

Long-Term Operation – Final Environmental Impact Statement

Chapter 11 – Visual Resources

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Chapter 11 Visual Resources

This chapter is based on the background information and technical analysis documented in Appendix N, *Visual Resources Technical Appendix*, which includes additional information on visual resource conditions and technical analysis of the effects of each alternative.

11.1 Affected Environment

11.1.1 Trinity River Watershed

The Trinity River Region includes Trinity Reservoir, Lewiston Reservoir, the Trinity River between Lewiston Reservoir and the confluence with the Klamath River, and along the lower Klamath River. The Trinity River flows through lightly populated and heavily forested, mountainous terrain with jagged cliffs that are in view when people pursue recreational activities, such as fishing, hiking, rafting, kayaking, and canoeing. The forests offer visual resources that include snow-covered peaks, volcanoes, rock outcroppings, mountain creeks, lakes, meadows, and a wide variety of trees and vegetation. Downstream of Lewiston Dam, the Trinity River corridor is characterized by gravel bars, riparian vegetation, and human-built features.

11.1.2 Sacramento Valley

The Sacramento Valley extends from the northern mountainous areas to the flat, agricultural landscapes of the Central Valley at the lower elevations. The mountainous areas are characterized by rugged and deep river canyons and valleys that extend from jagged peaks to forested areas with pine and deciduous trees. Large rivers flow from the mountain areas through the foothills into the agricultural areas and communities along the valley floor.

11.1.3 San Joaquin Valley

For the purposes of this analysis, the San Joaquin Valley includes the San Joaquin River and Stanislaus River regions. The San Joaquin Valley land cover ranges from high alpine vegetation near the crest of the Sierra Nevada, through coniferous forest, mixed forest, oak woodlands, and oak savanna to grasslands and agricultural areas at the lower elevations (Bureau of Reclamation 1997, 2005a, 2005b). Water bodies include reservoirs, natural lakes and ponds, rivers, and tributary streams.

11.1.4 Bay-Delta Operations

The Bay-Delta region includes the Delta and Suisun Marsh, which extends south to San Francisco Bay. Most of the Delta is used for agricultural purposes with major waterways and sloughs that connect the Sacramento, San Joaquin, Mokelumne, Cosumnes, and Calaveras rivers (CALFED Bay-Delta Program 2000). Flood management and irrigation facilities include levees, impoundments, pumping plants, and control gate structures. Bodies of open water occur where historic levee failures were not repaired, including Franks Tract and Liberty Island. The

Sacramento Deep Water Ship Channel is a large water feature between levees that extends from the Sacramento River near Rio Vista to West Sacramento. Vistas of the Delta can be seen from residences and agricultural areas in the Delta, open water areas used by recreationists, and from vehicles on roadways and railroads that cross the Delta. Waterfront industries are located along the rivers, especially along the San Joaquin River.

11.1.5 Southern California Region

The Southern California region includes portions of Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties served by the State Water Project. From a visual perspective, in total, Southern California contains over 2 million acres irrigated agricultural land. Overall, Southern California saw a decrease of approximately 60,000 acres in Important Farmland in the 10-year period from 2008–2018.

11.2 Effects of the Alternatives

The impact analysis considers changes in visual conditions related to changes in CVP and SWP operation under the alternatives as compared with the No Action Alternative.

The No Action Alternative is based on 2040 conditions. The changes to visual resources that are assumed to occur by 2040 under the No Action Alternative conditions would be different than existing conditions because of the following factors:

- Climate change and sea-level rise
- General plan development throughout California, including increased water demands in portions of the Sacramento Valley

In the long term, it is anticipated that climate change, and development throughout California, could affect water supply deliveries.

Under the No Action Alternative, Reclamation would continue with the current operation of the Central Valley Project (CVP), as described in the 2020 Record of Decision and subject to the 2019 Biological Opinions. The 2020 Record of Decision for the CVP and the 2020 Incidental Take Permit for the State Water Project represent current management direction or intensity pursuant to 43 Code of Federal Regulations Section 46.30.

Although the No Action Alternative included habitat restoration projects at a programmatic level, the 2020 ROD did not provide environmental coverage for these projects, and all of the habitat projects considered under the No Action required or will require additional environmental documentation. Thus, ground disturbance for habitat restoration projects did not materialize as a result of implementing the No Action Alternative. For the purpose of the analysis, these habitat restoration projects are considered independent projects that will be considered under cumulative effects.

Under the No Action Alternative, land uses in 2040 would occur in accordance with adopted general plans, which could also result in impacts on visual resources. In terms of CVP operations, under the No Action Alternative, by the end of September, the surface water

elevations at CVP reservoirs generally decline. It is anticipated that climate change would result in more short-duration high-rainfall events and less snowpack in the winter and early spring months. As water is released in the spring, there would be less snowpack to refill the reservoirs. This condition would reduce flow within streams. The No Action Alternative, thus, is expected to result in potential changes in visual resources at reservoirs that store CVP water, tributaries, and in irrigated agricultural land vistas. These changes were described and considered in the 2020 Record of Decision.

11.2.1 Potential changes in visual resources at reservoirs that store CVP water and tributaries that flow to and from reservoirs that store CVP water.

For the purposes of this analysis, the changes in operations and flows are linked to changes in visual resources at tributaries and reservoirs because they are related to water levels. Compared with the No Action Alternative, Alternatives 1 through 4 would make changes to a number of different operational parameters, such as Shasta Dam releases (Sacramento River/Shasta Reservoir/Keswick Dam), Whiskeytown Dam releases (Clear Creek/Whiskeytown Reservoir), American River minimum instream flows (Nimbus Dam/Folsom Dam), Delta Outflow, and New Melones Reservoir releases (Stanislaus River).

These various operational changes have the potential to result in visual impacts at the facility itself or at other facilities based on broader effects on system operation. Visual resources impacts are related to surface water elevations that determine the size of the “bathtub ring” in the reservoirs mentioned above that store CVP water supplies. Within tributaries, a similar effect could occur if low water levels expose scoured banks or results in the drainage of inundated areas, which could leave exposed and muddy areas visible, or high water levels result in the inundation of previously non-inundated areas.

Average changes to storage, flow, and reservoir elevation under Alternatives 1 through 4 are relatively small at each end of month as modeled when compared with the No Action Alternative so that resultant changes in the bathtub ring would not result in adverse changes to visual resources. Some reservoirs would experience increases in storage that would reduce the bathtub ring and contrast and result in visual improvements. However, flow changes at Clear Creek under Alternative 1 would be adverse. As an example, flows in October under the No Action Alternative would be about 187 cubic feet per second, while under Alternative 1 they would be about 49 cubic feet per second, a reduction of about 74%. Mitigation Measure VIS-1, Develop a Visual Resources Monitoring and Mitigation Program for Clear Creek (Alternative 1), could be implemented to reduce impacts. Additionally, modeling outputs also show a substantial decrease in storage at San Luis Reservoir in some times of year under Alternative 3. Storage reductions range from 13 to 40% compared with the No Action Alternative. Mitigation Measure VIS-2, Develop a Visual Resources Monitoring and Mitigation Program for San Luis Reservoir (Alternative 3), could be implemented to reduce impacts.

11.2.2 Potential changes in vistas at irrigated agricultural lands

The evaluation of views of agricultural lands is based on the potential for each alternative to affect irrigation water deliveries, and to the extent they reduce deliveries, the potential for water to be obtained from other sources such as groundwater.

Under Alternative 1, long-term average and dry and critical year average deliveries for agricultural uses would increase in the San Joaquin River Region (21% and 38%), San Francisco Bay Area Region (12% and 41%), and Southern California Region (43% and 67%), so no conversion of agricultural land to nonagricultural use is anticipated for these regions. There would also be an increase (955 more acres) in irrigated crops in the Sacramento region. Therefore, no visual impact would occur under Alternative 1 related to fallowing of irrigated agricultural lands.

In both the long-term average and dry and critical year conditions, overall crop acreage would primarily decrease in the San Joaquin River and Sacramento River regions under Alternative 2 when compared with the No Action Alternative. In average water years, the reduction in acreage would range from a decrease in 4,758 acres to a decrease in 8,929 acres in the Sacramento River Region. In the San Joaquin River Region, decreases would range from 3,806 to 37,982 acres. Under dry and critical conditions, across all phases there would be decreases in irrigated acreage compared with the No Action Alternative, with decreases from 5,013 acres to 11,917 acres for the Sacramento River region and 20,097 acres to 53,681 acres in the San Joaquin River Region. Some conversion of agricultural land to nonagricultural is expected to occur in the San Joaquin River and Sacramento River regions. Therefore, a visual impact could occur under Alternative 2 related to fallowing of irrigated agricultural lands, and this impact could be adverse due to the reduction in active agriculture and increase in fallowed land. Mitigation Measure AG-1 would help reduce some of the anticipated conversion of agricultural land.

In both the average and dry and critical year conditions there would be a decrease in irrigated crops under Alternative 3 compared with the No Action Alternative. There would be approximately 22,818 fewer acres of irrigated farmland in the Sacramento River region and approximately 303,764 fewer acres in the San Joaquin River region in the long-term average year condition. In the dry and critical year condition, the Sacramento River region would have approximately 21,123 fewer irrigated acres, and the San Joaquin River region would have 210,633 fewer irrigated acres compared with the No Action Alternative. Therefore, conversion of agricultural land to non-agricultural use is anticipated. An adverse visual impact could occur under Alternative 3 related to fallowing of irrigated agricultural lands.

Under Alternative 4, under dry and critical year conditions, there would be approximately 1,889 more acres of irrigated farmland in the Sacramento River region and approximately 1,907 fewer acres in the San Joaquin River region in the long-term average year condition. Therefore, an adverse visual impact could occur under Alternative 4 related to fallowing of irrigated agricultural land.

11.3 Mitigation Measures

Appendix D includes a detailed description of mitigation measures identified for visual resources per alternative. These mitigation measures include avoidance and minimization measures that are part of each alternative and, where appropriate, additional mitigation to lessen impacts of the alternatives. For visual resources, no avoidance and minimization measures have been identified. Additional mitigation measures have been identified for visual resources.

11.3.1 Avoidance and Minimization Measures

11.3.1.1 Alternatives 1-4

No avoidance and minimization measures have been identified.

11.3.2 Additional Mitigation

11.3.2.1 Alternative 1

Alternative 1 would result in changes in visual resources at tributaries that flow to and from reservoirs that store CVP water compared with the No Action Alternative.

- **Mitigation Measure VIS-1, *Develop a Visual Resources Monitoring and Mitigation Program for Clear Creek*** (Alternative 1) could be implemented to reduce impacts

11.3.2.2 Alternative 2

Alternative 2 would make changes in vistas at irrigated agricultural lands that could be adverse to visual resources due to a reduction in active agriculture and increase in fallowed land compared with the No Action Alternative.

- **Mitigation Measure AG-1, *Diversify Water Portfolios*** would help reduce some of the anticipated conversion of agricultural land

11.3.2.3 Alternative 3

Same as Alternative 2. Additionally, Alternative 3 would result in changes in visual resources at reservoirs that store CVP water compared with the No Action Alternative.

- **Mitigation Measure VIS-2, *Develop a Visual Resources Monitoring and Mitigation Program for San Luis Reservoir*** (Alternative 3) could be implemented to reduce impacts

11.3.2.4 Alternative 4

Same as Alternative 2.

11.4 Cumulative Impacts

The No Action Alternative would continue with the current operation of the CVP and may result in potential changes in visual resources at reservoirs that store CVP water, tributaries, and in

irrigated agricultural land vistas. The action alternatives will result in changes to visual resources at reservoirs that store CVP water, tributaries, and in irrigated agricultural land vistas. The magnitude of the changes is dependent on alternative and water year type. Therefore, the No Action Alternative and action alternatives may contribute to cumulative changes to visual resources as described in Appendix N, *Visual Resources* and Appendix Y, *Cumulative Impacts Technical Appendix*.