Chapter 15
LSJR Alternative 1 and SDWQ Alternative 1 (No Project Alternative)

15.1 Introduction

California Code of Regulations (Cal. Codes Regs.) requires that the potential impacts of not approving a proposed project be evaluated under a no project alternative. "The purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project." (14 Cal. Code Regs., § 15126.6(e)(1)). When the project is the revision of an existing regulatory plan, such as the Bay-Delta Plan, the No Project Alternative will be the continuation of the existing plan into the future. (14 Cal. Code Regs., § 15126.6(e)(3)(A).) Thus, projects initiated under the existing plan would continue while the new plan is being developed. The No Project Alternative analysis must discuss the existing conditions, "as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services." (14 Cal. Code Regs., § 15126.6(e)(2).

For the purposes of this analysis, Lower San Joaquin River (LSJR) Alternative 1 and southern Delta water quality (SDWQ) Alternative 1 (referred to as the No Project Alternative in this chapter) are the continuation of the State Water Resources Control Board's (State Water Board's) 2006 Bay-Delta Plan as implemented through Water Rights Decision 1641 (D-1641), including implementation of the Vernalis flow objectives (San Joaquin River [SJR] flow objectives) and the southern Delta salinity objectives. The No Project Alternative also includes flows required to comply with the 2009 National Marine Fisheries Service's biological opinion Stanislaus River reasonable and prudent alternative (RPA), including Action 3.1.3 (NMFS BO), which increased the Stanislaus River flow requirements. The No Project Alternative does not include continuation of flows under the Vernalis Adaptive Management Program (VAMP), which was implemented as the Vernalis flow objectives from 2000 to 2011, but is no longer in effect.

This analysis assumes that to implement the Bay-Delta Plan flow and salinity objectives, water would be released by the U.S. Bureau of Reclamation (USBR) from New Melones Reservoir on the Stanislaus River to achieve full compliance with D-1641. There are potentially other ways that compliance with the objectives could be achieved, but it is speculative to identify which other measures, or combination of measures, would be used. The analytical approach selected evaluates increased releases from New Melones Reservoir to meet the objectives, because such releases would generally achieve the existing Vernalis flow objectives and southern Delta salinity objectives while affording a full evaluation of potential water supply impacts.

This chapter describes the No Project Alternative and the environmental impacts of the alternative compared to baseline conditions. The environmental impacts of the other alternatives are discussed in Chapters 5 through 14 (and are summarized in Chapter 16 for cumulative impacts and 17 for all impacts). The environmental impacts of the No Project Alternative were evaluated by comparing the State Water Board's Water Supply Effects (WSE) modeling results for the No Project Alternative to

baseline (DWR's CALSIM Water Resources Simulation Model [CALSIM] modeling results) and, if appropriate, comparing estimates of resulting river flows and surface water diversions to those for the other alternatives and extrapolating the associated impacts (Table 15-1). This chapter uses data and results presented in Appendix D, *Evaluation of LSJR Alternative 1 and SDWQ Alternative 1 (No Project Alternative),* to analyze the expected impacts associated with the No Project Alternative. Appendix D describes the assumptions used in the CALSIM modeling of the baseline for impact determinations in Chapters 5–14 of this Substitute Environmental Document (SED). Appendix D also estimates the changes in Stanislaus River flows needed to fully comply with the No Project Alternative. The CALSIM baseline already includes Stanislaus River flows required to comply with the NMFS BO (as defined in Chapter 2, *Water Resources* and Chapter 5, *Water Supply, Surface Hydrology, and Water Quality* and explained further in Section D.3.3, *Estimating Flows for the No Project Alternative*).

15.2 Description of the No Project Alternative

The No Project Alternative assumes continued implementation of, and full compliance with, the Vernalis flow and salinity objectives in the 2006 Bay-Delta Plan as implemented through D-1641. No Project conditions differ from the baseline because the Vernalis flow objectives were not fully implemented in the baseline. In D-1641, the State Water Board approved conducting the VAMP experiment proposed in the San Joaquin River Agreement (SJRA) in lieu of meeting the April–May pulse flow objectives at Vernalis required in the 2006 Bay-Delta Plan. The VAMP flows, which are generally lower than the flows in the 2006 Bay-Delta Plan, are included in the baseline. The VAMP experiment concluded in December 2011, and VAMP flows are included in the baseline. During VAMP, a portion of the flows needed to comply came from all three eastside tributaries (Stanislaus, Tuolumne, and Merced Rivers), even though the 2006 Bay-Delta Plan and D-1641 do not contain numeric or narrative flow objectives specifically for those rivers. The No Project Alternative, however, does not include VAMP flows because that experimental flow regime concluded in 2011. The No Project Alternative and the baseline both include NMFS BO flow requirements on the Stanislaus River.

The SJR flow objectives were first established at Vernalis in the 1995 Bay-Delta Plan to protect fish and wildlife beneficial uses and are now contained in the 2006 Bay-Delta Plan. These objectives include the minimum monthly flow rates for fish and wildlife beneficial uses during specific times of the year, as presented in Table 3 of the 2006 Bay-Delta Plan and D-1641. In D-1641, the State Water Board assigned compliance with these minimum flows on the LSJR at Vernalis to the USBR. The No Project Alternative assumes that the flows would continue to be the responsibility of USBR. Without VAMP in effect, the flows would likely be achieved by a combination of releases from New Melones Reservoir, water purchases and transfers among different water users (which cannot be fully quantified or predicted), and other upstream SJR actions (e.g., SJR Restoration Program flows).

The No Project Alternative also assumes continuation of, and full compliance with, the southern Delta salinity objectives for agricultural beneficial uses that are identified in Table 2 of the 2006 Bay-Delta Plan and implemented through D-1641. Under D-1641, compliance with the numeric salinity objectives on the SJR at Vernalis (station C-10) is the obligation of USBR. Compliance with the numeric salinity objectives on the SJR at Brandt Bridge (station C-6), Old River near Middle River (station C-8), and Old River at Tracy Road Bridge (station P-12) are the combined obligation of USBR and the Department of Water Resources (DWR).

As described in Appendix D, *Evaluation of LSJR Alternative 1 and SDWQ Alternative 1 (No Project Alternative),* the No Project Alternative assumes additional flows would come exclusively from the Stanislaus River. The additional flows from increased New Melones Reservoir releases would likely cause reduced Stanislaus River water supply deliveries. In addition, full Stanislaus River contract deliveries by the USBR are included in the No Project Alternative. The selected CALSIM model baseline results, further described in Appendix D, are the same as those used as the SED baseline for impact analyses in Chapters 5–14.

As described in Appendix D, the WSE model No Project Alternative results are compared to the baseline results from CALSIM for the Stanislaus River. Figure 15-1b shows the cumulative distribution of the February–June release flow volumes (i.e., sum of February–June flows, thousand acre-feet [TAF]) for the Stanislaus River. The No Project Alternative flow volumes were increased substantially compared to the baseline flow volumes (by more than 75 TAF, which is equivalent to an average February–June flow of 250 cubic feet per second [cfs]) in about half of the years (drier years). The No Project Alternative flow volumes on the Stanislaus River were always higher than the baseline flow volumes. The flow volumes of the No Project Alternative relative to the LSJR alternatives should be noted for comparing the likely impacts of the No Project Alternative relative to the fully evaluated LSJR Alternatives 2, 3 and 4. The No Project flow volumes were always much higher than LSJR Alternative 2 flow volumes, and were always slightly higher than the LSJR Alternative 3 flow volumes. The No Project flow volumes were generally less than LSJR Alternative 4, with the exception of the 70 to 100 percent distribution of years.

Figure 15-1b shows the corresponding reductions in annual water supply deliveries that were necessary to satisfy the increased Stanislaus River flows. The water supply diversions were reduced below the baseline diversions in about 50 percent of the years. About half of the years would have deliveries of less than half of the maximum demand of 755 TAF/y.

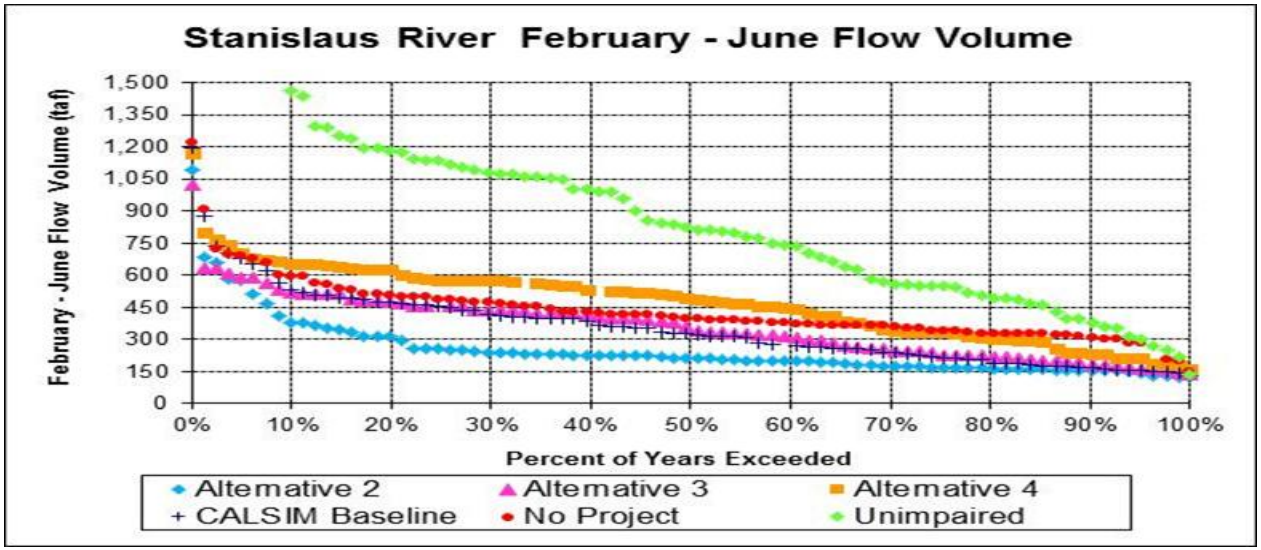

Figure 15-1a. Water Supply Effects Model Results on the Stanislaus River for February–June flow volume (taf = thousand acre-feet)

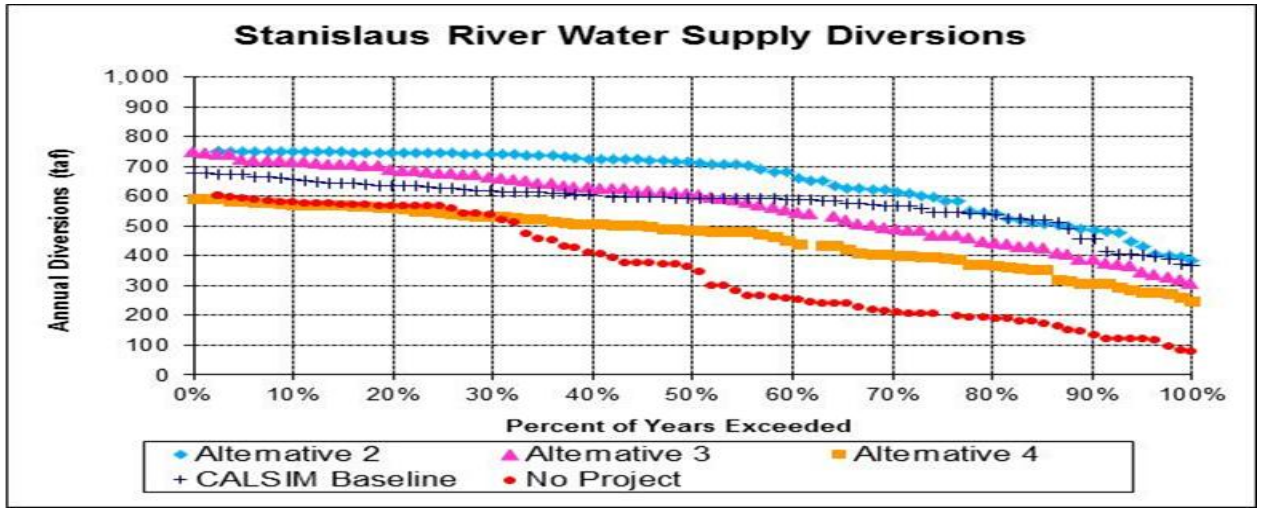

Figure 15-1b. Water Supply Effects Model Results on the Stanislaus River for Water Supply Diversions (taf = thousand acre-feet)

Figure 15-2 shows the comparison of the baseline and No Project Alternative February–June flow volumes (TAF) for the Stanislaus, Tuolumne, and Merced Rivers. A volume of 150 TAF is equivalent to an average flow of 500 cfs. The Stanislaus River flow volumes were increased substantially in many of the years (data shown in Table D-3 in Appendix D) under the No Project Alternative conditions.

The water supply deliveries for the Tuolumne and Merced Rivers would generally be very similar to baseline. However, the VAMP flows assumed in the CALSIM baseline from the Tuolumne and Merced Rivers would be shifted to the Stanislaus River (data shown in Table D-3 in Appendix D). The reductions would be very small on the Tuolumne River and would be moderate on the Merced River in lower flow years (data shown in Table D-3 in Appendix D and Figure 15-2) under the No Project Alternative conditions.

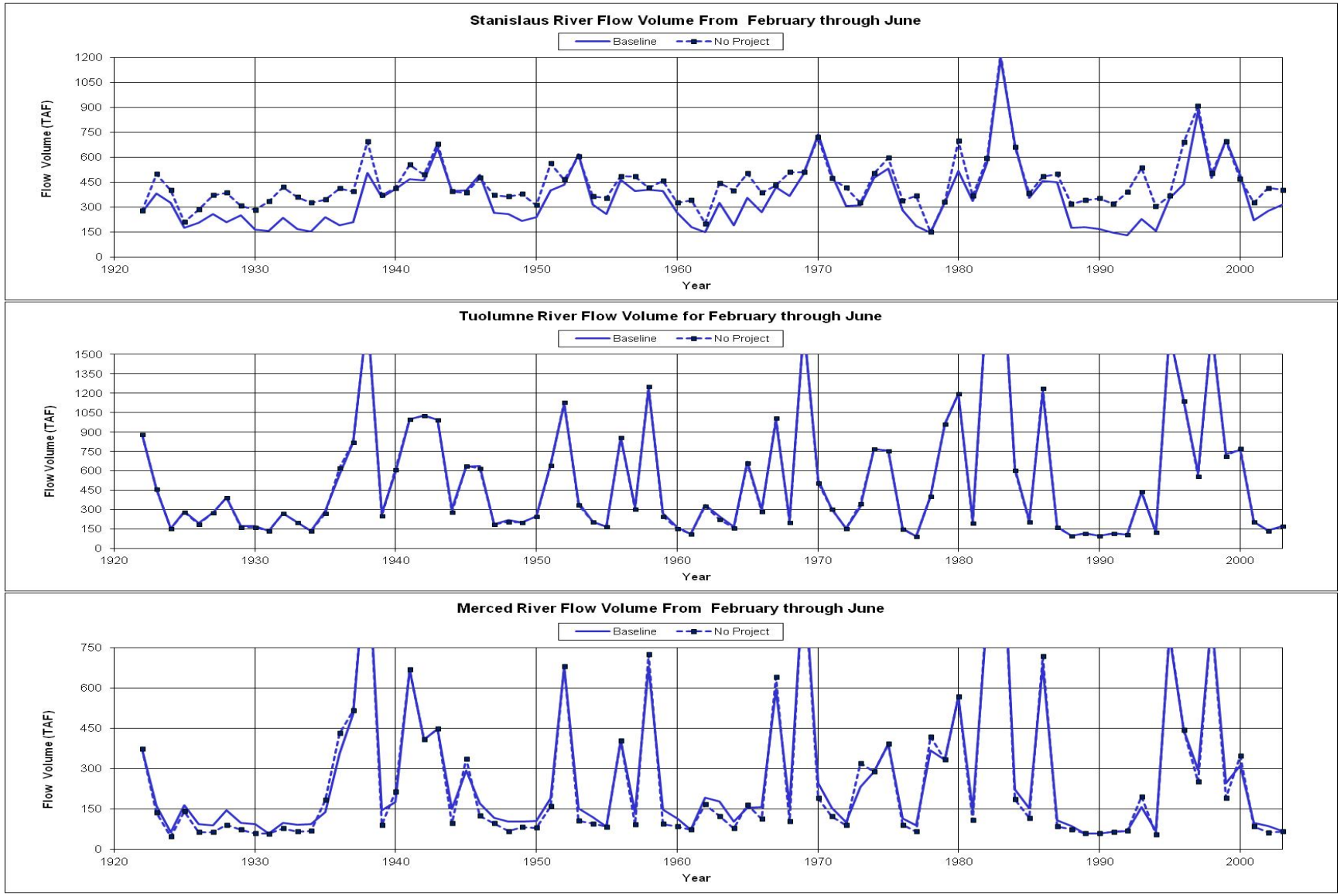

Figure 15-2. Comparison of Baseline and No Project February–June Flow Volume (TAF = thousand acre-feet) for the Stanislaus, Tuolumne, and Merced Rivers from 1922–2003 Near their Confluences with the SJR

15.3 Impacts of the No Project Alternative

The impacts of the No Project Alternative vary among the three eastside tributaries. Under the No Project Alternative on the Stanislaus River, approximately 70 percent of the time, the February–June flow volumes (TAF) would be slightly higher than the baseline but less than LSJR Alternative 4 flow volumes. The No Project Alternative flow volumes would be greater than the flow volumes under LSJR Alternative 4 in about 30 percent of the years. The No Project Alternative flow would be slightly greater than those of LSJR Alternative 3 in about 20 percent of the years, and would be similar to baseline flows (no impacts) in about 50 percent of the years (Figure 15-1). Therefore, impacts are expected to range between those identified for LSJR Alternative 3 and LSJR Alternative 4 in SED Chapters 5–14 for the majority of the years for many resources (e.g., aquatic resources, terrestrial biological resources, surface water hydrology). However, it is expected that the No Project Alternative would result in a greater reduction in surface water diversions than LSJR Alternative 4. Reductions in surface water supply deliveries under the No Project Alternative would cause agricultural resource impacts that would be greater than the impacts identified for LSJR Alternative 4 in Chapter 11, *Agricultural Resources*. The likely increased groundwater pumping resulting from the reduced surface water deliveries would cause significant impacts that would be greater than the impacts identified for LSJR Alternative 4 in Chapter 9, *Groundwater Resources*.

The No Project Alternative flows on the Tuolumne River would generally be the same as baseline. Therefore, flow impacts on the Tuolumne River would generally not occur because of the little change between baseline and the No Project Alternative. The surface water diversions are expected to be similar to baseline on the Tuolumne River, thus surface water diversion impacts would not change substantially from baseline.

The No Project Alternative flows on the Merced River are expected to be reduced when compared to baseline because VAMP flows would no longer be obtained from the river. These flows could be 10–20 percent less than the baseline in about 50 percent of the years. While an agreement such as VAMP could be negotiated among the water users on the three rivers that would maintain flows more representative of the baseline on the Merced River than what is currently assumed under the No Project Alternative, it is unknown if such negotiation would occur and what flows would be negotiated. Therefore, impacts on resources requiring or relying on flows in the Merced River (e.g., aquatic resources) would generally be more severe than that of LSJR Alternative 2 as described in SED Chapters 5–14. The surface water diversions are expected to be similar to baseline on the Merced River, thus surface water diversion impacts would not change substantially from baseline.

As described above in Section 15.2, *Description of the No Project Alternative*, and Appendix D, *Evaluation of LSJR Alternative 1 and SDWQ Alternative 1 (No Project Alternative)*, the modeling includes the flows needed to meet the Vernalis salinity objectives and the downstream salinity objectives. In addition, since the Vernalis objective would continue to be maintained, it does not represent a change from baseline. Therefore, the Vernalis and/or southern Delta EC objective would be met under the No Project Alternative.

Table 15-1 summarizes the impact determinations for the No Project Alternative, with reference to the baseline and the impacts presented in Chapters 5–14 for the LSJR alternatives. Impacts shown in Table 15-1 as determined to be significant on the Merced River cannot be fully mitigated. As discussed in Chapter 5, *Water Supply, Surface Hydrology, and Water Quality*, Chapter 7, *Aquatic*

Resources, and Chapter 8, *Terrestrial Biological Resources*, many of the impacts related to flow, aquatic and riparian habitat, water supply, temperature, and water quality (i.e., 303(d) pollutant concentrations) could be reduced or eliminated with additional flows on the Merced River. Additional flow could be provided by reducing existing surface water diversions. Evaluating the effects of more flow and fewer surface water diversions is part of other alternatives (i.e., LSJR Alternative 3 and 4) and is separately considered in this document. Requiring additional flow to reduce impacts cannot be independently applied under the No Project Alternative as a mitigation measure because requiring more flow would be inconsistent with the terms of the No Project Alternative (i.e., implementing the 2006 Bay-Delta Plan). Therefore, there are no feasible mitigation measures to avoid, minimize, rectify, reduce, or eliminate the impact, and this impact would remain significant and unavoidable.

As discussed in Chapter 7, *Aquatic Resources*, potential measures that may be implemented to minimize water temperature impacts on salmonids and other fish species include 1) development and implementation of a cold water pool management program designed to maintain best available water temperatures for sensitive fish species and life stages, and 2) working cooperatively with local stakeholders to implement riparian restoration strategies designed to increase shading and improve water temperatures during critical periods (e.g., April–May). The State Water Board could establish requirements, including minimum reservoir carryover storage or other requirements, under the No Project Alternative to assure that implementation of flows pursuant to the plan amendments does not have adverse impacts on cold water pool levels and related fisheries impacts. However, the effectiveness of these measures would depend on the downstream extent to which water temperatures can be controlled during these critical periods. Given the limited extent of shading that can be achieved and the dominant influence of meteorological conditions on large valley streams, such measures may not fully offset potential temperature impacts associated with reduced flows, especially in the lowermost tributary reaches. Consequently, significant impacts may still occur under the No Project Alternative with the implementation of these measures. Impacts would remain significant and unavoidable.

As discussed previously, a potential mitigation measure for the reduced flows on the Merced River could be the negotiation of an agreement such as VAMP. This type of agreement would need to be negotiated among the water users on the three rivers to maintain flows more representative of the baseline on the Merced River than what is currently assumed under the No Project Alternative. Since it is unknown if such negotiation would occur and what flows would be negotiated, this cannot be applied as a feasible mitigation measure to reduce impacts. Therefore, impacts would remain significant and unavoidable.

15.3.1 Cumulative Impacts of the No Project Alternative

Chapter 16, *Cumulative Impact Summary, Growth-Inducting Effects, and Irreversible Commitment of Resources*, includes a list of past, present, and reasonably foreseeable future projects considered for the cumulative analysis. Present and reasonably foreseeable future projects are projects that are currently under construction, approved for construction, or in final stages of formal planning. These projects were identified by reviewing available information regarding planned projects and are summarized in Chapter 16. Past, present, and reasonably foreseeable future projects considered for the No Project Alternative cumulative analysis are all the projects listed in Chapter 16.

The No Project Alternative would have cumulatively considerable and significant impacts on the following resources for the Merced River: surface hydrology, aquatic resources, and terrestrial biological resources. This is because past and present projects on this river have led to cumulative impacts on reduced flows in certain months and higher temperatures in many locations. This in turn leads to decreased habitat for aquatic and terrestrial species dependent on riparian habitat and reduced populations in a number of special-status species. Some present and reasonably foreseeable future projects are expected to restore and improve habitat on this river for aquatic and terrestrial species. However, the No Project Alternative is expected to result in hydrologic (e.g., reduced flow value) and water quality conditions (e.g., higher temperature) that may be less favorable to aquatic and terrestrial special-status species when compared to baseline. Therefore, because of the expected conditions on the Merced River under the No Project Alternative, the impacts, in combination with impacts of past, present, and foreseeable projects, are expected to be cumulatively considerable. Cumulative impacts would be significant. However, the No Project Alternative on the Tuolumne, Stanislaus, and LSJR, is expected to improve hydrologic and water quality conditions, aquatic resource conditions, and terrestrial biological resource conditions because of the additional water in the rivers. Therefore, the impacts, in combination with impacts of past, present, and foreseeable projects, would not be cumulatively considerable. Cumulative impacts would be less than significant.

The No Project Alternative would have cumulatively considerable and significant impacts on the following resources for the Stanislaus River: groundwater resources, agricultural resources, service providers, and energy resources and climate change. Past and present projects have led to an increase in groundwater use and an overall reduction in groundwater aquifer levels and groundwater supplies; and a decrease in groundwater quality. Past and present projects have led to a conversion of natural lands to agricultural uses; however, present and reasonably foreseeable future projects are expected to result in conversion of agricultural lands to other lands such as urban uses or restored habitat uses, resulting in an overall reduction of agricultural lands. The No Project Alternative is expected to result in an increase in groundwater pumping, a possible conversion of agricultural uses to non-agricultural uses, and a possible need for service providers to construct new or expanded water treatment facilities or water supply infrastructure, primarily as a result of the expected reduced water supply diversion on the Stanislaus River under No Project Alternative conditions. Therefore, the impacts, in combination with impacts of past, present, and reasonably foreseeable future projects, would result in cumulatively considerable impacts. Cumulative impacts would be significant. However, on the Tuolumne, Merced, and LSJR, the No Project Alternative is not expected to substantially alter baseline with respect to groundwater resources, agricultural resources, and energy resources and climate change. This is primarily because surface water diversions from these rivers are not expected to be substantially reduced under the No Project Alternative. Therefore, the impacts, in combination with past, present, and foreseeable projects, would not result in cumulatively considerable impacts. Cumulative impacts would be less than significant.

Table 15-1. Summary of Impact Determinations

Impact Statement	Significance Determination	Discussion
Hydrology and Water Quality		
HYD-1: Substantially reduce monthly river flow values caused by the percent unimpaired flow objective	Significant and unavoidable	As described in Chapter 5, *Water Supply, Surface Hydrology, and Water Quality*, LSJR Alternative 3 would not reduce the average monthly flow value on the Stanislaus River. Since the No Project Alternative would have flows greater than the LSJR Alternative 3 flows on the Stanislaus River, it is expected that monthly river flows would not be reduced when compared to the baseline under the No Project Alternative. Additionally, the No Project Alternative flow on the Tuolumne is expected to be similar to baseline flows and thus is not expected to substantially reduce the monthly river flows. However, the flows on the Merced River would be less than the baseline flows without VAMP (particularly during lower flow times during drier periods) when compared to the baseline. Therefore, monthly river flows values would be reduced (Figure 15-2). The Vernalis salinity objective would continue to be maintained and does not represent a change from baseline with respect to flow.
HYD-2: Substantially alter hydrology such that regulating reservoir operations are limited.	Less than significant	The monthly average hydropower release flow variations would continue to be within the normal baseline on the three rivers and the No Project would not cause substantial changes in the flows or water elevations in the regulating reservoirs or in the river segments that connect the rim dams to the downstream regulating reservoirs. Dam operators would continue to have the flexibility with hydroelectric production to choose to generate with reduced capacity for more hours each day or with increased capacity for less hours (as described in Chapter 5, *Water Supply, Surface Hydrology, and Water Quality*.
WS-1: Substantially reduce surface water supply diversions caused by a change in river flows or reduce exports to CVP/ SWP export service areas caused by a change in river flows	Significant and unavoidable	It is expected that surface water diversions would be greatly reduced when compared to baseline conditions on the Stanislaus River (Figure 15-1b). The modeled surface water diversion reductions would be greater than those expected under LJSR Alternative 4 and, therefore, impacts described in Chapter 5, *Water Supply, Surface Hydrology, and Water Quality*, associated with surface water diversion reductions would be greater. The surface water diversions on the Tuolumne and Merced Rivers are not expected to be reduced significantly when compared to baseline conditions. A reduction in exports to the CVP/SWP export service areas is not expected because the Stanislaus River flow would be higher than baseline flows and because the Tuolumne River flows would remain the same as baseline conditions.

Impact Statement	Significance Determination	Discussion
WQ-1: Violate water quality objectives by increasing in the number of months with EC above the water quality objectives for salinity at Vernalis or southern Delta compliance stations	Less than significant	The Vernalis and/or southern Delta EC objective would be met under the No Project Alternative because the purpose of the No Project Alternative is to meet the flow and EC objectives. Therefore, a violation of water quality objectives above the water quality objectives for salinity at Vernalis or southern Delta compliance stations would not occur.
WQ-2: Substantially degrade water quality by increasing Vernalis and/or southern Delta salinity (EC) such that agricultural beneficial uses are impaired	Less than significant	Vernalis and/or southern Delta EC would not be expected to increase under the No Project Alternative because part of the purpose of the No Project flow is to maintain EC at Vernalis.
WQ-3: Substantially degrade water quality by increasing water temperature caused by reduced river flows	Significant and unavoidable	Water temperatures are not expected to increase under the No Project Alternative because flow in the Stanislaus River would remain above baseline. Temperature effects are not expected on the Tuolumne because flows would not change. However, on the Merced River, flows would be reduced when compared to baseline and would likely result in an increase in temperature in this river above baseline conditions (Figure 15-2).
WQ-4: Substantially degrade water quality by increasing contaminant concentrations caused by reduced river flows	Significant and unavoidable	Flows are not expected to be reduced on the Tuolumne, LSJR, or Stanislaus such that contaminant concentrations would increase. This is because either flows similar to baseline conditions or greater than baseline conditions are expected on these rivers. However, on the Merced River, flows would be reduced when compared to baseline and would likely result in an increase in contaminant concentrations above baseline conditions.
Flooding, Sediment, and Erosion		
FLO-1: Substantially alter the existing drainage pattern of the site or area through the alteration of the course of a stream or river in a manner that would result in substantial erosion or siltation on or offsite	Less than significant	Flows expected under the No Project Alternative would be lower than channel capacities on the Stanislaus, Tuolumne, and Merced Rivers as described under LSJR Alternative 4 in Chapter 6, *Flooding, Sediment, and Erosion*. Sediment transport, bank erosion or meander-bend migration issues, and contribution to levee instability are not expected. It is expected that very occasional gravel transport and bank erosion would occur in the upper gravel-bedded reaches of the Stanislaus, Tuolumne, and Merced Rivers. The amount of bank erosion would be limited by flood action levels and existing bank armoring.

Impact Statement	Significance Determination	Discussion
FLO-2: Substantially alter the existing drainage pattern of the site or area through the alteration of the course of a stream or river or substantially increase the rate of surface runoff in manner that would result in flooding on or offsite	Less than significant	Flows would be much lower than channel capacities on the Stanislaus, Tuolumne, and Merced Rivers, as described under LSJR Alternative 4 in Chapter 6, *Flooding, Sediment, and Erosion*. Therefore, significant flooding impacts are not expected to occur outside of floodways. The No Project Alternative would not change reservoir flood storage capacity and would not violate U.S. Army Corps of Engineers (USACE) flood reservation, so there would be no changes in flood control releases during major flood events. Action stages would also limit flows to less than channel capacity.
Aquatic Resources		
AQUA-1: Changes in availability of warmwater reservoir species habitat resulting from changes in reservoir water levels	Less than significant	Reservoir elevations at New Melones, New Don Pedro, or Lake McClure are expected to remain similar to the baseline elevations as discussed in Chapter 7, *Aquatic Resources*. They are not expected to be significantly reduced when compared to baseline conditions. Therefore, changes in the availability of warmwater reservoir species habitat are not expected.
AQUA-2: Changes in availability of coldwater species reservoir habitat resulting from changes in reservoir storage	Less than significant	Reservoir elevations at New Melones, New Don Pedro, or Lake McClure are expected to remain similar to the baseline elevations as discussed in Chapter 7, *Aquatic Resources*. They are not expected to be significantly reduced when compared to baseline conditions. Therefore, changes in the availability of coldwater reservoir species habitat are not expected.
AQUA-3: Changes in quantity/quality of spawning, rearing, and migration habitat resulting from changes in flow	Significant and unavoidable	It is expected that flow under the No Project Alternative on the Stanislaus River would be increased relative to the baseline flows and would not reduce the quantity and quality of spawning, rearing, and migration habitat. The Tuolumne River would experience flow conditions similar to baseline conditions. However, the Merced River would experience a reduction in flow under the No Project Alternative when compared to the baseline and would likely reduce habitat quantity and quality on this river.
AQUA-4: Changes in exposure of fish to stressful water temperatures resulting from changes in reservoir storage and release temperature	Significant and unavoidable	It is expected that temperatures would not increase on the Stanislaus or Tuolumne Rivers under the No Project Alternative because flows would increase on the Stanislaus River and would remain similar t baseline flows on the Tuolumne. However, the reduction in flow on the Merced River under the No Project Alternative when compared to the baseline would likely increase temperatures on this river during lower flow periods resulting in stressful water temperatures.

Impact Statement	Significance Determination	Discussion
AQUA-5: Changes in exposure to pollutants resulting from changes in flow (dilution/mobilization effects)	Significant and unavoidable	It is expected that the exposure to pollutants resulting from changes in flow would not increase on the Stanislaus or Tuolumne Rivers because the Tuolumne River would experience flow conditions similar to baseline conditions and the Stanislaus River flows would be increased. However, the reduction in flow on the Merced River under the No Project Alternative when compared to the baseline would likely increase pollutant exposure to fish on this river during lower flow periods.
AQUA-6: Changes in exposure to suspended sediment and turbidity resulting from changes in flow (mobilization)	Less than Significant	As described in Chapter 7, *Aquatic Resources* and Chapter 6, *Flooding, Sediment and Erosion*, peak flows under LSJR Alternative 4 are not expected to affect the frequency of overbank or bed mobilization flows on the Stanislaus River. Peak flows would occasionally be sufficient to cause gravel transport in the upper gravel-bedded reaches and some instream bank erosion, but the frequency and magnitude of these events would not be sufficient to cause long-term changes in sediment transport rates. Higher rates of sediment transport are also expected to occur in the lower sand-bedded portions of the tributaries and the SJR, but the frequency, duration, and magnitude of increased suspended sediment and turbidity levels are expected to be minor and within the range of historical levels experienced by native fish and other aquatic species. Furthermore, such movement has been documented to support aquatic habitat enhancement. Since the No Project Alternative flows are expected to be less than those described in LSJR Alternative 4 on the Stanislaus River, impacts are expected to be less than those described above. Similar but fewer impacts, as those described above, would occur on the Tuolumne and Merced Rivers because flows under the No Project Alternative would be similar to baseline conditions, and flows on the Merced River would not be more than baseline. Therefore, the change in flows would not mobilize more suspended sediment.
AQUA-7: Changes in redd dewatering and fish stranding losses resulting from flow fluctuations	Less than Significant	It is expected that redd dewatering under the No Project Alternative on the Stanislaus, Tuolumne, and Merced Rivers would be similar to baseline conditions. All of these rivers have operational controls at the reservoirs, which require establishing flow conditions that reduce redd dewatering. These conditions would not be expected to change under the No Project Alternative.

Impact Statement	Significance Determination	Discussion
AQUA-8: Changes in spawning habitat quality resulting from changes in flood flows	Less than Significant	Variability in stream flow during the spawning season, combined with diverse channel topography, provides variation in depth and velocity that is an important mechanism for distributing spawning within different channel locations. Higher peak flows are expected to occur under LSJR Alternative 4, as described in AQUA-6; however, they would not be expected to occur with the frequency or duration such that they would damage existing spawning habitat on the Stanislaus River because flows would generally be limited at the higher flows on the Stanislaus that cause damage (e.g., 5,000 to 8,000 cfs) and similar peak flows would occur. Additionally, similar peak flows would occur on the Merced and Tuolumne Rivers under the No Project Alternative because they would be associated with flood flows that currently occur.
AQUA-9: Changes in food availability resulting from changes in flow, nutrient transport, and water quality (food web support)	Less than significant	It is expected that flow under the No Project Alternative changes in the primary processes (i.e. bed mobilizing flows, and floodplain inundating flows) that alter food web support would not be substantial (see AQUA-6) because these peak flows would continue to occur as they do under the baseline; therefore, there would be no substantial impact to food availability.
AQUA-10: Changes in predation risk resulting from changes in flow and water temperature	Significant and unavoidable	It is expected that flow under the No Project Alternative on the Stanislaus and Tuolumne Rivers would not change predation risk the predation risk because it would be greater than, or similar to, the baseline. The Tuolumne River would experience flow conditions similar to baseline conditions. The Stanislaus River is not expected to have reductions in flow that would change predation when compared to baseline conditions because the NMFS BO pulse flows would continue to exist in the spring. Furthermore, the flow would be greater than LSJR Alternative 3 flow approximately 70 percent of the time and greater than LSJR Alternative 4 flow 30 percent of the time, and thus impacts would be similar to those of LSJR Alternative 4, as described in Chapter 7, *Aquatic Resources*. However, the reduction in flow on the Merced River under the No Project Alternative when compared to the baseline would likely result in substantial change and increase in predation risk to fish on this river.

Impact Statement	Significance Determination	Discussion
AQUA-11: Changes in disease risk resulting from changes in flow, water temperature, and water quality	Significant and unavoidable	It is expected that flow under the No Project Alternative on the Stanislaus and Tuolumne Rivers would not change the exposure to disease risk because it would be greater to, or similar to, the baseline. The Tuolumne River would experience flow conditions similar to baseline conditions. The Stanislaus River is not expected to have reductions in flow that would increase disease risk when compared to baseline conditions because the NMFS BO pulse flows would continue to exist in the spring. Furthermore, the flow would be greater than LSJR Alternative 3 flow approximately 70 percent of the time and greater than LSJR Alternative 4 flow 30 percent of the time, and thus impacts would be similar to those of LSJR Alternative 4, as described in Chapter 7, *Aquatic Resources*. However, the reduction in flow on the Merced River under the No Project Alternative when compared to the baseline would likely result in reduced flows, increased temperatures, and a potential increase in disease risk to fish on this river.
AQUA-12: Changes in fish transport resulting from changes in flow	Significant and unavoidable	It is expected that flow under the No Project Alternative on the Stanislaus River would be higher than baseline so fish transport would increase. The Tuolumne River flow would not change and fish transport would not change for this river. However, the reduction in flow on the Merced River under the No Project Alternative when compared to the baseline would likely result in a reduced fish transport on this river.
AQUA-13: Changes in Delta and estuarine habitat resulting from changes in SJR inflows and export effects	Less than significant	Under the No Project Alternative, it is assumed that Delta operations would continue to be governed by current restrictions on export pumping rates, inflow/export ratios, and Old Middle River (OMR) flows to protect listed fish species from direct and indirect impacts of southern Delta operations. For example, during the primary SJR Chinook salmon smolt emigration period (April–May), no changes would be expected in export pumping rates in many years, thus enhancing net flows and hydraulic conditions in the Delta. Although potential substantial increases in southern Delta pumping could be expected in June potentially based on the increase in Stanislaus River flows, as described in Chapter 7, *Aquatic Resources*, no long-term changes in the inflow/outflow ratio would occur, as described under LSJR Alternative 4, because of higher SJR flows at Vernalis. Consequently, no long-term significant impacts on juvenile salmonids or other special-status fish species are expected.

Impact Statement	Significance Determination	Discussion
Terrestrial Biological Resources		
BIO-1: Have a substantial adverse effect on any riparian habitat or other sensitive natural terrestrial communities identified in local or regional plans, policies, regulations or by DFG and USFWS	Significant and unavoidable	It is expected that flow under the No Project Alternative on the Stanislaus and Tuolumne Rivers would not substantially alter the riparian habitat. The Tuolumne and Merced Rivers would experience flow conditions similar to baseline conditions. The Stanislaus River is not expected to have reductions in flow that would substantially alter riparian habitat when compared to baseline conditions because the NMFS BO pulse flows would continue to exist in the spring during the growing season of the habitat. However, the reduction in flow on the Merced River under the No Project Alternative when compared to the baseline would likely result in a substantial alteration of riparian habitat or other sensitive terrestrial communities on this river. Fluctuations in reservoir elevations would not be substantially different than those that currently occur.
BIO-2: Have a substantial adverse effect on federally protected wetlands	Less than significant	It is expected that flow under the No Project Alternative on the Stanislaus, Tuolumne, and Merced Rivers would not substantially alter wetland communities resulting from changes in flow on these rivers. The Stanislaus River is not expected to have reductions in flow that would substantially alter wetland communities when compared to baseline conditions because the NMFS BO pulse flows would continue to exist (specifically in the spring months of April and May). The Tuolumne River would experience flow conditions similar to baseline conditions. While flows are expected to be reduced on the Merced River, which may change community composition and wetland habitat location as a result, emergent wetlands typically occur in the river bed adjacent to the low-flow river channels. Furthermore, wetlands are highly resilient ecosystems that are able to withstand a range of hydrologic conditions. Therefore, a substantial adverse effect on wetlands communities would not occur.

Impact Statement	Significance Determination	Discussion
BIO-3: Facilitate an increase in distribution and abundance of invasive plants or nonnative wildlife	Less than significant	As described in Chapter 8, *Terrestrial Biological Resources*, invasive plants and animals already exist throughout the watersheds of the Stanislaus, Tuolumne, and Merced Rivers. While the No Project Alternative may result in some alteration of vegetation patterns at specific locations, there is no information available to suggest that increased flows would substantially alter or facilitate the establishment of invasive plant or animal species.
BIO-4: Have a substantial adverse effect, either directly or through habitat modifications, on any terrestrial animal species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by DFG and USFWS	Significant and unavoidable	Impacts on special-status animal species dependent on riparian habitat and impacts on riparian habitat would be the same as those described above for BIO-1. It is expected that flow under the No Project Alternative on the Stanislaus and Tuolumne Rivers would not substantially affect special-status animal species resulting from changes in flow on these rivers. The Tuolumne River would experience flow conditions similar to baseline conditions. The Stanislaus River is not expected to have reductions in flow that would substantially affect special-status species when compared to baseline conditions because the NMFS BO pulse flows would continue to exist. However, the reduction in flow on the Merced River under the No Project Alternative when compared to the baseline would likely result in substantial effects on special-status species reliant on riparian habitat on this river. Therefore, it is expected that special- status animal species would be adversely affected.
BIO-5: Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan, or conflict with any local policies or ordinances protecting biological resources	Significant and unavoidable	It is expected that flow under the No Project Alternative on the Stanislaus and Tuolumne Rivers would not substantially affect riparian habitat or special-status species; therefore, it is anticipated that the No Project Alternative on these rivers would not conflict with habitat conservation plans or natural community conservation plans. However, the reduction in flow on the Merced River under the No Project Alternative when compared to baseline conditions could result in conflicts with habitat conservation plans or natural community plans. Impacts on biological resources would be significant on the Merced River. By impacting habitat value, there would be a potential to conflict with habitat conservation plans or natural community conservation plans. , therefore, could conflict with plans protecting biological resources.

Impact Statement	Significance Determination	Discussion
Groundwater Resources		
Impact GW-1: Substantially deplete groundwater supplies or interfere substantially with groundwater recharge	Significant and unavoidable	It is anticipated that an increase in groundwater pumping would be needed to potentially offset the expected reduction in surface water diversions resulting from the No Project Alternative on the Stanislaus River (Figure 15-1b). If it is assumed that all surface water reductions would be replaced by groundwater pumping, this would substantially deplete groundwater supplies. This is because the reduction in surface water diversions is greater than those expected for LSJR Alternative 4, and LSJR Alternative 4 indicates a significant impact to groundwater in Chapter 9, *Groundwater Resources*. Therefore, it is expected that a substantial depletion of groundwater supplies or substantial interference with groundwater recharge would occur. The surface water diversions on the Tuolumne and Merced Rivers would not be expected to be reduced significantly and, therefore, it is anticipated that a substantial increase in groundwater pumping would not occur when compared to baseline conditions.
Recreational Resources and Visual Quality		
REC-1: Substantially reduce the use of existing recreation facilities or opportunities on rivers and at reservoirs	Less than significant	Reservoir elevations at New Melones, New Don Pedro, and Lake McClure are expected to remain relatively constant, not significantly reduced, when compared to baseline conditions. Therefore, changes to recreation facilities or opportunities at the reservoirs are not expected. Since the modeled Stanislaus River flows are expected to be greater than LSJR Alternative 3 but less than LSJR Alternative 4, it is not expected that these flows would substantially reduce the use of existing recreation facilities or opportunities on the rivers and reservoirs since neither of these alternatives would result in significant impacts, as described in Chapter 10, *Recreational Resources and Visual Quality*. Additionally, since the Tuolumne and Merced Rivers would experience similar higher flows under the No Project Alternative when compared to baseline conditions, it is not expected that the No Project Alternative would substantially reduce the use of existing recreation facilities or opportunities on the rivers and reservoirs.

Impact Statement	Significance Determination	Discussion
REC-2: Substantially degrade the functionality of existing recreation facilities on the rivers or at reservoirs	Less than significant	There would be no change in the frequency or magnitude of the highest river flows or increase in reservoir elevations above capacity; thus, the functionality of existing recreational facilities would not be degraded. The frequency of flows greater than 2,500 cfs are expected to generally decrease on the Stanislaus River under LSJR Alternative 4, as described in Chapter 10, *Recreation and Visual Quality*. Thus, since the No Project Alternative flows are generally less than the LSJR Alternative 4 flows (Figure 15-1a), on-bank recreation facilities would not be susceptible to more inundation when compared to baseline flows on these rivers during the recreation season. The frequency of higher flows on the Tuolumne and Merced River under the No Project Alternative are not expected to substantially degrade the functionality of existing recreation facilities on the rivers as a result of larger peak flows or more frequent peak flows when compared to baseline conditions. Therefore, a substantial degradation of the functionality of existing recreational facilities is not expected.
REC-3: Substantially degrade the existing visual character or quality of the reservoirs	Less than significant	Reservoir elevations at New Melones, New Don Pedro, and Lake McClure are expected to remain relatively constant, and not substantiallyreduced, when compared to baseline conditions. Therefore, a substantial degradation of the visual character and quality of area surrounding the reservoirs is not expected.
Agricultural Resources		
AG-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural uses	Significant and unavoidable	It is anticipated the No Project Alternative would require substantial reductions in crop acreage as a result of the reductions in surface water diversions on the Stanislaus River is expected. This is because the reduction in surface water diversions would be greater than that expected for LSJR Alternative 4 on the Stanislaus River and, as described in Chapter 11, *Agricultural Resources*, LSJR Alternative 4 would result in significant impacts to agricultural resources. The surface water diversions on the Tuolumne and Merced Rivers are not expected to be reduced significantly and, therefore, it is anticipated that a substantial reduction in crop acreage would not occur in these watersheds.
AG-2: Other changes in the existing environment which, due to their location or nature, could result in a conversion of farmland to nonagricultural use	Significant and unavoidable	It is expected that the significant reduction in agricultural acreage described in AG-1 would result in the conversion of farmland to nonagricultural uses.

Impact Statement	Significance Determination	Discussion
Cultural Resources		
CUL-1: Substantial adverse change in the significance of a historical or archaeological resource	Less than significant	As discussed in Chapter 12, *Cultural Resources*, changes in river flows are not expected to alter the low potential for significant cultural resources to exist along rivers due to previous natural and anthropogenic disturbances. Reservoir elevations at New Melones, New Don Pedro, and Lake McClure are expected to remain relatively constant or generally greater, not significantly reduced, when compared to baseline conditions. Therefore, substantial adverse changes in the significance of historical or archeological resources are not expected.
CUL-2: Disturbance of human remains, including those interred outside formal cemeteries	Less than significant	As described in Chapter 12, *Cultural Resources*, the potential for the presence of undocumented human remains within and adjacent to the LSJR and the Stanislaus, Tuolumne, and Merced Rivers is considered low due to prior disturbance of the riparian corridors by natural and historic-era anthropogenic processes. Any human remains discovered within and adjacent to the LSJR and the three tributaries outside of formal cemeteries would also have been treated in accordance with state or federal regulations. Reservoir elevations at New Melones, New Don Pedro, and Lake McClure are expected to remain relatively constant or generally greater, not significantly reduced, when compared to baseline conditions. Therefore, a disturbance of human remains as a result of reservoir elevation changes is not expected.
CUL-3: Disturbance or destruction of a unique paleontological resource or site or unique geologic feature	Less than significant	As described in Chapter 12, *Cultural Resources*, the potential for paleontological resources within and adjacent to the LSJR and the Stanislaus, Tuolumne, and Merced Rivers is considered low due to the depth of occurrence of rock units with high paleontological potential below reworked surficial sediments and Holocene-age floodplain and channel deposits. Buried paleontological resources would be found at soil and rock depth too deep for the rivers to modify or change. Reservoir elevations at New Melones, New Don Pedro, and Lake McClure are expected to remain relatively constant or generally greater, not significantly reduced, when compared to baseline conditions. Therefore, disturbance of unique paleontological resources is not expected.

Impact Statement	Significance Determination	Discussion
Service Providers		
SP-1: Substantially degrade water quality for municipal drinking water purposes	Less than significant	The flows required under the No Project Alternative would comply with the existing salinity objectives in the southern Delta. Thus, water quality would not be substantially degraded such hat service providers diverting drinking water from the southern Delta would be affected.
SP-2: Require or result in the construction of new or expanded water treatment facilities or water supply infrastructure, the construction of which could cause significant environmental effects	Significant and unavoidable	The surface water reductions expected under the No Project Alternative on the Stanislaus River would likely result in insufficient water supplies for service providers that primarily rely on surface water sources because they would generally be greater than those described for LSJR Alternative 4, as described in Chapter 13, *Service Providers*. The construction and operation of new water supply facilities or infrastructure may be needed under the No Project Alternative to provide alternative sources of water supply, which could cause significant environmental effects.
SP-3: Result in substantial changes to San Joaquin River inflows to the Delta such that insufficient water supplies would be available to service providers relying on CVP/SWP exports	Less than significant	Exports are not anticipated to result in a substantial change from baseline conditions. Vernalis flows are expected to increase under the No Project Alternative conditions and thus a reduction of exports would not occur.
SP-4: Require or result in the construction of new wastewater treatment facilities, expansion of existing facilities or infrastructure, the construction or operation of which could cause significant environmental effects	Significant and unavoidable	It is anticipated under the No Project Alternative that the existing EC objectives for the southern Delta and Vernalis would be enforced and would be adopted by the State Water Board as the wastewater treatment requirements. While the increase in flow expected by the No Project Alternative would reduce the salinity in the southern Delta at the interior compliance stations and would achieve compliance at these stations, existing wastewater treatment plant dischargers (service providers), such as the City of Tracy, the City of Stockton, and the City of Manteca, would likely be unable to meet the current 2006 Bay-Delta Plan salinity objective of 0.7 dS/m from April to August based on current effluent discharge concentrations and past violations. City of Tracy and City of Stockton, would also likely not meet the current 2006 Bay-Delta Plan salinity objective of 1.0 dS/m. Therefore, it is expected that these service providers would exceed wastewater treatment requirements during some parts of the year such that new wastewater treatment facilities, or expansion of existing facilities or infrastructure could result, the construction or operation of which could cause significant environmental effects.

Impact Statement	Significance Determination	Discussion
Energy Resources and Climate Change		
ECC-1: Adversely affect the reliability of California's electric grid	Less than significant	As described in Chapter 14, *Energy Resources and Climate Change*, LSJR Alternatives 3 and 4 are not anticipated to result in an adverse effect on the reliability of California's electric grid. The No Project Alternative flows would be somewhat greater than LSJR Alternative 3 flows; however, they are less than LSJR Alternative 4 flows. Therefore, it is expected that the electric grid would be maintained under the No Project Alternative. Furthermore, reservoir elevations at New Melones, New Don Pedro, and Lake McClure are expected to remain relatively constant or generally greater, not significantly reduced, when compared to baseline conditions. Therefore, adverse effects on the reliability of California's electric grid would not occur.
ECC-2: Result in inefficient, wasteful, and unnecessary energy consumption	Less than significant	Although the No Project Alternative could result in additional energy consumption by groundwater pumping, it would not result in inefficient, wasteful, and unnecessary consumption of energy because the groundwater pumping is necessary to maintain the water supply irrigation demand. Furthermore, it is anticipated that if new groundwater wells were to be installed, they would be efficient. The No Project Alternative could result in additional energy generation at other facilities to compensate for a potential loss of hydropower. However, this increased electricity generation is not considered inefficient, wasteful, and unnecessary, as it is energy that would be generated to maintain the energy supply level that is currently supplied by hydropower.
ECC-3: Generate GHG emissions, either directly or indirectly, that have a significant impact on the environment	Significant and unavoidable	It is anticipated that the No Project Alternative would result in an increase in groundwater pumping and a potential shift from hydropower to non-hydropower energy production as a result of the expected reduction in surface water diversions and change to flow on the Stanislaus River. Both of these would be expected to generate GHG emissions greater than the threshold of 10,000 megatons (MT) of GHGs, as described for both LSJR Alternative 3 and 4 in Chapter 14, *Energy Resources and Climate Change*.
ECC-4: Conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing the GHG emissions	Significant and unavoidable	Since the No Project Alternative would be expected to exceed the 10,000 MT GHG threshold, it would conflict with existing applicable plans, policies or regulations adopted for the purposes of reducing GHG emissions, such as AB32.

Impact Statement	Significance Determination	Discussion
ECC-5: Effect of global climate change on the alternative	Less than significant	The State Water Board is required to prepare Water Quality Control Plans (WQCPs) and regularly review the plans to update water quality standards. As a result, the planning process continually accounts for changing conditions related to water quality and water planning, such as climate change. Therefore, it is anticipated that the effect of global climate change on the No Project Alternative would be less than significant.

VAMP = Vernalis Adaptive Management Plan

EC = Electrical conductivity (salinity)

DFG = California Department of Fish and Game

USFWS = United States Fish and Wildlife Service

dS/m = deciSiemens per meter

GHG = greenhouse gas

AB32 = Assembly Bill 32, California Global Warming Solutions Act