

## Chapter 4

# Cumulative Effects

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### 4.1 Cumulative Projects

The State CEQA Guidelines define a cumulative impact as two or more individual impacts that, when considered together, are significant or that compound or increase other significant environmental impacts. The incremental impact of a project may be considerable when viewed in the context of other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor, but collectively significant, projects taking place over a period of time (State CEQA Guidelines Section 15355). The following projects constitute the cumulative condition for purposes of this analysis and are recently completed, planned, or proposed in the vicinity of the proposed project.

- **Yuba Goldfields 200-Year Flood Protection Project.** The Three Rivers Levee Improvement Authority (TRLIA) Yuba Goldfields 200-Year Flood Protection Project would be located in Yuba County, approximately 10 miles northeast of Marysville along the south side of the Yuba River near Daguerre Point Dam. The purpose of the Yuba Goldfields Project is to provide 200-year flood risk reduction to the urbanized Reclamation District (RD) 784 service area. The project proposes to construct an approximately 3.5-mile-long setback levee along the south bank of the Yuba River just south of the Goldfields. The levee would intercept Yuba River flood flows during a 200-year flood event, redirect them west of the Goldfields to the Yuba River Floodplain, and prevent them from flowing through the Goldfields. The levee would have a 20-foot-wide crest, 3:1 waterside (north side) and landside (south side) slopes, and a 5-foot-high by 300-foot-wide seepage berm at the landside toe to address seepage and stability issues. A compacted surface patrol road, approximately 16 feet wide, would also be included along the crest of the levee. The Yuba Goldfields Project has undergone environmental review, and mitigation measures have been developed to avoid or reduce significant impacts. Construction of the Yuba Goldfields Project is proposed to begin sometime within the next 10 years.
- **Oroville Facilities Relicensing.** The proposed Oroville Facilities Relicensing Project consists of the continuing operation of the Oroville Dam and Hydroelectric Facilities (Federal Energy Regulatory Commission [FERC] Project No. 2100) in Butte County under a new FERC license pursuant to the terms of a 2006 Settlement Agreement. The facilities occupy 41,200 acres and include Oroville Dam and Reservoir, Hyatt Pumping-Generating Plant, Thermalito Diversion Dam and Power Plant, Thermalito Pumping-Generating Plant, Feather River Fish Hatchery, Fish Barrier Dam, Thermalito Forebay and Afterbay, the Oroville Wildlife Area (OWA), and numerous recreation facilities. The Oroville facilities are part of the State Water Project (SWP) and, in addition to hydroelectric power generation, are operated for flood management, fish and wildlife enhancement, recreation, and Sacramento–San Joaquin Delta water quality improvement. The California Department of Water Resources (DWR) operates the facilities, whose FERC license expired in 2007, under an annually renewing license while seeking a new 50-year license from FERC to continue generating hydroelectric power while meeting existing commitments and complying with regulations related to water supply, flood control, environmental management, and recreational opportunities. In addition to facilities operation, actions associated with the project include the development and implementation of a large

number of environmental plans and programs designed to be implemented over the 50-year life of the new FERC license to avoid or mitigate a range of short-term operational effects. These plans and programs are intended to expand the existing water quality monitoring plan, improve fish spawning and rearing habitat in support of FESA anadromous fish species recovery programs, support the Feather River Fish Hatchery, provide additional habitat for waterfowl, provide protection for terrestrial FESA species, manage and reduce invasive plant species populations, monitor water quality in project waters, improve habitat for warm water fish species, improve the cold water fishery in Lake Oroville, and provide new management direction for the OWA. The Oroville Relicensing Project has undergone environmental review, and mitigation measures have been developed to avoid or minimize environmental impacts.

- **Oroville Wildlife Area Invasive Plant Management.** Using information derived from the proposed Oroville Wildlife Area Flood Stage Reduction Project (proposed project), the Sutter Butte Flood Control Agency (SBFCA) proposes to improve ecosystem function of the OWA through the removal of aquatic and terrestrial invasive plants upstream of the project area in Butte County. Depending on when funding is secured, the project would commence in 2017 or 2018 and continue on an ongoing basis. River Partners would lead the initial effort to address the presence of water primrose in upstream ponds. This effort would be incorporated into a management plan developed by River Partners for the California Department of Fish and Wildlife (DFW), who would implement the project as part of its standard maintenance practices in the OWA. With increased flood frequency, there would be more chances for seed dispersal and germination of invasive terrestrial and aquatic plant species from upstream locations. Proposed upstream activities would involve the long-term management of invasive aquatic and terrestrial weed species that degrade the quality of existing riparian communities and aquatic habitats. The management of upstream invasive species is intended to lead to passive or active restoration of riparian vegetation, resulting in habitat enhancement. This project has not yet undergone environmental review.
- **Feather River West Levee Project.** SBFCA is undertaking a flood risk reduction project in a 41-mile-long corridor along the west levee of the Feather River between the Thermalito Afterbay and a point approximately 4 miles north of the Feather River/Sutter Bypass confluence. The project began in 2013 to address levee deficiencies, including through-seepage, under-seepage, and embankment instability. Project actions include seepage berms, stability berms, relief wells, erosion protection, and slurry cutoff walls. The Feather River West Levee Project has undergone environmental review, and mitigation measures have been developed to avoid or minimize environmental impacts.
- **TRLIA Feather River Levee Setback.** TRLIA, in collaboration with RD 784 and other State and local agencies, completed construction of the Feather River setback levee in 2009. The new levee created 200-year flood protection for surrounding communities within the RD 784 district by setting back approximately 4 miles of the existing levee on the left bank of the Feather River opposite Star Bend upstream toward Yuba City. The new levee also created opportunities to restore approximately 1,600 acres of riparian and wetland habitat on former agricultural lands that became part of the Feather River floodway with construction of the setback levee. The Feather River Levee Setback Project has undergone environmental review, and mitigation measures have been developed to avoid or minimize environmental impacts. Conceptual habitat restoration plans have been developed for the area.

## 4.2 Cumulative Impacts by Resource

The State CEQA guidelines define cumulative impacts as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts” (Section 15355). The projects described above were together determined to have significant cumulative impacts on air quality, biological resources, hydrology, and water quality. The following analysis focuses on the potential for impacts identified in Chapter 3 to make a considerable contribution to significant cumulative impacts. The proposed project would not cause long-term significant impacts on the resources discussed in Chapter 3, *Environmental Setting and Impacts*. However, some of the resources have the potential to incur temporary, short-term impacts during the construction period. An initial assessment of potential cumulative impacts indicated that impacts on flood control and geomorphic conditions, hydrology and water quality, air quality, climate change and GHGs, vegetation and wetlands, wildlife, and fisheries, and aquatic habitat have the potential to contribute to cumulative impacts. The potential cumulatively considerable impacts on these resources, in combination with potential impacts from the local projects described above, are discussed below.

### 4.2.1 Flood Control and Geomorphic Conditions

As described in Chapter 2, *Project Description*, the proposed project is meant to improve the existing OWA weir system to meet the original design capacity, which would increase the frequency and duration of flooding within the study area. The analysis in Section 3.2, *Flood Control and Geomorphic Conditions*, indicates that the proposed project would re-engage the historic floodplain at various flow regimes to the Feather River and provide numerous benefits via floodplain connectivity, resulting in beneficial effects related to alteration of the existing drainage patterns in the Feather River and the impedance redirection of floodflows within the project area. As noted in Section 3.2, *Flood Control and Geomorphic Conditions*, the proposed project’s vegetation management, hydraulic improvement, or recreation feature implementation would not affect upstream, local, or downstream water surface levels in the Feather River. Further, because the proposed project would not alter the geometry of the Feather River, it would not cause significant changes to water flow in the river or cause negative hydraulic effects upstream or downstream of the study area reach. Therefore, the proposed project would have a beneficial effect related to alteration of drainage patterns and impedance or redirection of floodflows on the Feather River and would not have a cumulatively considerable incremental contribution to cumulative drainage or floodflow impacts.

### 4.2.2 Hydrology and Water Quality

As described in Section 3.3, *Hydrology and Water Quality*, construction activities associated with the proposed project could affect water quality in the vicinity of the project area through increases in turbidity and potential spills. However, implementation of the two regulatory commitments (Section 2.4), the stormwater pollution prevention program (SWPPP) and the turbidity monitoring plan, would reduce or eliminate erosion and sedimentation effects, thereby preventing construction activities from contributing to cumulative impacts when considered in conjunction with other projects in the area. Therefore, the proposed project would not have a cumulatively considerable incremental contribution to cumulative hydrology or water quality impacts.

### 4.2.3 Air Quality

Proposed project construction is not expected to have any long-term impacts on air quality because the operational activities are expected to be similar to existing conditions. However, construction would result in short-term, construction-related combustion emissions and dust emissions. Also, the proposed project would not result in a significant impact on air quality. However, all air quality impacts are cumulative, and the thresholds used by BCAQMD assume cumulative existing ongoing and future development. As described in Section 3.6, *Air Quality*, emissions for all pollutants during total combined project activities would be below the BCAQMD daily construction thresholds. Therefore, the minor increase in criteria pollutant emissions associated with project construction and operation (Table 3.6-6, *Project Construction Emissions for the Worst Case Scenario Year*, in Section 3.6, *Air Quality*) would not exceed air district thresholds or contribute substantially to an existing or projected air quality violation. Accordingly, neither project construction nor project operation would result in a cumulatively considerable incremental contribution to cumulative air quality impacts.

### 4.2.4 Climate Change and Greenhouse Gases

GHG impacts are inherently cumulative and are analyzed as such in Section 3.7, *Climate Change and Greenhouse Gases*. As noted in that section, at the time of preparation of this document, no Federal, state, or local agency with jurisdiction over the OWA had adopted plans or regulations that set specific goals for emission limits or emission reductions applicable to the proposed project.

Thresholds were therefore derived from the Sacramento Area Regional GHG Thresholds and are conservatively low.

Because construction activities associated with all three project components would occur in 2017, the GHG analysis reflects concurrent construction of all three project components and estimates total GHG emissions for that year at approximately 648 MT CO<sub>2</sub>e. For the year 2018, only construction activities related to vegetation management would occur and emissions would be correspondingly lower. As indicated in Table 3.7-2, *Forecast Greenhouse Gas Emissions During Construction*, in Section 3.7, *Climate Change and Greenhouse Gases*, total CO<sub>2</sub>e emissions for both 2017 and 2018 would be below the 1,100 MT threshold used to evaluate the proposed project. These forecast emission rates are below the presumptive significance thresholds and are not expected to constitute a cumulatively considerable incremental contribution to cumulative GHG emissions impacts.

### 4.2.5 Vegetation and Wetlands

Any loss of special-status plants, vegetation in riparian communities, or wetlands or non-wetland waters of the United States as a result of project construction would be cumulatively significant because of the scarcity of these habitats in comparison with their historical extent, the importance of these habitats to wildlife, the potential habitats they provide for special-status plants and animals, and their roles in maintaining water quality.

As discussed in Section 3.9, *Vegetation and Wetlands*, removal of vegetation in freshwater emergent wetlands and project construction activities associated with the hydraulic improvements and recreation enhancements could result in the loss of special-status plants if they are present in affected areas. Construction activities could also result in alteration of special-status plant habitat, if present, by removing existing vegetation and/or changing local topography and hydrology of the

habitat. However, removal of invasive plants within the project area's existing riparian forest, riparian scrub-shrub vegetation communities, and waters of the United States would reduce competition and enhance the habitat for native species, resulting in a beneficial incremental contribution to cumulative impacts on special-status plant habitat.

Loss of wetlands and non-wetland Waters of the United States in the project area, including riparian wetlands, freshwater emergent wetlands, stream, ponds, and interior channels, could result from project construction activities. Construction activities could also result in alteration of wetlands by removing existing vegetation and/or changing local topography and hydrology of the wetland. Wetland and non-wetland waters are regulated by local, state, and federal agencies, and there is a federal policy of no-net-loss of wetlands. However, as described in Section 3.9, *Vegetation and Wetlands*, because of the anticipated increase in project area wetlands from the proposed project's hydrologic changes, construction impacts on project area wetlands and non-wetland waters would be compensated for onsite. The proposed project would therefore not have a cumulatively considerable incremental contribution to cumulative impacts on wetlands and non-wetland Waters of the United States.

## 4.2.6 Wildlife

Project construction activities would result in impacts on a variety of special-status wildlife species through direct mortality or by the removal or disturbance of habitat. Construction activities could remove or temporarily disturb aquatic and upland habitat for western pond turtle and giant garter snake and could result in the injury, mortality, or disturbance of these special-status wildlife species. In addition, construction activities and removal of riparian forest and riparian shrub/scrub vegetation could result in the loss or disturbance of Swainson's hawk habitat during the nesting season and could result in the incidental loss of fertile eggs or nestlings or in the mortality or disturbance of nesting birds in and adjacent to the construction area. The removal of riparian forest, riparian shrub/scrub, ruderal areas, and freshwater emergent wetland would reduce the amount of available nesting habitat for special-status and non-special status birds. Tree removal/trimming and noise or other construction activities could result in the injury, mortality, or disturbance of roosting bats, if present in cavities, crevices, furrowed bark, or foliage of trees and could affect their local populations. Such losses could affect the local populations of special-status and non-special-status bird and bat species and would be considered significant impacts.

In addition, the alteration of project area hydrology would increase the frequency and depth of flooding that could result in the loss of elderberry shrubs and the associated mortality or disturbance of valley elderberry longhorn beetle.

Implementation of the mitigation measures identified in Section 3.10, *Wildlife*, would reduce the proposed project's incremental contribution to any significant cumulative impacts associated with these species. Because these mitigation measures would minimize potential adverse effects on special-status wildlife species, the proposed project would not have a cumulatively considerable incremental contribution to cumulative impacts on special-status wildlife species.

## 4.2.7 Fisheries and Aquatics

Construction activities associated with cumulative projects in and near the Feather River could result in significant adverse effects on fish and aquatic habitat. Construction noise, turbidity, and suspended sediment resulting from proposed project activities in or near open water could

adversely affect fish and aquatic habitat. In addition to noise, contaminants could be released from heavy equipment used during construction, and long-term effects could result if a spill were not properly remediated. Implementation of a SWPPP, turbidity monitoring plan, and spill prevention, control, and countermeasure plan (Section 2.4, Regulatory Commitments) as part of the proposed project would ensure that this impact would be less than significant. In addition, proposed vegetation management activities would have a beneficial effect on special-status fish species in the Feather River following floodplain restoration and reconnection to the Feather River. Therefore, the proposed project would not have a cumulatively considerable incremental contribution to significant cumulative impacts on fisheries and aquatics.