess the health of any juvenile coho salmon captured during relocation efforts, or that are visible from the streambanks, in order to determine whether poor health may contribute to a higher-than-predicted mortality rate during capture and relocation. If coho salmon appear to be in poor health, Caltrans shall contact Mike Kelly by phone at 707-825-1622 or via email to Mike.Kelly@noaa.gov to discuss whether reinitiation of this consultation is required.

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

   a. Caltrans shall allow any NMFS employee(s) or any other person(s) designated by NMFS, to accompany field personnel to visit the project site during activities described in this opinion.
   b. Caltrans shall contact NMFS within 24 hours of meeting or exceeding take of listed species prior to project completion. Notify Mike Kelly by phone at 707-825-1622 or via email to Mike.Kelly@noaa.gov. This contact acts to review the activities resulting in take and to determine if additional protective measures are required.
   c. Caltrans shall make available to NMFS data from any hydroacoustic monitoring on a real-time basis (i.e., daily monitoring data should be accessible to NMFS upon request).

3. The following term and condition implements reasonable and prudent measure 3:

   a. Caltrans shall provide a written report to NMFS by January 15 of the year following construction of the project. The report shall be sent to NMFS via email to Mike.Kelly@noaa.gov or via mail to Mike Kelly at 1655 Heindon Road, Arcata, California 95521. The reports shall contain, at a minimum, the following information:

      **Construction related activities --** The report will include the dates construction began and was completed; a discussion of any unanticipated effects or unanticipated levels of effects on salmonids, a description of any and all measures taken to minimize those unanticipated effects, and a statement as to whether or not any unanticipated effects had any effect on ESA-listed fish; the number of salmonids (by ESU) killed or injured during Project construction; and photographs taken before, during, and after the activity from photo reference points.

      **Fish Relocation –** The report will include a description of the location from which fish were removed and the release site(s) including

photographs; the date and time of the relocation effort; a description of the equipment and methods used to collect, hold, and transport salmonids; the number of fish relocated by species; the number of fish injured or killed by species and a brief narrative of the circumstances surrounding salmonid injuries or mortalities; and a description of any problems which may have arisen during the relocation activities and a statement as to whether or not the activities had any unforeseen effects.

## 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 regarding the development of information (50 CFR 402.02).

NMFS recommends that any larger trees removed to facilitate construction access be conserved for instream habitat enhancement. To maximize the habitat value of these trees, they should have their root masses intact, which could be done by toppling with an excavator or other method, if feasible. Therefore, NMFS recommends that Caltrans coordinate with the USFS, the Karuk Tribe Fisheries Program, or other stream restoration partners to place these trees in appropriate locations within project streams or other adjacent streams.

## 2.11 Reinitiation of Consultation

This concludes formal consultation for the Cade and Portuguese Fish Passage 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 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 that was not considered in the biological opinion, or (4) a new species is listed that may be affected by the action.

# 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. Under the MSA, this consultation is intended to promote the conservation of EFH as necessary to support sustainable fisheries and the managed species' contribution to a healthy ecosystem. For the purposes of the MSA, EFH means "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity," and includes the physical, biological, and chemical properties that are used by fish (50 CFR

600.10). 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) of the MSA also requires NMFS to recommend measures that can be taken by the action agency to conserve EFH. Such recommendations may include measures to avoid, minimize, mitigate, or otherwise offset the adverse effects of the action on EFH [CFR 600.905(b)]

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

### 3.1 Essential Fish Habitat Affected by the Project

Essential Fish Habitat is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 U.S.C. 1802[10]). "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish, and may include areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means habitat required to support a sustainable fishery and a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle. The term "adverse effect" means any impacts which reduce the quality and/or quantity of EFH. Adverse effects may include direct or indirect physical, chemical, or biological alterations of the waters or substrates and loss of, or injury to, benthic organisms, prey species, and their habitats, and other ecosystem components. Adverse effects may be site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.910). The EFH consultation mandate applies to all species managed under a Fishery Management Plan (FMP) that may be present in the action area.

There is suitable habitat for juvenile coho and Chinook salmon rearing in the action area. Habitat Areas of Particular Concern (HAPC) are described as complex channel and floodplain habitat, spawning habitat, thermal refugia, estuaries, and submerged aquatic vegetation. HAPCs exist in the action area as: complex channel and floodplain habitat, and thermal refugia.

### 3.2 Adverse Effects on Essential Fish Habitat

The potential effects to coho salmon habitat have already been described in the *Effects* section of this opinion (section 2.5), and the habitat requirements of fall-run Chinook salmon, which may use the action area outside of the summer construction schedule, are essentially the same as described for coho salmon. The adverse effects to EFH and HAPCs in the action area include:

1. Temporary reduction in available habitat due to presence of stream diversion structures.

2. Noise and visual disturbance during construction activities.
3. Temporary reduction in water quality caused by increase in suspended sediments and turbidity during construction, and during the first rain events following construction.
4. Permanent and temporary loss of riparian vegetation.

### 3.3 Essential Fish Habitat Conservation Recommendations

The anticipated adverse effects from the proposed action are temporary and minor. However, NMFS has the following EFH recommendation:

> NMFS recommends that any larger trees removed to facilitate construction access be conserved for instream habitat enhancement. To maximize the habitat value of these trees, they should have their root masses intact, which could be done by toppling with an excavator or other method, if feasible. Therefore, NMFS recommends that Caltrans coordinate with the USFS, the Karuk Tribe Fisheries Program, or other stream restoration partners to place these trees in appropriate locations within project streams or other adjacent streams.

### 3.4 Supplemental Consultation

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

## 4. 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 Caltrans. Other interested users could include CDFW and the U.S. Forest Service. Individual copies of this opinion were provided to Caltrans. The document will be available within two weeks at the NOAA Library Institutional Repository [https://repository.library.noaa.gov/welcome]. The format and naming adhere 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 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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