

3.11 Fisheries and Aquatics

3.11.1 Introduction

This section analyzes the proposed project's potential impacts related to fisheries and aquatics resources. It describes existing conditions in the study area and summarizes the overall Federal, state, and local regulatory framework for fisheries and aquatics resources, and it analyzes the potential for the proposed project to affect these resources.

3.11.2 Existing Conditions

This section discusses the existing conditions related to fisheries and aquatics resources in the study area.

3.11.2.1 Study Area

The study area for fish and aquatics encompassed the project area and the surrounding segment of the Feather River. The study area is characterized by a highly disturbed floodplain that has been hydraulically disconnected from the Feather River by gold dredging and levee construction during construction of the Oroville Dam. Use of the area for borrow during construction of the Oroville Dam leveled areas to an elevation of roughly 3 feet above the summer flow level of the Feather River. The project area is disconnected from the Feather River during non-flood periods by a 15-foot-high to 20-foot-high berm along the northern and western boundaries of the project area. When flow is greater than 43,000 cubic feet per second (cfs), water flows into and out of the project area through a system of inflow and outflow weirs. The project area is characterized by a network of channels and disconnected ponds bordered by extensive, isolated ridges and piles of rock left by gold dredging. The bottoms of these interior channels and ponds are, in many places, lower in elevation than the adjacent Feather River. The historical ground disturbance has resulted in existing conditions that are conducive to colonization by invasive plant species and stranding of native fish. Widespread invasive species include water primrose, annual grasses, broom, giant reed, scarlet wisteria, tree-of-heaven, and Himalayan blackberry. Fish stranding has potential to occur when fish enter the area during high flows and become stranded in the ponds and interior waterways as flows recede.

3.11.2.2 Fish Species in the Study Area

The Feather River in the study area provides spawning, rearing, and migratory habitat for a diverse assemblage of native and nonnative fish species. Native species can be separated into anadromous (species that spawn in fresh water after migrating as adults from marine habitat) and resident species. Native anadromous species include two runs of Chinook salmon (*Oncorhynchus tshawytscha*) (spring-run [Federally and state listed as threatened] and fall-/late-fall run [Federal and state species of concern]), Central Valley steelhead (*O. mykiss*) (Federally listed as threatened), green sturgeon (*Acipenser medirostris*) (Federally listed as threatened and state species of concern), white sturgeon (*A. transmontanus*), Pacific lamprey (*Entosphenus tridentata*) (state species of concern), and river lamprey (*Lampetra ayresi*) (state species of concern).

Native resident species include Sacramento pikeminnow (*Ptychocheilus grandis*), Sacramento splittail (*Pogonichthys macrolepidotus*) (state species of concern), Sacramento sucker (*Catostomus*

occidentalis), hardhead (*Mylopharodon conocephalus*) (state species of concern), California roach (*Hesperoleucas symmetricus*), and rainbow trout (*O. mykiss*). Nonnative anadromous species include striped bass (*Morone saxatilis*) and American shad (*Alosa sapidissima*). Nonnative resident species include largemouth bass (*Micropterus salmoides*), smallmouth bass (*M. dolomieu*), white and black crappie (*Pomoxis annularis* and *P. nigromaculatus*), channel catfish (*Ictalurus punctatus*), white catfish (*Ameiurus catus*), brown bullhead (*Ictalurus nebulosus*), bluegill (*Lepomis macrochirus*), green sunfish (*L. cyanellus*), and golden shiner (*Notemigonus crysoleucas*).

Special-Status Fish Species

Eight special-status fish species are known to occur or have the potential to occur in the study area (Table 3.11-1). The likelihood of these species to occur within the project area was determined to be high for all species, although the occurrence of these species depends on the seasonal timing of individual life stages and their ability to access the project area.

3.11.3 Regulatory Setting

This section summarizes key Federal and state regulatory information that applies to fisheries and aquatics.

3.11.3.1 Federal

The following Federal policies related to fisheries and aquatics may apply to implementation of the proposed project. These policies include the National Environmental Policy Act, which was previously discussed in Section 3.9.2.1 of *Vegetation and Wetlands*.

Federal Endangered Species Act

The Federal Endangered Species Act (ESA) protects fish and wildlife species and their habitats that have been identified by National Marine Fisheries Service (NMFS) or U.S. Fish and Wildlife Service (USFWS) as threatened or endangered. *Endangered* refers to species, subspecies, or distinct population segments (DPSs) that are in danger of extinction through all or a significant portion of their range. *Threatened* refers to species, subspecies, or DPSs that are likely to become endangered in the near future.

ESA is administered by USFWS and NMFS. In general, NMFS is responsible for protection of ESA-listed marine species and anadromous fish, and USFWS is responsible for other listed species. Provisions of Sections 9 and 7 of ESA are relevant to this project and are summarized below.

Section 9: ESA Prohibitions

Section 9 of the ESA prohibits the take of any fish or wildlife species listed under ESA as endangered. Take of threatened species also is prohibited under Section 9, unless otherwise authorized by Federal regulations.¹ *Take*, as defined by the ESA, means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” *Harm* is defined as “any act that kills or injures the species, including significant habitat modification.”

¹ In some cases, exceptions may be made for threatened species under ESA Section 4(d); in such cases, USFWS or NMFS issues a 4(d) rule describing protections for the threatened species and specifying the circumstances under which take is allowed.

Table 3.11-1. Special-Status Fish with Potential to Occur in the Study Area

Common and <i>Scientific Name</i>	Legal Status ^a Federal/State	Geographic Distribution	Habitat Requirements	Potential for Occurrence in Study Area
Chinook salmon— Central Valley spring- run ESU <i>Oncorhynchus</i> <i>tshawytscha</i>	T/T	The Sacramento River, Feather River, Yuba River, Butte Creek, Mill Creek, Deer Creek, Antelope Creek, Battle Creek, Clear Creek, and Beegum Creek tributary to Cottonwood Creek.	Occurs in rivers and creeks that are well-oxygenated, cool, riverine habitat with water temperatures from 8.0 to 12.5°C. Habitat types are riffles, runs, and pools (Moyle 2002).	High—during adult migration (March to September) and juvenile rearing/migration (January to June and November to December)
Chinook salmon— Central Valley fall- and late fall-run ESU <i>Oncorhynchus</i> <i>tshawytscha</i>	SC/SSC	The main stem Sacramento River and tributaries. The San Joaquin River tributaries.	Occurs in streams and rivers within the Sacramento and San Joaquin River drainage that are well-oxygenated, cool, riverine habitat with water temperatures from 8.0 to 12.5°C. Habitat types are riffles, runs, and pools (Moyle 2002).	High—during adult migration into the Feather River and tributaries (August to December).
Steelhead—California Central Valley DPS <i>Oncorhynchus mykiss</i>	T/-	Riverine and stream habitat within the Sacramento-San Joaquin River drainages that contain suitable habitat needed for steelhead survival.	Occurs in streams and rivers within the Feather River drainage that are well-oxygenated, cool, riverine habitat with water temperatures from 7.8 to 18°C (Moyle 2002). Habitat types are riffles, runs, and pools.	High—during adult migration (December to March) and juvenile rearing/migration (January to June).
North American green sturgeon (southern DPS) <i>Acipenser medirostris</i>	T/SSC	The Sacramento River, the Yolo and Sutter Bypasses, the lower Feather River, and the lower Yuba River. The lower San Joaquin River and the Delta. San Francisco Estuary and coastal waters.	Habitat that is free of migratory obstructions, with water quantity and quality that support migratory movements, enhance juvenile growth and provide cover. Need well-oxygenated water, with temperatures from 8.0 to 14°C. (Moyle 2002)	Low—during adult migration (February to June) and juvenile rearing/migration (year round). A few individuals have been observed in the Feather River.
Sacramento splittail <i>Pogonichthys</i> <i>macrolipidotus</i>	-/SSC	The Sacramento and Feather River, sloughs, backwaters and oxbow lakes.	Backwater habitat that is shallow, low velocity, suitable temperature, and food availability.	High—during adult migration and juvenile rearing/migration (May to August).

Common and Scientific Name	Legal Status ^a Federal/State	Geographic Distribution	Habitat Requirements	Potential for Occurrence in Study Area
Pacific lamprey <i>Entosphenus tridentata</i>	-/SSC	Los Angles to Del Norte counties and Central Valley rivers, including the Feather River.	Cold, clear water for spawning and incubation. Need gravel areas for spawning and mud or sand substrate for rearing ammocoetes. (Moyle et al 2015)	High – during adult migration (March to July) and rearing (all months).
River lamprey <i>Lampetra ayresi</i>	-/SSC	Sacramento, San Joaquin, and Napa Rivers; tributaries of San Francisco Bay (Moyle 2002; Moyle et al. 1995).	Adults live in the SF Estuary and migrate into fresh water to spawn.	High—during adult migration (September to May) and juvenile rearing/migration (September to November; February to May).
Hardhead <i>Mylopharodon conocephalus</i>	-/SSC	Sacramento, San Joaquin, and Russian Rivers and tributaries (Moyle 2002; Moyle et al. 1995).	Typically occur in undisturbed, low-to mid-elevation streams and main stem Sacramento River and tributaries.	High—year round inhabitants.

DPS = distinct population segment

ESU = evolutionarily significant unit

^aStatus explanations:

Federal

T = listed as threatened under the Federal Endangered Species Act.

SC = federal species of concern.

- = no listing.

State

T = listed as threatened under the California Endangered Species Act.

SSC = species of special concern in California.

- = no listing.

Section 7: ESA Authorization Process for Federal Actions

Section 7 of the ESA provides a means for authorizing take of threatened and endangered species by Federal agencies. Under Section 7, the Federal agency conducting, funding, or permitting an action (the lead Federal agency, such as U.S. Army Corps of Engineers [USACE]) must consult with NMFS or USFWS, as appropriate, to ensure that the proposed project would not jeopardize endangered or threatened species or destroy or adversely modify designated critical habitat. If a proposed project “may affect” a listed species or designated critical habitat, the lead agency is required to prepare a Biological Assessment to evaluate the nature and severity of the expected effect. In response, NMFS or USFWS issues a Biological Opinion (BO), with a determination that the proposed project either:

- may jeopardize the continued existence of one or more listed species (jeopardy finding) or result in the destruction or adverse modification of critical habitat (adverse modification finding), or
- would not jeopardize the continued existence of any listed species (no jeopardy finding) or result in adverse modification of critical habitat (no adverse modification finding).

The BO issued by NMFS or USFWS may stipulate discretionary “reasonable and prudent” conservation measures. If the project would not jeopardize a listed species, USFWS or NMFS issues an incidental take statement to authorize the proposed activity.

USACE and NMFS are in coordination to determine the ESA compliance documentation appropriate for the proposed project.

Critical Habitat

Critical habitat, as defined in ESA Section 3, is:

- I. the specific area within the geographic area occupied by a species, at the time it is listed in accordance with ESA, on which are found those biological features
 - i. essential to the conservation of the species, and
 - ii. may require special management considerations or protection; and
- II. specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Floodplain connectivity is recognized as contributing to critical habitat. Aquatic habitats in the study area have been designated as critical habitat for the following species

- Central Valley spring-run Chinook salmon
- California Central Valley steelhead
- Southern DPS North American Green sturgeon

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act requires consultation with USFWS, NMFS, and the state fish and wildlife agencies where the waters of any stream or other body of water are proposed, authorized, permitted, or licensed to be impounded, diverted, or otherwise controlled or modified under a Federal permit or license. Consultation is in progress for the purpose of preventing loss of

and damage to wildlife resources, led by USFWS in coordination with NMFS and California Department of Fish and Wildlife (DFW).

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) establishes a management system for national marine and estuarine fishery resources. This legislation requires that all Federal agencies consult with NMFS regarding all actions or proposed actions permitted, funded, or undertaken that may adversely affect essential fish habitat (EFH). EFH is defined as “waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” The legislation states that migratory routes to and from anadromous fish spawning grounds are considered EFH. The phrase *adversely affect* refers to the creation of any effect that reduces the quality or quantity of essential fish habitat. Federal activities that occur outside of an essential fish habitat but that may, nonetheless, have an effect on essential fish habitat waters and substrate must also be considered in the consultation process.

Under the Magnuson-Stevens Act, effects on habitat managed under the Pacific Salmon Fishery Management Plan must also be considered. The Magnuson-Stevens Act states that consultation regarding essential fish habitat should be consolidated, where appropriate, with the interagency consultation, coordination, and environmental review procedures required by other Federal statutes, such as National Environmental Policy Act, Fish and Wildlife Coordination Act, Clean Water Act (CWA), and ESA. EFH consultation requirements can be satisfied through concurrent environmental compliance if the lead agency provides NMFS with timely notification of actions that may adversely affect EFH and if the notification meets requirements for essential fish habitat assessments.

USACE and NMFS are in coordination to determine the EFH compliance documentation appropriate for the proposed project.

3.11.3.2 State

The following state policies related to fish and aquatics may apply to implementation of the proposed project.

California Endangered Species Act

The California Endangered Species Act (CESA), which is administered by DFW, protects wildlife and plants listed by the California Fish and Game Commission as threatened and endangered under the act. CESA prohibits all persons from taking species that are state-listed as threatened or endangered except under certain circumstances; the CESA definition of *take* is any action or attempt to “hunt, pursue, catch, capture, or kill.”

CESA Section 2081 provides a means by which agencies or individuals may obtain authorization for incidental take of state-listed species, except for certain species designated as fully protected under the California Fish and Game Code. Take must be incidental to, and not the purpose of, an otherwise lawful activity. Requirements for a Section 2081 permit are similar to those used in the ESA Section 7 process. They include identification of effects on listed species, development of mitigation measures that minimize and fully mitigate effects, development of a monitoring plan, and assurance of funding to implement mitigation and monitoring.

California Fish and Game Code Section 1600: Lake or Streambed Alteration Agreements

DFW has jurisdictional authority over wetland resources associated with rivers, streams, and lakes under Sections 1600–1607. DFW has the authority to regulate all work under the jurisdiction of the State of California that would substantially divert, obstruct, or change the natural flow of a river, stream, or lake; substantially change the bed, channel, or bank of a river, stream, or lake; or use material from a streambed.

In practice, DFW marks its jurisdictional limit at the top of the stream or lake bank, or the outer edge of the riparian vegetation where present, and sometimes extends its jurisdiction to the edge of the 100-year floodplain. Because riparian habitats do not always support wetland hydrology or hydric soils, wetland boundaries, as defined by CWA Section 404, sometimes include only portions of the riparian habitat adjacent to a river, stream, or lake. Therefore, jurisdictional boundaries under Section 1600 may encompass a greater area than those regulated under CWA Section 404.

DFW enters into a lake or streambed alteration agreement with an applicant and can impose conditions on the agreement to ensure that no net loss of wetland values or acreage would be incurred. The streambed or lakebed alteration agreement is not a permit, but a mutual agreement between DFW and the applicant.

3.11.3.3 Local

Butte County has adopted policies related to fish and wildlife resources.

Butte County General Plan 2030

The policies below are taken from the Conservation and Open Space Element of the Butte County General Plan 2030, adopted in October 2010 and amended in November 2012 (County of Butte 2012:235–240). These policies are designed to guide County planning related to and affecting habitat and biological resources, including fisheries and aquatics.

Goal COS-6: Engage in cooperative planning efforts to protect biological resources.

- COS-P6.1 The County shall coordinate with applicable Federal, State, regional and local agencies on natural resources and habitat planning.

Goal COS-7: Conserve and enhance habitat for protected species and sensitive biological communities.

- COS-P7.1 Conservation easements that protect habitat areas, habitat corridors and sensitive biological resources shall be promoted.
- COS-P7-2 Clustered development patterns shall be encouraged in order to conserve habitat for protected species and biological resources.
- COS-P7.3 Creeks shall be maintained in their natural state whenever possible, and creeks and floodways shall be allowed to function as natural flood protection features during storms.
- COS-P7.6 New development projects shall include setbacks and buffers along riparian corridors and adjacent to habitat for protected species, except where permitted in the Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP) Planning Area and where such development is consistent with the conditions of the HCP/NCCP, upon the future adoption of the [Butte Regional] HCP/NCCP.

- COS-P7.7 Construction barrier fencing shall be installed around sensitive resources on or adjacent to construction sites. Fencing shall be installed prior to construction activities and maintained throughout the construction period.
- COS-P7.8 Where sensitive on-site biological resources have been identified, construction employees operating equipment or engaged in any development-associated activities involving vegetation removal or ground disturbing activities in sensitive resource areas shall be trained by a qualified biologist and/or botanist who will provide information on the on-site biological resources (sensitive natural communities, special status plant and wildlife habitats, nests of special-status birds, etc.), avoidance of invasive plant introduction and spread, and the penalties for not complying with biological mitigation requirements and other state and Federal regulations.
- COS-P7.9 A biologist shall be retained to conduct construction monitoring in and adjacent to all habitats for protected species when construction is taking place near such habitat areas.

Goal COS-9: Protect identified special-status plant and animal species.

- COS-P9.1 A biological resources assessment shall be required for any proposed development project where special-status species or critical habitat may be present. Assessments shall be carried out under the direction of Butte County. Additional focused surveys shall be conducted during the appropriate season if necessary. Upon adoption of the Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP), assessment requirements of the [Butte Regional] HCP/NCCP shall be implemented for development projects within the [Butte Regional] HCP/NCCP area.
- COS-P9.2 If special-status plant or animal species are found to be located within a development site, proponents of the project shall engage in consultation with the appropriate Federal, state and regional agencies and mitigate project impacts in accordance with state and Federal law. Upon adoption of the Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP), mitigation requirements of the [Butte Regional] HCP/NCCP shall be implemented for development projects within the [Butte Regional] HCP/NCCP area. Examples of mitigation may include:
 - a. Design the proposed project to avoid and minimize impacts.
 - b. Restrict construction to specific seasons based on project-specific special-status species issues (e.g. minimizing impacts to special-status nesting birds by constructing outside of the nesting season).
 - c. Confine construction disturbance to the minimum area necessary to complete the work.
 - d. Mitigate for the loss of special-status species by purchasing credits at an approved conservation bank (if a bank exists for the species in question), funding restoration or habitat improvement projects at existing preserves in Butte County, or purchasing or donating mitigation lands of substantially similar habitat.
 - e. Maintain a minimum 100-foot buffer on each side of all riparian corridors, creeks and streams for special-status and common wildlife.
 - f. Establish setbacks from the outer edge of special-status species habitat areas.

3.11.4 Environmental Effects

The proposed project would reconnect the Feather River to its historic floodplain and would result in numerous benefits to fisheries, including increased floodplain rearing habitat, reduced potential for stranding in interior ponds and waterways, increased riparian cover and shade, and associated reductions in spring and summer water temperatures. During frequent flood flows (i.e., 2-year flood events), more than 160 acres of floodplain rearing habitat would be accessible to juvenile spring-

and fall-run Chinook salmon, steelhead, and other native fishes (Figure 2-3). The increase in the amount of native riparian vegetation from vegetation and restoration activities would improve habitat quality for fish by increasing cover and prey availability (e.g., aquatic and terrestrial insects), and reducing water temperature. The fish monitoring associated with the proposed project would characterize abundance, occupancy, and fish community composition following reconnection of the floodplain to the Feather River. Surveys would also be implemented to identify potential stranding areas and evaluate the performance of the project in reducing stranding risk within the interior ponds and waterways.

Potential impacts of the proposed project on fisheries and aquatics are discussed in the context of State CEQA Guidelines Appendix G checklist items.

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Impact FISH-1: Disturbance of Special-Status Fish Species Due to Construction-Related Noise, Turbidity, and Suspended Sediment (less than significant for all components)

Construction noise, turbidity, and suspended sediment resulting from project activities in or near open water could adversely affect fish and aquatic habitat. The effects of turbidity and suspended sediment on fish can range from behavioral effects (e.g., avoidance) to injury or mortality depending on the intensity and duration of exposure (Newcombe and Jensen 1996). Prolonged exposure to high turbidity can affect growth and survival of fish by reducing feeding efficiency, impairing respiratory function, reducing tolerance to disease and contaminants, and causing physiological stress (Waters 1995). Fish may exhibit behavioral responses, physiological stress, temporary and permanent hearing loss, tissue damage (auditory and non-auditory), and direct mortality from exposure to noise depending on the intensity, frequency, and duration of exposure (Popper and Hastings 2009). Pile driving, blasting, and other sources of loud, impulsive sound levels can cause direct injury to fish. Other activities such as the use of heavy machinery (e.g., graders) in or near open water are not expected to produce sound levels of sufficient magnitude to injure fish.

In addition to noise, contaminants could be released from heavy equipment used during construction. Releases of contaminants such as bentonite, gasoline, diesel fuel, lubricants, hydraulic fluid, and others associated with construction equipment, could result in acute negative effects on fish, invertebrates, and instream habitat (National Marine Fisheries Service 2006). In addition, long-term effects could result if a spill were not properly remediated. The potential sources of contaminants in the project would be the construction equipment itself (lubricating oils and fuel). These substances can kill aquatic organisms through exposure to lethal concentrations or exposure to non-lethal levels that cause physiological stress and increased susceptibility to other sources of mortality such as predation.

Vegetation Management: There would be a beneficial effect on special-status fish species in the Feather River following floodplain restoration and reconnection to Feather River. No adverse effects are expected because all vegetation management activities would be done within the project area during the dry season when there is no surface connection to the river. Standard erosion and sediment control best management practices (BMPs) would minimize the potential for adverse sedimentation and turbidity effects during active management activities and subsequent

stormwater runoff/flood events. With implementation of a Stormwater Pollution Prevention Plan (SWPPP), turbidity monitoring plan, and Spill Prevention Control and Countermeasures Plan (SPCCP) (Section 2.4, *Regulatory Commitments*), this impact would be less than significant.

Hydraulic Improvements: Construction activities within the Feather River channel and adjacent banks or levee slopes could result in increases in turbidity and suspended sediment in the river through direct disturbance of sediments in actively flowing portions of the river or increased erosion and transport of soil or sediment from disturbed banks or upland areas (perennial drainage) during subsequent storm runoff or flood events. Hazardous materials could be released from construction equipment that comes in contact with surface water. Potential sources of increased sedimentation and turbidity include clearing, grubbing, and grading activities during construction of the new rock gabion inflow weir and notch connection to the Feather River. These activities have the potential to disturb and increase delivery of fine sediment to the Feather River. However, with implementation of a SWPPP, turbidity monitoring plan, and SPCCP (Section 2.4, *Regulatory Commitments*), and the use of a cofferdam (installed during the dry season, July 1 to October 31) to isolate in-channel construction areas from flowing water in the Feather River, this impact would be less than significant.

Installation of the cofferdam (if needed) for construction of the notch connections to the Feather River would be placed below the ordinary high water mark (OHWM) and could strand fish. However, the potential for stranding would be minimized by restricting in-water construction to July 1 through October 31 when the most vulnerable life stages (e.g., eggs and fry) of special-status fish species are least likely to occur in the project area. This impact would be less than significant.

Recreation Features: Grading to improve river access could disturb soil and increase delivery of fine sediment to the Feather River. Contaminants could be released by construction equipment (e.g., lubricating oils and fuel) and injure fish if the hazardous materials come into contact with surface water. As described above, implementation of a SWPPP and standard erosion and sediment control BMPs (see Section 3.3, *Hydrology and Water Quality*) would minimize the potential for adverse sedimentation and turbidity and contamination effects during construction activities and subsequent stormwater runoff/flood events. This impact would be less than significant.

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Impact FISH-2: Change in Special-Status Fish Species Habitat Due to Construction and Operation of the Proposed Project (beneficial for vegetation management; less than significant for hydraulic improvements and recreation features)

Construction of the various project components will result in removal of riparian habitat that provides cover, stream shading, prey resources, and other ecosystem functions important to juvenile salmonids and other fishes.

Vegetation Management: Vegetation management activities includes the removal of invasive aquatic species and planting of riparian vegetation. The removal of invasive aquatic species in the project area would have a beneficial effect on special-status fish species in Feather River and project area following floodplain restoration and reconnection. Clearing of ponds and channels of extensive beds of invasive plant species will increase the quantity and quality of habitat for special-status fish and wildlife species. The proposed project would include planting 150 acres of riparian vegetation

to replace the losses of existing riparian vegetation and to provide additional habitat for fish and other wildlife species in the project area floodplain. Therefore, the net effect of the vegetation management component would be beneficial.

Hydraulic Improvements: Construction of hydraulic improvements, including the inflow and outflow weirs, notch connections to the river, fish barrier berm, and interior road culvert crossings, would occur in areas mapped as riparian forest and riparian scrub-shrub. A limited amount of the interior channel grading, primarily in the southeast part of the project area, would abut riparian habitats. Construction of the hydraulic improvements would require removal of riparian vegetation, resulting in the direct permanent loss of up to 6.8 acres of riparian forest and 0.1 acre of riparian scrub-shrub in the project area. Temporary losses of riparian vegetation could occur within the larger designated construction areas, and channel grading could affect several additional acres of riparian vegetation, depending on how equipment would access the channels. The extent of this loss would depend on equipment access needs, but could be up to 4.7 acres of riparian forest and 0.9 acre of riparian scrub-shrub. The loss of riparian habitat, which is a component of designated critical habitat for spring-run Chinook salmon, California Central Valley steelhead, and southern DPS North American green sturgeon would be offset by the planting of 150 acres of riparian vegetation as part of the vegetation management component. The combination of riparian vegetation enhancement and increased access to floodplain habitat would have a net long-term beneficial effect on salmonid and green sturgeon critical habitat. Therefore, the temporary loss of riparian vegetation would be a less-than-significant impact.

Recreation Features: Construction of recreation features, including the vehicle access bridge, the two footbridges, and the parking lot regrade, would occur in areas mapped as riparian forest and riparian scrub-shrub. Construction would require removal of riparian vegetation, resulting in the direct permanent loss of up to 1.0 acre of riparian forest and less than 0.1 acre of riparian scrub-shrub in the project area. Temporary losses of riparian vegetation could occur within the larger designated construction areas. The extent of this loss would depend on equipment access needs, but could be up to 0.3 acre of riparian forest and 0.2 acre of riparian scrub-shrub. The loss of riparian habitat, which is a component of designated critical habitat for spring-run Chinook salmon, California Central Valley steelhead and southern DPS North American green sturgeon would be offset by implementation of the vegetation management component that would enhance 150 acres of riparian habitat. Therefore, the temporary loss of riparian vegetation would be a less-than-significant impact. The enhancement of riparian vegetation in the project area would increase habitat values for salmonids and green sturgeon in the long term.

c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?

The proposed project's potential impacts on Federally protected wetlands are discussed in Section 3.9, *Vegetation and Wetlands*.

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Impact FISH-3: Change in Fish Movement as a Result of Project Operation (beneficial for vegetation management and hydraulic improvements; no impact for recreational features)

The proposed project would have an overall beneficial effect on migratory fish movement due to the interior channel drainage improvements and improved floodplain connectivity to Feather River. The new notch connections would enlarge floodplain rearing habitat for juvenile steelhead and Chinook salmon from increases in the area and duration of floodplain inundation occurring as a result of reconnection of the project area to the Feather River. Hydraulic modeling results for the 2-year flood event show backwater from the Feather River extending into the project area to create approximately 150 acres of inundated floodplain habitat (Figure 2-3). Modeling for the 100-year flood event shows little change in the extent of inundation from baseline conditions (Figure 2-4); however, these larger events are also expected to improve floodplain rearing opportunities because of extended periods of floodplain inundation following recession of peak floodwaters. Additional benefits would result from the interior channel drainage improvements and construction of the fish barrier berm, which will facilitate fish movement back to the river and prevent stranding in the Pit 2 pond and other isolated ponds and waterways.

Vegetation Management: The proposed project would have a beneficial effect on fish movement and habitat resulting from invasive aquatic plant species removal.

Hydraulic Improvements: As indicated in the impact discussion above, the hydraulic improvements associated with the proposed project would have a beneficial effect on fish movement.

Recreation Features: There would be no impact on fish movement from recreation features.

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The proposed project does not conflict with the Butte County General Plan 2030. The proposed project is designed to increase the value of fish habitat by providing floodplain rearing habitat for juvenile spring- and fall-run Chinook salmon and steelhead. There would be no impact.

f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?

The Butte Regional HCP/NCCP was not adopted at the time of preparation of this document. Therefore, the proposed project will not conflict with any adopted conservation plan or natural community conservation plan. There would be no impact.