

Common Response 6.3

Water Supply and Other Water Management Actions

Introduction

This introduction provides important context to this common response. A similar introduction is provided in each common response to ensure that the reader has the appropriate context when reviewing common responses. For ease of reference, a table of contents is included after this introduction to guide readers to specific subject areas.

Protecting the San Francisco Bay/Sacramento-San Joaquin Delta (Bay-Delta) watershed and its many beneficial uses of water is one of the State Water Resources Control Board's (State Water Board) primary responsibilities and top priorities. In response to declines of several native aquatic species since the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Watershed (Bay-Delta Plan or Plan) was last comprehensively updated, the State Water Board commenced a process to update the Bay-Delta Plan for the Sacramento River and its tributaries, Delta eastside tributaries (including the Calaveras, Cosumnes, and Mokelumne Rivers), and Delta for the reasonable protection of fish and wildlife beneficial uses, referred to as the Sacramento/Delta Update to the Bay-Delta Plan. The Bay-Delta Plan identifies beneficial uses of water to be protected in the Bay-Delta watershed, water quality objectives and program of implementation to achieve the reasonable protection of those beneficial uses, monitoring, evaluation, and special study provisions. The State Water Board's proposed action to update the Bay-Delta Plan is supported by a Staff Report/Substitute Environmental Document (Staff Report), which provides an evaluation of the environmental impacts and economic effects in support of consideration of different alternatives to update the Bay-Delta Plan to achieve reasonable protection of fish and wildlife beneficial uses in the Sacramento/Delta. The Staff Report is functionally equivalent to an Environmental Impact Report under the California Environmental Quality Act (CEQA) but also provides the additional analyses that support the State Water Board's consideration of the action under the Clean Water Act and Porter-Cologne Water Quality Control Act.

Development of the final Staff Report and final draft Bay-Delta Plan were informed by several opportunities for public comment over multiple years. This common response may address issues that were raised during any of those public comment periods. In September 2023, the State Water Board released the 2023 draft Staff Report evaluating different alternatives for the Sacramento/Delta Update to the Bay-Delta Plan for public review and comment. Following release of the 2023 draft Staff Report, the State Water Board released draft amendments to the Bay-Delta Plan in October 2024 (2024 draft Plan) for public review and comment that incorporated alternatives identified in the 2023 draft Staff Report with revisions based on public comments. The State Water Board released revised draft Plan updates in July 2025 (July 2025 revised draft Plan) but delayed public comment on that version of the Plan pending further updates, though some parties did submit public comments on the July 2025 draft that are part of the State Water Board's response to comments. In December 2025, the State Water Board released Chapter 13, *Revised Proposed Plan Amendments*, as a limited recirculation of the 2023 draft Staff Report (2025 partially recirculated draft Staff Report) together with the December 2025 revised draft Plan for public review and comment. These documents reflect the updated proposed project, referred to as the revised proposed Plan amendments, which brings together in the Bay-Delta Plan program of

implementation a voluntary agreement (VA) pathway that incorporates commitments identified in the Healthy Rivers and Landscapes (HRL) proposal and would apply to specified HRL water rights, and a regulatory pathway based on the proposed Plan amendments that would apply to other water rights and to any HRL water rights no longer covered under the VA pathway. In August 2026, the State Water Board released a final draft Bay-Delta Plan that included refinements to the revised proposed Plan amendments based on public comments received on the December 2025 revised draft Plan. At the same time, the State Water Board released this final Staff Report, including responses to comments previously received on the draft Staff Report. The final Staff Report informs the State Water Board's consideration of adoption of the Sacramento/Delta updates to the Bay-Delta Plan.

With respect to the CEQA impact conclusions, it is important that they be understood in the context of the overall nature of the proposed project, which is intended to be an environmental restoration action. CEQA only considers changes that could negatively impact the existing environment and does not recognize or offset negative changes with improvements that could result from an environmentally beneficial project. Here, the impacts that could potentially result from implementation of the restoration action occur in a system that has been highly altered, and the project would be expected to improve conditions for native fish and wildlife in the Sacramento/Delta watershed over time. However, the project will also result in changes in hydrology and changes in water supply that could result in some potentially significant adverse environmental impacts at certain times and locations that must be analyzed under CEQA. These potentially significant environmental impacts should be viewed in light of the overall purpose and goals of the Sacramento/Delta update to the Bay-Delta Plan.

The State Water Board reviewed and considered all comments and developed common responses to address recurring comments and common themes.

Many commenters expressed concern about whether the Plan amendments would leave enough fresh water in the watershed for the ecosystem and the species and people that rely on it. Commenters expressed concern about the amount of this water used by agriculture, noting that agriculture uses 80% of California's water while contributing 2% of the state's gross domestic product (GDP). The State Water Board also received many comments from irrigation districts and municipal water suppliers expressing concern about the water supply reductions, arguing that instream flow requirements would not leave sufficient water supply to support water uses for communities, industries, and agriculture that have helped grow California into the nation's top farm-producing state and the world's fifth largest economy, along with access to safe drinking water, recreation, and hydropower.

The Bay-Delta watershed is a complex system that serves as a critical resource for the State. It supplies drinking water to millions of Californians; provides much of the water supply for farmland throughout the State; supports an exceptionally diverse array of migratory and resident fish, birds, and other valued wildlife and plants; and is vital to California Native American Tribes whose cultures are deeply entwined with the watershed and ecosystem. The Plan amendments were developed to improve flow and water quality conditions over a large geographic area for fish and wildlife beneficial uses in the Sacramento/Delta. As discussed in more detail below, the State Water Board recognizes that providing instream flows for the environment necessarily results in less water available for other uses. Providing balanced protection of all beneficial uses of water is incredibly important and requires careful consideration, and the State Water Board is sensitive to water supply impacts.

This common response addresses, but is not limited to the following topics:

- Overview and adequacy of the water supply impact analyses
- Comments on water supply impacts
- Alternative water supplies
- Other water management actions

This common response references related common responses as appropriate where recurring comments and common comment themes overlap with other subject matter areas. Please see Common Response 1.2, *Water Quality Control Planning Process*, for responses to comments on the reasonable protection of fish and wildlife beneficial uses and consideration of other beneficial uses. For responses to comments concerning the groundwater impact analysis and approach to incorporating the Sustainable Groundwater Management Act (SGMA) in the Sacramento/Delta Bay-Delta Plan update, please see Common Response 7.12.2, *Groundwater and Sustainable Groundwater Management Act*. For responses to comments concerning the 2023 draft Staff Report's evaluation of the potential agricultural impacts, please see Common Response 7.4, *Agricultural Resources*. For responses to comments concerning the 2023 draft Staff Report's evaluation of the potential municipal supply impacts, please see Common Response 7.20, *Utilities and Service Systems*. For responses to comments concerning agricultural economic effects, please see Common Response 8.1, *Economic Analysis and Other Considerations*.

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Overview and Adequacy of the Analyses

Numerous comments suggested that the Staff Report failed to evaluate impacts and effects of reductions to Sacramento/Delta water supply. Some comments made this claim while also citing the analyses of changes in water supply within the Staff Report. Others commented that the analyses were inadequate because they provided regional estimates and did not specify details for their circumstance, including water right specific analyses.

Potential effects from the Plan amendments to water supply are evaluated extensively throughout the Staff Report, and potential water supply impacts are disclosed in terms of changes to volumes of available water supply, and related outcomes in the plan and study areas, including, but not limited to, agriculture, municipal use, and the economy. Given the inherent uncertainties involved in evaluating potential water supply changes, the Staff Report uses reasonable and conservative approaches that are likely to provide a worse-case scenario for potential impacts. These potential impacts may be reduced or avoided through the mitigation measures and other water management actions discussed in the report.

The discussion below provides a brief overview of the revised proposed Plan amendments and how the Staff Report evaluates the potential effects from the Plan amendments on water supply. For the purpose of reasonably protecting fish and wildlife beneficial uses, the amendments to the Bay-Delta Plan are focused on flows and water quality in the Sacramento River and its tributaries, Delta eastside tributaries (including the Calaveras, Cosumnes, and Mokelumne Rivers), Delta outflows, and interior Delta (Sacramento/Delta). To organize the analyses, the *plan area* includes the Sacramento/Delta and continues west as water flows through the Delta and downstream through Suisun Marsh and adjoining bays, marking the brackish transition from freshwater to saltwater and the Pacific Ocean. The plan area encompasses the areas where the Bay-Delta Plan's flow and water quality objectives and implementation measures apply, and the ecosystem that the Bay-Delta Plan is intended to protect.

As described throughout the Staff Report, water from the Sacramento/Delta is used within the watershed and is also delivered to and used in other areas of the state. Therefore, a larger *study area* is defined to ensure that environmental impacts and economic effects, including water supply for municipal and agricultural uses, are evaluated in all areas where changes may occur. The study area was divided into seven regions based on geography and water supply. The geographic regions in the study area for the 2023 draft Staff Report included the Sacramento River watershed, Delta eastside tributaries, Delta, San Francisco Bay Area (Bay Area), San Joaquin Valley, Central Coast, and Southern California. These watersheds also receive water from sources other than surface water from the Sacramento/Delta watershed. In addition to the study area identified in the 2023 draft Staff Report, in response to public comments the Trinity River has also been added to the study area. (see Common Response 1.5, *Trinity River*, for more information). A map of the study area regions is shown below in Figure CR 6.3-1.

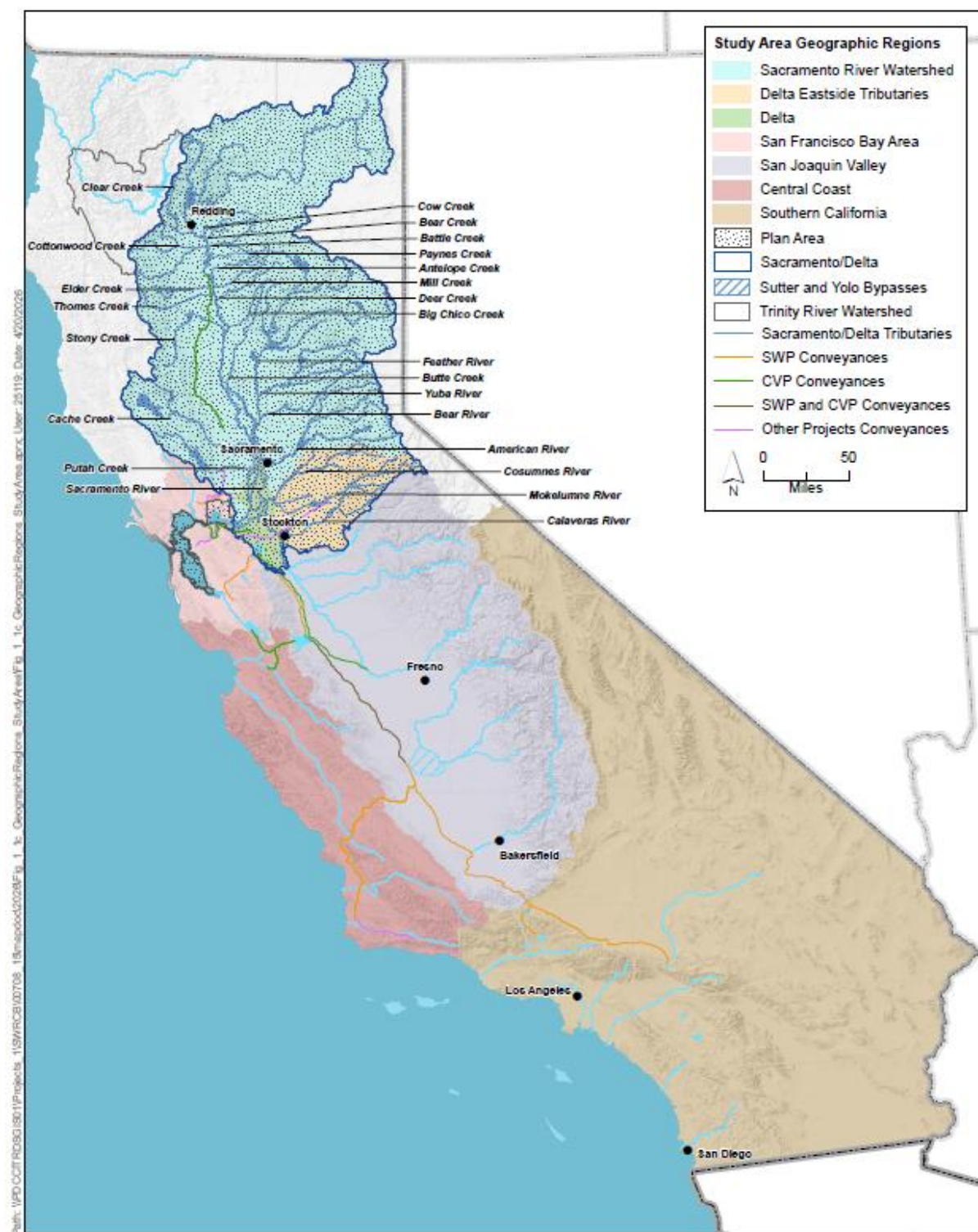


Figure CR 6.3-1, Study Area Geographic Regions (Copy of Figure 1-1c from Chapter 1, *Executive Summary*)

The Delta and many of the tributaries in its watershed have been extensively developed for agricultural and urban water supply, as well as hydropower generation and flood control. Staff Report Chapter 2, *Hydrology and Water Supply*, describes the existing hydrology and water supply conditions in the study area, with a focus on current hydrologic conditions in the Sacramento/Delta watershed, and compares the existing conditions to unimpaired conditions to assess the impairments to the flow regime. Current hydrologic conditions in the Sacramento/Delta watershed are very different than unimpaired hydrologic conditions because of the development of this water source as a water supply. As an example, Table 2.4-3 of the Staff Report presents Sacramento Water Allocation Model (SacWAM) results, which estimate that Delta outflow is less than 25% of unimpaired flow during May in half of the years, which means that approximately 75% of the water during May does not reach the Delta as outflow under current conditions. Chapter 2 also presents flow impairment information, such as simulated impaired flows as a percentage of unimpaired flows for the Sacramento River, its major tributaries, and Delta eastside tributaries and ranked by Water Year Index for January-June (Figure 2.1-10) as well as simulated unimpaired contributions to total Delta outflow from individual tributaries to the Delta (Table 2.4-4). The data tables and information presented in Chapter 2, along with the cumulative distributions of current conditions as a percent of unimpaired flow for individual tributaries, show that some tributaries have even higher levels of impairment. For example, some individual tributaries have times when flows are zero, or approaching zero, as a result of water diversions. For decades there have been substantial reductions in flows and significant changes in the timing and distribution of those flows, and species have been cut off from natal waters. This has led to severe declines, and in some cases extinctions, of native fish and other aquatic species.

Many of California's communities and much of its vast economy and agricultural industry are dependent on a complex water distribution infrastructure that stores, manages, and transports water from its original sources in the Bay-Delta watershed to the locations where it is eventually used throughout the state. The California Department of Water Resources' (DWR) State Water Project (SWP) and the U.S. Bureau of Reclamation's (Reclamation) Central Valley Project (CVP) (collectively, the Projects) are the largest distributors of water in the Sacramento River watershed, which together deliver about 63 percent of the total surface water to this region, as estimated by SacWAM. The discussion of water supply in Section 2.8, *Existing Water Supply*, provides an overview of the water supplied to the Sacramento River watershed, Delta eastside tributaries, Delta, Bay Area, San Joaquin Valley, Central Coast, and Southern California regions. The water supply discussion describes how much water is supplied to different regions of the state and provides context for what portion of each region's total water supply originates from the Sacramento/Delta.

The hydrologic analysis of existing Delta outflows indicates that diversions and exports have reduced average annual outflow, reduced winter and spring outflow, and reduced seasonal variability. The hydrologic analysis also indicates that water development in regulated tributaries has generally resulted in reduced annual Delta inflow, reduced spring inflow, increased summer inflow, and decreased hydrologic variability. The analysis indicates that tributaries without large reservoirs generally have lower flows in late spring and summer relative to unimpaired conditions. Finally, the hydrodynamic analysis indicates that the Projects' pumping in the south Delta and associated operations have increased the magnitude and frequency of reverse (upstream) flows on Old and Middle Rivers (OMR) and other alterations in the hydrodynamics of the Delta.

It is important that water supply be understood in context of the variable nature of hydrology and water availability. The Bay-Delta hydrology historically has been defined by extreme events, ranging from large winter and spring floods to multi-year droughts. The proposed percent of unimpaired

flow approach under the regulatory pathway is responsive to the dynamic nature of water availability and water supply. The percent of unimpaired flow approach assigns a percent of the naturally available water each day (based on a 7-day running average) to fish and wildlife and leaves the rest of the water supply for other uses. Section 3.13.5, *Justification for Environmental Flows*, describes how the required flow amounts using an unimpaired flow approach is not a fixed quantity, but automatically adjusts to the amount of water in the system, including to local and seasonal hydrology, so it is more reflective of the conditions to which the native species being protected are adapted and to the availability of water for other uses. With the unimpaired flow approach, the required flow volume will be lower during drier conditions and higher during wetter conditions. This means when there are drought conditions, the flow requirement will scale downwards to a much smaller volume of water compared to when there are wetter conditions. Additionally, the water supply adjustments (WSAs) and human health and safety considerations in the proposed Plan amendments allow further relief to potential water supply impacts. Many rivers in the Bay-Delta watershed have a natural cooling mechanism driven by snow melt, and this mechanism is often interrupted by fixed and inflexible flow requirements but would be supported by an unimpaired flow requirement which automatically increases as snow melt increases during warm conditions. Increased flow requirements during warm snow-melt periods will have the effect of cooling the rivers and supporting native fish that require cold water habitat.

Healthy native fish populations require healthy subpopulations in different streams with different life history strategies to maintain genetic diversity and distribute risk to the population that may occur from ecological disturbances. The Plan amendments are geographically comprehensive by design to ensure that river flows support native fish throughout the Bay-Delta watershed, which will help to bolster the “portfolio effect” that is discussed in Section 6.3, *Systemwide*, of the Scientific Basis Report Supplement (Appendix G2 of the Staff Report).

In addition to the scientific basis for the unimpaired flow approach, the approach affords public transparency as to the allocation of water between fish and wildlife and other beneficial uses. The percent of unimpaired flow approach identifies the allocation of a seasonally and annually variable quantity of water for the reasonable protection of fish and wildlife and other beneficial uses.

The Bay-Delta Plan establishes water quality control measures and flow requirements needed to provide reasonable protection of beneficial uses in the watershed, including fish and wildlife beneficial uses. The current requirements are minimal and are focused on the Delta without considering the needs of the entire watershed or how those flows are provided. As discussed in Chapter 2, *Hydrology and Water Supply*, the total volume of water authorized for diversion in the Sacramento/Delta watershed greatly exceeds the total average unimpaired outflow from the Bay-Delta watershed. Responsibility for meeting the existing Bay-Delta Plan objectives falls primarily on DWR and Reclamation for the SWP and CVP, respectively. Many other diverters do not have specific requirements to provide bypass flows or to contribute to the existing Bay-Delta Plan objectives.

Total average annual unimpaired outflows from the Bay-Delta watershed are about 28.5 million acre-feet (MAF). Upstream diversions and water exports have reduced annual average outflows by a little less than half (to 15.5 MAF), and outflows during the critical January-through-June period by more than half. However, average regulatory minimum Delta outflows are only about 5 MAF—or about a third of current average outflows and less than 20 percent of average unimpaired outflows. Existing regulatory minimum Delta outflows are too low to protect the ecosystem; without additional instream flow protections, existing flows may be reduced in the future as new storage and diversion facilities are constructed and as population growth continues.

Chapter 6, *Changes in Hydrology and Water Supply*, presents model results from SacWAM that help estimate the potential changes to flow and water supply resulting from potential Plan amendments. The required percent of unimpaired flow is evaluated in increments of ten, from 35 percent up to 75 percent unimpaired flow. These modeled scenarios are later grouped into three alternatives, with each alternative encompassing a range of percent unimpaired flow. The three alternatives are then compared to baseline conditions in Chapter 7, *Environmental Analysis* of the Staff Report. Section 6.4, *Changes in Surface Water Supply*, characterizes changes in the available surface water supply under various flow scenarios. Water supply is summarized by where the water is ultimately used, not by where the water may be diverted. Because each region receives water supply by multiple sources, only a portion of the total water supply to each region may be affected by the revised proposed Plan amendments; this portion is termed *Sacramento/Delta supply* or *Sacramento/Delta water* (see Section 6.4.2, *Sacramento/Delta Water in the Study Area*). Water supply goes to a variety of uses such as agriculture, urban (municipal and industrial), and wildlife refuges.¹

In contrast to the percent of unimpaired flow approach that expands and contracts the minimum flow requirements based on hydrology, the appropriative water right system in California is based on the amount and priority date when the water right was acquired. When the amount of water available in a surface water source is not sufficient to support the needs of existing water right holders, junior appropriators (lower relative priority) must cease diversion in favor of more senior rights (higher relative priority). In times of shortage, appropriative users must reduce diversions, starting with the most junior user in the watershed, followed by the senior users. Riparian rights generally have a relatively senior right to natural flows, and water must generally be available to fulfill the needs of all riparian right holders before an appropriator may divert. Because of their senior priority, riparian diverters would generally be the last to be required to reduce diversions during shortage. If there is not enough water to satisfy all of the riparian demand, all riparian users must reduce their diversions in a correlative fashion.

Table CR 6.3-1 shows the annual average water supply to each region in the study area by type of use (agriculture, urban, and wetland/wildlife refuge). Water supply (surface water, groundwater, and other sources) and water demand are estimated using historical water deliveries data and modeling methods described in Section 2.8, *Existing Water Supply*. Historical total water use in the entire study area is over 40 MAF with approximately 12 MAF from the Sacramento/Delta watershed. Of the 12 MAF from the Sacramento/Delta watershed, over 8 MAF is used for agriculture and 3 MAF for municipal use. Potential reductions in Sacramento/Delta supply from the Plan amendments are estimated from SacWAM results for each of the flow scenarios, and available Sacramento/Delta water supply decreases with increasing flow requirements. In the 55 scenario, Sacramento/Delta water supply reductions are approximately 1,682 thousand acre-feet/year (TAF/yr) on average. This represents a reduction of 14 percent of the Sacramento/Delta supply, and a reduction of 4 percent of water supply in the broader study area.

¹ A reference to *municipal use* includes domestic and industrial uses unless otherwise specified. The terms *urban* and *municipal and industrial (M&I)* are also sometimes used to generally reference municipal water supplies.

Table CR 6.3-1 provides important context for the supply reductions needed for minimum instream flow protection compared to overall water use for other purposes in each region. For example, total water supply to the San Joaquin region is over 18 MAF, with the majority of water for agricultural use. Average Sacramento/Delta supply provides 2.8 MAF of that total amount, and reductions under a 55 scenario represent a decrease of 13 percent of Sacramento/Delta Supply and only 2 percent of the total supply in the region. While that reduction is small overall, the Staff Report acknowledges that reduction may impact users differently depending on the priority of water right at issue.

Table CR 6.3-1. Annual Average Water Supplied to Each Region in the Study Area (thousand acre-feet per year) (copy of Table 6.4-1 from Chapter 6, *Changes in Hydrology and Water Supply*)

		Sacramento River Watershed	Delta Eastside Tributaries	Delta	San Francisco Bay Area	Central Coast	San Joaquin Valley	Southern California	Study Area Total
Historical Water Deliveries Data	Total	8,050	986	1,368	1,251	1,334	18,437	9,449	40,875
	Agriculture	6,773	824	1,185	137	1,055	16,803	4,863	31,640
	Municipal	826	154	136	1,089	279	1,053	4,518	8,055
	Wetland	451	8	48	26	0	581	68	1,182
Baseline	Sac/Delta	5,320	205	1,154	698	86	2,819	1,675	11,957
	Agriculture	4,641	124	1,136	27	37	2,422	14	8,401
	Municipal	480	81	18	670	49	99	1,661	3,058
	Refuge	199	0	0	0	0	298	0	497
35	Sac/Delta	5,110 (-4%) [-3%]	185 (-10%) [-2%]	1,154 (0%) [0%]	632 (-9%) [-5%]	83 (-3%) [0%]	2,781 (-1%) [0%]	1,583 (-5%) [-1%]	11,528 (-4%) [-1%]
	Agriculture	4,467	111	1,136	21	36	2,387	14	8,172
	Municipal	464	74	18	611	47	95	1,569	2,878
	Refuge	179	0	0	0	0	298	0	477
45	Sac/Delta	4,986 (-6%) [-4%]	177 (-14%) [-3%]	1,153 (0%) [0%]	583 (-16%) [-9%]	78 (-9%) [-1%]	2,673 (-5%) [-1%]	1,435 (-14%) [-3%]	11,085 (-7%) [-2%]
	Agriculture	4,363	107	1,135	18	34	2,288	12	7,957
	Municipal	450	70	19	565	43	88	1,422	2,657
	Refuge	174	0	0	0	0	298	0	472
55	Sac/Delta	4,714 (-11%) [-8%]	161 (-21%) [-4%]	1,150 (0%) [0%]	518 (-26%) [-14%]	67 (-22%) [-1%]	2,440 (-13%) [-2%]	1,225 (-27%) [-5%]	10,275 (-14%) [-4%]
	Agriculture	4,131	96	1,132	13	30	2,069	11	7,482
	Municipal	427	66	18	504	38	77	1,214	2,344
	Refuge	156	0	0	0	0	294	0	450
65	Sac/Delta	4,234 (-20%) [-13%]	142 (-31%) [-6%]	1,140 (-1%) [-1%]	442 (-37%) [-20%]	48 (-44%) [-3%]	1,950 (-31%) [-5%]	1,019 (-39%) [-7%]	8,975 (-25%) [-7%]
	Agriculture	3,705	83	1,124	10	17	1,611	9	6,559
	Municipal	397	59	16	432	32	64	1,010	2,010
	Refuge	133	0	0	0	0	275	0	408
75	Sac/Delta	3,478 (-35%) [-23%]	127 (-38%) [-8%]	1,134 (-2%) [-1%]	381 (-45%) [-25%]	37 (-57%) [-4%]	1,504 (-47%) [-7%]	757 (-55%) [-10%]	7,418 (-38%) [-11%]
	Agriculture	3,039	74	1,120	6	13	1,212	7	5,471
	Municipal	372	53	14	375	24	49	750	1,637
	Refuge	67	0	0	0	0	242	0	309

The historical water deliveries data values represent an estimate of the total annual supplies to each region, and the values presented for the flow scenarios represent the Sacramento/Delta surface water portion as modeled from SacWAM. The percentages in round parentheses represent the estimated reduction in Sacramento/Delta supply, while those in square brackets represent the estimated reduction relative to total supply for each flow scenario. When comparing historical water deliveries data estimates to SacWAM results, the reader should keep in mind that they are not meant to be an exact comparison because of differences in methods and time periods. However, these comparisons are presented to give a general idea of the magnitudes of changes relative to the total supply. More information on the differences in the methods can be found in Section 2.8, *Existing Water Supply*.

Table CR 6.3-2 shows the projected annual Sacramento/Delta water supply in different water year types for the baseline and various scenarios. Reductions are generally lowest in wet years and highest in critical, dry, and below normal years.

Table CR 6.3-1. Annual Water Year Type Average Annual Sacramento/Delta Supply for Baseline and Change from Baseline (thousand acre-feet) (copy of Table 6.4-2 from Chapter 6, *Changes in Hydrology and Water Supply*)

Water Year Type	Baseline	35	45	55	65	75
Critical	9,305	-1,054	-1,512	-2,232	-3,149	-4,253
Dry	11,563	-596	-1,379	-2,630	-3,886	-5,375
Below normal	12,149	-384	-947	-1,937	-3,486	-5,413
Above normal	12,334	-129	-481	-1,278	-2,887	-4,749
Wet	13,394	-123	-267	-695	-1,945	-3,439
All	11,957	-428	-871	-1,682	-2,981	-4,538

Approximately one-third to one-half of Sacramento/Delta supplies are exported by the CVP and SWP via south Delta pumping facilities, with higher export rates in wetter years. These supplies are subsequently delivered to the Bay Area, Central Coast, San Joaquin Valley, and Southern California regions. Potential reductions in export supplies reported in the Staff Report are estimated to account for roughly 50 to 60 percent of overall Sacramento/Delta supply reductions, with larger proportional reductions in the higher flow scenarios. Section 6.4, *Changes in Surface Water Supply*, provides detailed information for each of the study area regions by water year type.

Other portions of the Staff Report provide greater detail of water supply reductions to specific uses that may result in potential impacts to the environment under CEQA. The *Agriculture and Forest Resources* sections (Sections 7.4, 9.7.4, and 13.7.4) describe the environmental setting, potential impacts, and mitigation measures for agriculture and forest resource impacts that may result from changes in hydrology or changes in water supply. The Staff Report uses a conservative threshold of significance for farmland conversion that captures the importance of agriculture as a resource in California. All irrigated agriculture is used as a proxy for important farmland (e.g., prime farmland, unique farmland, or farmland of statewide importance), and the analysis assumes that any reduction in irrigated crop acreage is important farmland converted to nonagricultural use.

The Staff Report also recognizes the importance of municipal water supplies, and in the *Utilities and Service Systems* sections (Sections 7.20, 9.7.20, and 13.7.20) the Staff Report describes the environmental setting, potential impacts, and mitigation measures for utilities and service systems that may be affected by changes in hydrology and changes in water supply from the Plan amendments. These sections use Impact UT-d to assess potential impacts from changes in water supply for municipal use although it is not a direct impact on the environment. These analyses consider municipal supply, including whether and how communities that rely in whole or in part on Sacramento/Delta supply would be able to meet municipal demand using other water management actions in response to changes in supply. A description of other water management actions by water users who may experience reductions in Sacramento/Delta supplies under the Bay-Delta Plan, such as increased use of recycled water and conservation measures, is provided in Section 6.6, *Other Water Management Actions*. Potential responses by water agencies to reduced municipal supply can lead to other indirect actions, including the construction or expansion of new water treatment

facilities or water supply infrastructure, which could have environmental impacts under CEQA. Section 7.22, *New or Modified Facilities*, addresses actions that entities may take that would involve construction to modify or build new facilities and infrastructure to supplement or conserve water supplies. Staff Report Sections 8.5, 9.8.3, and 13.8.3, each titled *Municipal Water Supply Economic Effects*, estimate the potential costs to affected municipal service providers of securing reliable water supplies, with the focus on (1) cost of developing other water supplies to replace the reduced Sacramento/Delta water supply; (2) the opportunity cost of lost supply if no other supply sources are available; or (3) costs of using other water supplies within existing water portfolios to replace the reduced Sacramento/Delta water supply. Additionally, Section 8.3, *Costs Associated with Other Water Management Actions*, and Section 13.8.6, *Costs Associated with Other Water Management Actions, Habitat Restoration and Other Ecosystem Projects, and New and Modified Facilities*, evaluates potential costs of reasonably foreseeable methods of compliance and response actions including costs associated with actions that water users may take to secure other sources of water and maximizing the use of existing water supplies in response to reduced Sacramento/Delta surface water supplies. Staff Report Appendix D, *Supplemental Municipal Supply Analysis Information*, considers potential impacts to municipal water supply during consecutive dry year sequences. Sections 7.8, 9.7.8, and 13.7.8, each titled *Energy*, discuss potential impacts on hydropower generation that may result from changes in hydrology or water supply and identify mitigation measures to avoid or reduce those potential impacts.

In addition to potential changes in Sacramento/Delta surface water supplies for agriculture, municipal, and other uses, the analyses of water supply also consider potential changes in groundwater. As discussed in Section 7.12.2, *Groundwater*, groundwater and surface waterbodies are connected physically in the hydrologic cycle; changes in either surface water or groundwater quantity affect the other. Groundwater levels in many basins across California have declined steadily over time from agricultural and municipal uses. In some places, groundwater pumping supplements surface water diversions. In some areas, surface water, including imported Sacramento/Delta surface water, has been used to alleviate declining groundwater levels through substitution, managed groundwater recharge (percolation or injection into the groundwater basin), or both. The management of surface water supplies and groundwater supplies together is called *conjunctive use* and can be an effective approach in long-term water supply planning, so long as it does not impair the quality and sustainability of either water source. Where the Plan amendments require increased instream flows in order to reasonably protect fish and wildlife beneficial uses, less surface water may be available to supplement groundwater supplies. Additionally, increased stream flow requirements could result in increased groundwater pumping in response to reduced Sacramento/Delta surface water supplies.

Impacts to groundwater are evaluated in Sections 7.12.2, 9.7.12.2, and 13.7.12.2, each titled *Groundwater*, and are considered in Sections 7.4, *Agriculture and Forest Resources*, and 7.20, *Utilities and Service Systems*, when evaluating the range of supply reductions, depending on whether replacement groundwater pumping is used as an alternative supply. As described in Section 7.1, *Introduction, Project Description, and Approach to Environmental Analysis*, and in other sections of the Staff Report, it is uncertain how water users may respond to changes in Sacramento/Delta supplies, and the water supply reductions could be distributed somewhat differently than modeled. The environmental analysis often considers a range of potential outcomes, including the most conservative for evaluating potentially significant effects on the physical environment. In many cases, there may be no impact. Some impacts are inversely proportional, and it is not possible for a worst-case scenario to occur for every environmental resource area. See Common Response 7.12.2,

Groundwater and Sustainable Groundwater Management Act, for additional information on comments and comment responses to groundwater related topics.

In addition, the Staff Report evaluates water management actions that water users may make in response to reduced Sacramento/Delta supply. These other water management actions include groundwater storage and recovery, water transfers, water recycling, and water conservation. A description of these other water management actions, including state-wide trends and regional observations, is provided in Section 6.6, *Other Water Management Actions*. As described in Chapter 2, *Hydrology and Water Supply*, many water users have made significant investments to diversify their water supply portfolios, and the Plan amendments could lead to further diversification beyond that which has occurred due to existing or potential population growth, drought, environmental needs, climate change, economic factors, and other reasons.

Section 2.8, *Existing Water Supply*, of the Staff Report describes water management actions that water users already employ in the various regions of the study area. In the San Francisco Bay Area region (discussed in Staff Report Section 2.8.4, *Elder Creek*), for example, recent estimates of water recycling indicate that recycling and efficiencies are increasing compared with previous estimates presented in the California Water Plan from 2005–2015. Per-capita residential water use in the Bay Area is relatively low due to high water rates, cool climate, efficiency efforts, and small lot sizes. Residential per capita water use in the Bay Area during recent years ranged from 129 residential gallons per capita per day (R-GPCD) in 2013 to 99 R-GPCD in 2015, based on analysis of data from the State Water Board’s Urban Water Supplier Monthly Reports Dataset. In 2015, the region’s recycled water use included approximately 19 TAF for landscape irrigation and golf courses, 5 TAF for wetlands, more than 13 TAF for industrial uses and geothermal energy production, and more than 12 TAF for agricultural irrigation—for a total of 65 TAF of recycled water use.

It is anticipated that the actions discussed in Staff Report Section 6.6, *Other Water Management Actions*, could be used to offset some portion of the reduction in Sacramento/Delta supplies that may result from the Plan amendments. Other water management actions affect the overall analysis in two ways. First, environmental impacts and economic effects from reduced Sacramento/Delta surface water supplies likely would be less given these efforts. Second, other water management actions may result in their own environmental impacts that are disclosed and analyzed within the Staff Report.

In some instances, other water management actions utilized to prioritize limited available water supplies or develop other water supply sources would involve construction to modify or build new facilities and infrastructure to supplement or conserve water supplies. Section 7.22, *New or Modified Facilities*, evaluates actions that entities may take that involve construction to modify or build new facilities and infrastructure to supplement or conserve surface water supplies and other construction projects that may result in response to reduced Sacramento/Delta supplies from the Plan amendments. Potential projects include new or modified dams/reservoirs and points of diversion; groundwater wells and groundwater storage and recovery projects; and new or modified drinking water treatment plants, including desalination plants and wastewater treatment plants (WWTPs). The discussion below for *Alternative Water Supplies* provides more details and responses to comments about the feasibility of other water management actions and new and modified facilities.

Chapter 8, Sections 9.8, and 13.8, each titled *Economic Analysis and Other Considerations*, evaluates economics effects associated with the Plan amendments, including economic effects of reduced

Sacramento/Delta supply to agricultural and municipal use. Most of the irrigated agriculture in the study area is located on the valley floor portion of the Sacramento/Delta and the San Joaquin Valley. For these areas, the effects from changes in water supply on production of irrigated crops are estimated using the Statewide Agricultural Production (SWAP) model. SWAP model estimates the direct economic effects of potential changes in water supply on production of irrigated crops with a range of possible outcomes based on assumptions related to availability of groundwater to offset reductions. In addition, the analysis estimates how changes in agricultural production could affect total industry output (sales), income, and employment throughout the regional economy using the IMPLAN model. The evaluation of actions that may be taken in response to changes in water supply includes groundwater use and other water management actions, which include groundwater storage and recovery/conjunctive management efforts, water transfers, water recycling, and conservation measures. Potential costs for implementation and operation and maintenance of other water management actions informs the analysis of the estimated economic costs to replace reduced Sacramento/Delta supply for agricultural regions that are not analyzed by the SWAP model, and the economic costs to affected municipal and industrial suppliers to secure reliable water supplies. See Common Response 8.1, *Economic Analysis and Other Considerations*, for additional information on potential economic effects from the Plan amendments.

Given the extensive analyses provided in the Staff Report, comments asserting that the State Water Board failed to analyze water supply impacts and effects are not accurate. As detailed above, the impact analyses in the Staff Report cover the wide range of foreseeable compliance measures, response actions, and associated effects that may result from the Plan amendments. In addition, these foreseeable compliance measures, response actions, and associated effects help define the dynamics of alternative water supply and use. The impact analyses supported and informed the State Water Board and the public throughout the water quality control planning process. The State Water Board must establish water quality objectives and program of implementation that, in its judgment, will ensure the reasonable protection of aquatic beneficial uses and the prevention of nuisance. When formulating Plan requirements, the Board must consider a number of factors including but not limited to: consideration of past, present, and probable future beneficial uses of water; the environmental characteristics of the hydrographic unit being considered; water quality conditions that could reasonably be achieved through the coordinated control of all factors affecting water quality in the area; and economic considerations. (Wat. Code, § 13241.) Common Response 1.2, *Water Quality Control Planning Process*, provides more discussion on the rational and support for reasonable protection of fish and wildlife beneficial uses, the consideration of other beneficial uses, and discretion to achieve reasonable protection over time.

Comments on Water Supply Impacts

A frequent concern expressed by commenters is the potential impact that implementation of the Plan amendments will have on their existing water supplies. The concern is especially acute among water providers with historically undiversified or limited water supplies. The State Water Board received many comments from water suppliers detailing their operations, explaining how imported water is necessary to supplement local supplies, the importance of surface supplies to help sustainably manage groundwater, and efficiency efforts that have allowed the sale of some agricultural water to municipalities. Municipal water suppliers expressed concern about increased instream flow requirements threatening the reliability of municipal water supply, making them even more vulnerable to supply volatility in locations with critically overdrafted groundwater basins and

without access to any groundwater supplies. Agricultural water users stated that the numeric flow requirements introduce substantial uncertainty into water supply forecasting and long-term planning, which could undermine permanent crop investment, dairy herd planning, financing stability, and responsible long-term land stewardship. Commenters expressed concern with carryover storage requirements associated with the new cold water habitat objective that could further reduce supply and decrease resiliency in dry years.

Some commenters' descriptions of dramatic and severe water supply impacts may overestimate the actual effects. Model results represent a conservative implementation of the Plan and actual effects of the implementation of the Plan would likely be less because water users could take advantage of the broad flexibility in implementation that the Plan allows. Flexibility in the form of adaptive implementation is provided in part to mitigate water supply effects if tailored solutions are available that are comparable or more protective for fish. CEQA impact determinations are conservative, and in many instances can be reduced or avoided through flexibility included in the Plan and through implementation of mitigation measures discussed in the Staff Report. The State Water Board provides these flexibilities with the intent that water diverters and reservoir owner/operators utilize these provisions because they are in a good position to understand their unique circumstances on a specific tributary. The program of implementation contains numerous provisions allowing for adaptive implementation to reduce water supply impacts. The program of implementation provides an adaptive range of a percent unimpaired flow and allows for two or more tributaries to work together to meet the numeric flow requirements downstream. Utilizing these flexibilities can help minimize water supply impacts, particularly in upper watersheds with interbasin diversions. Reservoir owners and operators may meet the proposed cold water habitat requirements by implementing some combination of cold water releases, temperature control devices (TCDs, e.g., reservoir outlet shutters and thermal curtains), and fish passage improvements. Section 7.21, *Habitat Restoration and Other Ecosystem Projects*, discusses and evaluates the potential environmental impacts, including construction impacts, of habitat restoration and other ecosystem projects (e.g., use of TCDs and fish passage improvement projects) that entities may undertake toward achieving the overall goal of improving conditions for fish and wildlife in the Sacramento/Delta. While it is expected that many parties would take advantage of the provided flexibility to optimize operations and avoid environmental impacts, the analysis considers and incorporates the most conservative assumptions to ensure comprehensive impact conclusions. See also Common Response 7.6.2, *Aquatic Biological Resources and Cold Water Habitat*, for comments regarding potential water supply and environmental impacts related to carryover storage level requirements associated with the cold water habitat objective.

The State Water Board recognizes that providing instream flows for the environment necessarily results in less water being available for other uses. Providing balanced protection of all beneficial uses of water is incredibly important and requires careful consideration, and the State Water Board is sensitive to water supply effects. The proposed project requires water supply reductions because water availability is constrained by the physical and hydrological conditions of the watershed. Some commenters alleged that the Plan amendments would increase uncertainty in water supplies. The minimum instream flow requirements will reduce surface water supply; however, they will not change variability or predictability of the hydrology in the Sacramento/Delta. High spatial and temporal variability, including the uncertainty of droughts, are inherent characteristics of the hydrology of the Bay-Delta watershed and are not introduced by the revised proposed Plan amendments. Additionally, as discussed in the Staff Report, there are opportunities to avoid or

minimize water supply impacts by implementing other actions like groundwater storage and recovery, water transfers, water recycling, water conservation, and desalination.

The State Water Board understands and acknowledges that reductions in Sacramento/Delta supplies for consumptive uses are difficult and a concern for many parties that rely on this water. The State Water Board also recognizes that other water supply sources are subject to further constraints from SGMA, the 2018 Lower San Joaquin River (LSJR)/Southern Delta update to the Bay-Delta Plan, Colorado River conditions, and climate change. However, the Board has long signaled that entities other than DWR and Reclamation may be required to help meet Bay-Delta water quality objectives, and updates to the Plan have been signaled for decades. Minimum flow protections are necessary and urgent to protect fish and wildlife from unnaturally frequent drought-like conditions caused by the development and use of water supply (Swanson 2025). The Plan amendments would provide a regulatory regime that addresses comprehensive minimum instream flow and cold water habitat provisions and distribute the responsibilities more broadly across the watershed in a way that adjusts to available supplies and provides for flexibility. The revised proposed Plan amendments were developed to improve flow and water quality conditions over a large geographic area, and particularly for fish and wildlife beneficial uses in the Sacramento/Delta. In addition, the water supply adjustments and VA pathway are responsive to water supply concerns, and are provided as components of staged implementation toward fully achieving the new water quality objectives in the Plan. The revised proposed Plan amendments are broad and contain needed flexibility to adaptively implement the flow and related requirements, which will allow the Plan to adjust in the future without having to start over with another lengthy update process. This will be important to adapt to changing climatic and fish and wildlife conditions as we learn more through the Plan's monitoring activities and measures are implemented.

The State Water Board received numerous comments from the public that expressed concern about the amount of Sacramento/Delta water that is delivered for agricultural use. While comments acknowledged the importance of agriculture, commenters emphasized that the price of agriculture water is not high enough to incentivize efficient use and conservation measures that would allow for more water to remain instream for the benefit of watershed health of the Sacramento/Delta watershed. Commenters objected to the export of agricultural products to other countries, citing recent large increases in agricultural profits from water intensive almond production in contrast with the decline of the commercial salmon industry due to recent closures and species decline. These commenters requested that the Bay-Delta Plan correct this imbalance by approving sustainable, science based and equitable management practices in the Plan Update.

Commenters also stated that the reductions in supply are not unreasonable even under the higher flow scenarios. For example, commenters pointed out that reductions in municipal supply were similar to reductions in water use during the 2012-2016 drought. A commenter stated that Table 8.4-4 shows that expected reductions in agricultural water supply result in only a 4.7% reduction in crop revenue under the 65% scenario and 8.2% reduction under the 75% scenario. Commenters noted that these reductions likely overestimate agricultural supply impacts given water users ability to shift crops and adopt other adaptive approaches. Commenters stated that the economic modeling also overestimates effects and fails to consider that alternative economic activities may offset the impacts of higher flow alternatives.

The Staff Report's analysis of environmental impacts and economic effects is appropriate for the large scope of the project and wide range of possible response actions. Section 7.1, *Introduction, Project Description, and Approach to Environmental Analysis*, describes the approach to the analysis

and describes reasonably foreseeable methods of compliance and response actions. As described in Section 7.1, it is uncertain how water users may respond to changes in Sacramento/Delta supplies, and the water supply reductions could be distributed somewhat differently than modeled. The environmental analysis often considers a range of potential outcomes, including the most conservative for evaluating potentially significant effects on the physical environment. The Staff Report adequately analyzes the economic effects of the project as required by the Porter-Cologne Water Quality Control Act.

The Staff Report acknowledges that minimum instream flow requirements will influence market decisions and further incentivize efficient water use. In addition to encouraging conservation, minimum flow requirements provide further impetus for water right holders to participate in the water transfer market. The water transfer market provides a mechanism for greater economic efficiency and reduced waste, where water can be reallocated to higher-valued or best use while operating within the prior appropriation water rights system. Water right holders may continue applying water to authorized beneficial uses or they may explore or entertain offers for voluntary transfers when transfer prices exceed the expected economic return from direct use. This can occur among agricultural users, where growers on marginally profitable land may sell or lease water to growers producing higher-profit commodities, if the water transfer price results in higher value for both parties. Municipal water providers typically consider the relative cost of alternative water supplies, which may include the transfer market. An offer price by municipal providers in the transfer market that is high enough to generate interest among agricultural water districts will be beneficial to the municipal provider if the cost is still lower than their supply alternatives. In both examples, transferred water maximizes economic efficiency by reallocating water to its highest higher valued use.

As discussed above, the Staff Report acknowledges that establishing minimum increased flow requirements will result in less water available for other uses, and the State Water Board is sensitive to supply issues. The State Water Board cannot simply reallocate water from agriculture to other uses. The State Water Board must implement the Plan in accordance with law, which includes adhering to the water right priority system to the extent feasible consistent with article X, section 2 of the California Constitution and the public trust doctrine. Many agricultural water rights are more senior relative to water rights for municipal use based on the priority date when the water was first appropriated. It is true that the State Water Board's broad regulatory authority allows it to control and condition water use, including the regulation of water quality and prevention of waste and unreasonable use. All water rights are subject to the common law principle, codified in California Constitution, article X, section 2, that prohibits "waste or unreasonable use or unreasonable method of use or unreasonable method of diversion of water." What constitutes a waste is relative, based on competing needs, and the determination may change as conditions change. In addition, all water rights are subject to the public trust doctrine. In regulating water use, the state must consider the public trust and protect the public trust when feasible. Even after an appropriation has been approved, the public trust imposes a duty of continuing supervision. Given the limited and highly variable availability of water for appropriation, water rights are inherently limited and uncertain. But the water right priority system is intended to further the policies of article X, section 2, promoting investment and facilitating voluntary transfers to more efficient or productive uses. So long as water quality objectives are attained and the designated beneficial uses are protected without otherwise resulting in unreasonable use or unreasonable effects on public trust uses, water quality requirements should be implemented consistent with water right priorities.

The Plan amendments, including inflow and outflow requirements, are proposed to be implemented consistent with water right priorities subject to certain exceptions for human health and safety. To implement the Sacramento/Delta updates to the Bay-Delta Plan, as necessary the State Water Board will issue water right curtailments based on water right priorities for appropriative rights and pre-1914 appropriative and riparian claims of right, including adjudicated rights, when it is determined that water is not available at water right priorities. In order to inform the above curtailments, the State Water Board will develop an implementation methodology to determine when water is not available at water right holders' priorities of right. An initial version of this methodology will be developed through a public process within one year of approval of the current Plan amendments by California Office of Administrative Law (OAL). Within two years of approval of the current Plan amendments by OAL, the State Water Board will finalize the implementation methodology and adopt curtailment regulations consistent with the above that will identify specific curtailment procedures and requirements.

With the exception of recent emergency drought regulations, implementation of the water rights priority system watershed-wide has never been done before. Long-term comprehensive water right implementation will take time and effort. The State Water Board is already making significant improvements in accounting and tracking of water rights more generally, and these efforts will assist in Bay-Delta Plan implementation moving forward.

Revised Proposed Plan Amendments in Response to Water Supply Concerns

In response to the concerns expressed by water suppliers about water supply effects and reservoir storage impacts that could affect both supplies and water temperatures, the project was revised as described in Common Response 1.3, *Revised Proposed Plan Amendments*. The revised proposed Plan amendments include water supply adjustments to reduce water supply impacts and allow more water to be stored in reservoirs at the outset of Plan implementation. The starting point for the required percent of unimpaired flow for existing water rights is subject to water supply adjustments that reduce water supply impacts and potential impacts to agriculture, municipal water service, hydropower production, and terrestrial species upon initial implementation. The watershed-wide water supply adjustments would require 55 percent of unimpaired flow during the wettest third of conditions, 45 percent of unimpaired flow during the intermediate third of hydrologic conditions, and 35 percent of unimpaired flow in the driest third of conditions. Additionally, the Mokelumne River, Putah Creek, and the Calaveras River, which are rainfall-dominated and municipal supply-dominated tributaries, include tailored water supply adjustments that allow larger reductions in the required flow, as well as no new flow requirements during the driest conditions. The Plan also includes flexibility for modifying the water supply adjustments in the future, and to move up in the range of unimpaired flow requirements. The flow requirements under the regulatory pathway along with other provisions in the program of implementation would enable Plan implementation to adjust to future changing conditions, including climate change and conditions of native fish and wildlife. The program of implementation in the Plan amendments also provides a VA pathway for an initial eight-year term that reduces flow contributions required from VA parties.

Alternative Water Supplies

Many water users often rely on a variety of water sources (water supply portfolios), including groundwater, local supplies, and imported water. Implementation of instream flow requirements for the reasonable protection of fish and wildlife would reduce Sacramento/Delta water supplies at certain times and locations. While the Plan amendments do not require additional water supply planning actions, the Staff Report acknowledges that the amendments may increase the need for other water supplies and accelerate efforts to manage and plan more carefully. In response to reduced Sacramento/Delta surface water supplies, water users may choose to modify their water supply portfolios by increasing the use of other sources of water and maximizing the use of existing water supplies. As discussed in Section 6.6, *Other Water Management Actions*, diversified water sources and water conservation must be considered in the context of the potential reductions in Sacramento/Delta surface water supplies that may result from the Plan amendments, particularly given that reducing reliance on the Delta and improving regional self-reliance is a state mandate (Wat. Code, § 85021). As described in Chapter 2, *Hydrology and Water Supply*, many water users have made significant investments to diversify their water supply portfolios and the Plan amendments could lead to further diversification beyond that which has occurred due to existing or potential population growth, drought, environmental needs, climate change, economic factors, and other reasons. The Staff Report identifies reasonably foreseeable methods of compliance and response actions to inform the environmental analysis, and identifies mitigation measures to avoid or reduce impacts. The Staff Report also includes an analysis of the economic effects that could result from Sacramento/Delta updates to the Bay-Delta Plan.

It is important to note that the environmental impact conclusions from reduced Sacramento/Delta water supply do not rely on alternative water supplies being available, including the implementation of other water management actions, even though these actions could reduce supply impacts at certain times and locations. The Staff Report recognizes that the availability of replacement supplies may be limited in some cases. As described in Section 7.1, *Introduction, Project Description, and Approach to Environmental Analysis*, and in other sections of the Staff Report, it is uncertain how water users may respond to changes in Sacramento/Delta supplies, and the water supply reductions could be distributed somewhat differently than modeled. The environmental analysis often considers a range of potential outcomes, including the most conservative, for evaluating potentially significant effects on the physical environment. In many cases, there may be no impact. For each resource area, the analysis assumes a worst-case scenario. Some impacts are inversely proportional, and it is not possible for a worst-case scenario to occur for every environmental resource area. The analysis of economic effects takes a similar approach. The Staff Report's analysis of environmental impacts and economic effects is appropriate for the large scope of the project and wide range of possible response actions.

The Staff Report evaluates alternative water supplies that could help offset water supply impacts from the proposed Plan amendments in several different places. Section 6.6, *Other Water Management Actions*, provides an overview of other water management actions which are defined in the Staff Report as reasonably foreseeable methods of compliance and response actions. These other water management actions may be used currently or in the future by water users to offset a portion of reductions in Sacramento/Delta surface water supplies experienced under the Plan amendments. Sections 7.3 through 7.20, and Chapter 13, *Revised Proposed Plan Amendments*, evaluate potential environmental impacts resulting from reasonably foreseeable methods of compliance and response actions that do not include new construction and instead use existing infrastructure (e.g., increased

use of existing groundwater wells, groundwater storage and recovery, water transfers, water recycling, and agricultural and municipal conservation measures). The potential impacts related to the modifications or construction of facilities in response to the Plan amendments are evaluated in Section 7.22, *New or Modified Facilities*, (e.g., new reservoirs, new groundwater wells, and new water treatment facilities). Additionally, see Common Response 1.3, *Revised Proposed Plan Amendments*, and 8.1, *Economic Analysis and Other Considerations*, regarding cumulative and economic and considerations related to water supply actions.

Groundwater

Many comments from water providers stated that additional groundwater supplies are not available to them for a variety of reasons, including (1) their geographic location relative to underlying geologic features and (2) restrictions on groundwater pumping in groundwater basins under purview of SGMA. Others argued that less surface water availability will lead to significant additional groundwater pumping throughout the region, which will frustrate efforts to implement sustainable groundwater management as required under SGMA.

Increased use of groundwater pumping, where groundwater is available, is identified as a reasonably foreseeable response to reduced Sacramento/Delta surface water supply resulting from the Plan amendments. In response to reductions in Sacramento/Delta surface water supplies, individual water users could choose to increase groundwater pumping as a substitute supply, where available and not locally restricted. These potential groundwater-related response actions could result in potential impacts on groundwater that are evaluated in Sections 7.12.2, 9.7.12.2, and 13.7.12.2, each titled *Groundwater*, and Section 7.22.1.2, *Groundwater Wells and Groundwater Storage and Recovery*. A description of how SacWAM characterizes groundwater pumping, incidental recharge from deep percolation and conveyance losses, and stream-groundwater interactions within the model domain for the purposes of estimating surface water supply changes from implementation of the revised proposed Plan amendments can be found in Sections 6.5 and 13.4.5, each titled *Changes in Groundwater Supply*.

There is uncertainty regarding groundwater pumping, groundwater recharge rates, and stream-groundwater interactions in many parts of the study area. In addition, precisely how these physical processes may change and how users may respond to reduced Sacramento/Delta surface water supplies is unknown and may be influenced by economic conditions, water availability, infrastructure constraints or other site-specific factors. In some areas, groundwater pumping may be limited by regulatory requirements (e.g., groundwater adjudications, implementation of the Sustainable Groundwater Management Act). In other areas, groundwater pumping may be locally unrestricted. For the analysis on the economic costs associated with other water management actions and for new and modified facilities for municipal and industrial suppliers, please see Section 8.3, *Costs Associated with Other Water Management Actions*, and Section 8.8, *Costs Associated with New and Modified Facilities*. For further discussion on the groundwater impact analysis and SGMA considerations during the Bay-Delta Plan updates, please see Common Response 7.12.2, *Groundwater and Sustainable Groundwater Act*.

The Staff Report does not require or encourage unsustainable groundwater use as an alternative supply, nor does it conflict with implementation of SGMA. Compliance with SGMA is based on future evaluations by the state as to whether the local groundwater sustainability agencies (GSAs) have met certain requirements on managing their local groundwater subbasin sustainably. In addition, the Staff Report does not preclude possible local cooperative solutions that allow creative

opportunities to facilitate the adaptation of management and responses to changes. As discussed in Section 6.6, *Other Water Management Actions*, these efforts may include sustainable groundwater projects, including groundwater storage and recovery. Additional discussion of groundwater storage and recovery is provided in Section 6.6.1, *Groundwater Storage and Recovery*, Section 7.1.5.3, *Reasonably Foreseeable Methods of Compliance and Response Actions*, Section 13.7.1.3, *Impact Conclusions That Do Not Change Under the Revised Proposed Plan Amendments*, and in the following section below under *Other Water Management Actions*. Other efforts may include water transfers, water recycling, desalinated supplies, and conservation measures. Sustainably managing surface water and groundwater resources synergistically is the only way to ensure the protection of both surface water and groundwater.

Other Water Management Actions

Section 6.6, *Other Water Management Actions*, provides an overview of other water management actions which are considered in the Staff Report as reasonably foreseeable response actions. These other water management actions may be used currently or in the future by water users to offset a portion of reductions in Sacramento/Delta surface water supplies experienced under the Plan amendments. Diversified water supply portfolios may include other water management actions, including (1) groundwater storage and recovery and sustainable management projects, (2) water transfers, (3) water recycling, and (4) conservation measures. Section 6.6.2, *Regional Use of Other Water Management Actions*, provides information for state-wide trends and regional observations related to other water management actions.

This section provides information and responses to comments related to other water management actions that involve the use of existing infrastructure (e.g., increased use of existing groundwater wells, groundwater storage and recovery, water transfers, water recycling, and agricultural and municipal conservation measures). The section further below, *New and Modified Facilities*, provides information and responses to comments related to other water management actions that involve the construction or modification of facilities (e.g., new reservoirs, new groundwater wells, and new water treatment facilities).

The other water management actions described in the Staff Report are consistent with many of the actions described in the Water Resilience Portfolio (2020) developed by state agencies in response to Governor Newsom's Executive Order N-10-19. The Water Resilience Portfolio identifies over 100 recommended actions to maintain and diversify California's water supplies, protect and enhance natural ecosystems, build connections, and be prepared. The Water Resilience Portfolio also aims to increase water use efficiency; promote water recycling, reuse, and wastewater projects; and diversify water supplies to reduce regional and local reliance on any one source. Since publication of the 2020 Water Resilience Portfolio, California has continued implementing many of its recommendations through subsequent state investments in water recycling, groundwater recharge, potable reuse, stormwater capture and water infrastructure improvements. These efforts provide additional funding opportunities (e.g., state revolving funds, one-time bonds) that may be leveraged to implement many of these actions. The Water Resilience Portfolio acknowledges that it will take time, effort, and funding to carry out the recommended actions; and the pace of implementation will vary depending on project feasibility, resource availability, and competing priorities.

Other water management actions could reduce the environmental impacts and economic effects from reduced Sacramento/Delta surface water supplies. The diversification of water supply portfolios is identified as a mitigation measure in the Staff Report. However, it is important to note that no impact conclusion within the Staff Report relies on the ability to offset reductions in Sacramento/Delta water supply with other water management actions. In other words, the impact conclusions are the most conservative and do not assume that other water management actions would be available. The approach to the environmental analyses of other water management actions, in Staff Report Sections 7.3 through 7.20, assumes the use of existing infrastructure (i.e., existing groundwater wells, existing water delivery systems, existing storage systems), as well as existing conservation measures. As described in the section below, Staff Report Section 7.22, *New or Modified Facilities*, evaluates other water management actions that entities may take that involve construction to modify or build new facilities and infrastructure to supplement or conserve surface water supplies and other construction projects that may result from implementation of the proposed Plan amendments. Depending on the degree to which other water management actions are available in a particular region, these actions can reduce the environmental impacts and economic effects from the Plan amendments. These other water management actions may result in their own environmental impacts that are disclosed and analyzed in the Staff Report.

Many commenters questioned the ability of other water management actions to effectively mitigate water supply impacts and criticized assumptions that these alternative water sources were reasonable. However, other commenters suggested that the Board could have relied more heavily on other water management actions to support even higher flow requirements.

Other water management actions addressed in the Staff Report are considered reasonably foreseeable response actions; however, that does not mean that the analyses assume these actions are reasonable for every diverter to implement. Nor does the Staff Report assume that these options are available to everyone and easy to implement.

Commenters also suggest that more precise estimates of other water management actions are required, such as a more refined analyses of water transfers. Section 6.6, *Other Water Management Actions*, provides information regarding the current and potential future use of other water management actions by water users who may experience reductions in Sacramento/Delta supplies under the proposed Plan amendments. A wide range of responses and associated environmental effects could occur because of the project due to the degree of flexibility included in the proposed Plan amendments and the scope and complexity of Sacramento/Delta water use. It is speculative and unknown exactly how the various water users that may experience reduced Sacramento/Delta supplies will manage their water supply portfolios in response to reduced supplies, and this type of quantification is beyond the scope of detail required in this planning process. However, potential responses can be described generally, with some quantification using agency water supply planning documents, modeling tools, historical and recent responses to drought, and other information. The 2023 draft Staff Report adequately identifies potentially significant effects of the planning approval at hand. The 2023 draft Staff Report has been prepared with a sufficient degree of analysis and contains a range of alternatives to consider and disclose potentially significant environmental effects, identify the ways impacts can be avoided or minimized, and to provide decision-makers with information that enables them to make a decision that intelligently takes into account environmental consequences (Cal. Code Regs., tit. 14, § 15002 and 15151).

For additional information regarding the cost of other water management actions, see Common Response 8.1, *Economic Analyses and Other Considerations*, regarding funding for alternative water supplies.

Groundwater Storage and Recovery

Groundwater storage and recovery can be an effective approach in long-term water supply planning, so long as it does not impair surface water beneficial uses. In many areas, Sacramento/Delta surface water supplies have been used to alleviate declining groundwater levels. Decreases in Sacramento/Delta surface water supplies could cause reductions in managed groundwater recharge, and such decreases could affect other planning efforts that anticipate future increases in the volume of water recharged and extracted from aquifers. However, even with new instream flow requirements that may limit surface water supplies, opportunities remain for managed groundwater recharge from high-runoff events, treated wastewater, and stormwater. Groundwater storage and recovery projects include land and appurtenant facilities, including extraction and injection wells, recharge ponds and spreading grounds, treatment and conveyance systems, and monitoring devices.

Several commenters objected to any reduction to Sacramento/Delta surface water supply that otherwise could be used to fill groundwater banks that water providers rely on for a portion of their water supply portfolio. Commenters expressed concern that the Plan could make it unfeasible for water suppliers to store enough water during wet years to meet dry year demands, and that it will not be sustainable to withstand droughts even when other water management actions are being implemented. The Staff Report acknowledges that groundwater storage and recovery projects can reduce exposure to drought, reduce groundwater overdraft and land subsidence, and maximize water availability. Executive Order (EO) B-39-17, issued in 2017, directs the State Water Board to prioritize the processing of temporary water right permits for projects that enhance the ability of a local or state agency to capture high-runoff events for local storage or recharge. In response, the State Water Board created a streamlined permitting process for groundwater sustainability projects. The Water Boards are also actively involved in initiatives to improve the management of storm water and snow runoff in wet years. Storm water discharges are regulated through National Pollutant Discharge Elimination system (NPDES) permits under the Water Boards' discretionary approval and may be used for groundwater recharge when properly managed.

Restoring flows for the reasonable protection of fish and wildlife in the Sacramento/Bay-Delta watershed will reduce surface water supply for users who have relied on that water in the past. Reducing groundwater overdraft and bringing groundwater basins into balanced levels of pumping and recharge under SGMA may also reduce groundwater as a source for water supply. Many water users have relied on both surface and groundwater to meet their water supply needs. The proposed flow objectives and SGMA are intended to achieve a balanced and sustainable level of water use, establishing complementary paths toward sustainable water use. The Board recognizes that adjusting to reductions in water supplies will be challenging for water users as these actions progress.

See Common Response 7.12.2, *Groundwater and Sustainable Groundwater Management Act*, for additional discussion regarding SGMA and the State Water Boards' role supporting potential recharge opportunities, managed groundwater recharge projects, groundwater substitutions or conjunctive use management, and funding assistance.

Water Transfers

A water transfer is a reallocation of water among water users, which provides important flexibility in the allocation and use of water in California. Water transfers take place as arrangements between two parties, typically between a buyer and seller, one with a surplus water supply and one in need of additional water. Water transfers are an important part of California's water picture, and the extensive network of water conveyance infrastructure developed through state, federal, and locally funded projects, most notably the CVP and SWP, is often used to facilitate water transfers. State law supports voluntary water transfers, directing state agencies to encourage and facilitate voluntary transfers in a manner that protects existing water uses including providing technical assistance to parties to implement water conservation measures which will make additional water available for transfers (see, e.g., Water Code sections 109 and 475). Many transfers are subject to approval by state and federal agencies, including post-1914 appropriative transfers which require State Water Board approval.

State and federal agencies developed procedures to assist in the processing of water transfers proposed by water users. For example, Reclamation accommodates water transfer requests within the CVP through the provisions of the Central Valley Project Improvement Act (CVPIA). DWR allows use of its SWP facilities by its contractors and others under the provisions of Water Code section 1810. The State Water Board has also given priority to processing short-term water transfers to accommodate the changing needs of water users.

Many water transfers involve transfers of water between SWP contractors, or transfers of water between federal CVP contractors. This type of water transfer does not require State Water Board approval except if the point of diversion, purpose of use, or place of use under the CVP's or SWP's water rights need to be changed to accomplish the transfer. However, for a CVP contractor to transfer water to a SWP contractor outside the CVP service area (or vice-versa), the transferring water right holder (either Reclamation or DWR) must petition the State Water Board for a change in the water rights for either a short-term transfer or a long-term transfer. Most water transfers seek to move water from northern areas of the state to central and southern areas. Water transfers also occur among parties that are not part of the CVP or SWP. The majority of the water transfers are short-term water transfers that are in effect for less than one year.

As discussed in Sections 5.6.2.1, *State Water Board Discretionary Approvals*, and 6.6.1.2, *Water Transfers*, of the Staff Report, many water transfers become a form of flexible system reoperation linked to many other water management strategies, including surface water and groundwater storage, conjunctive management, conveyance efficiency, water use efficiency, water quality improvements, and planned crop shifting or crop idling for the specific purpose of transferring water. The evolution in water market activity and water management strategies will allow water transfers to be an important source of supply even with reduced Sacramento/Delta supply under the Plan amendments.

Several commenters expressed concern that the implementation of minimum instream flows would reduce the number of willing sellers and/or volume of water available in the water transfers market. Other commenters suggest that surface water transfers involving groundwater substitution or conjunctive groundwater use would become more limited due to local GSAs implementing groundwater sustainability plans (GSPs) required under SGMA. Commenters also suggested that the flow requirements would render transfers from the Sacramento River region to the San Joaquin no longer viable, especially during dry and critical years when transfers are needed most.

Section 7.1.5.3, *Reasonably Foreseeable Methods of Compliance and Response Actions*, acknowledges that implementation of the Plan amendments will reduce Sacramento/Delta water supplies at certain times and locations, which could limit the amount of surface water available for transfer. The Staff Report also recognizes that changes in water supply could increase the value of transfer water, thereby incentivizing transfers and leading to transfers from lower economic value uses (e.g., low value agricultural crops) to higher economic value uses (e.g., high value agricultural crops or municipal uses). Section 6.6, *Other Water Management Actions*, provides information on temporary and permanent transfers that have occurred in recent decades. As discussed in Section 8.3, *Costs Associated with Other Water Management Actions*, there is a suite of reasonably foreseeable actions that affected entities may undertake to address possible surface water supply reductions. Water transfers were considered in the Staff Report analysis because urban water management plans indicated that such transfers had been or were being considered as part of the overall water supply planning effort(s) for some users. The Staff Report acknowledges that the issue is complex, requiring knowledge and information regarding supply alternatives, future demand and market conditions, and behavior of willing sellers and buyers in response to market prices. Therefore, the analysis assumes that there could be greater demand pressure in the water transfer market leading to higher prices for water. Common Response 8.1, *Economic Analysis and Other Considerations*, provides information regarding the economic aspects of water transfers that are discussed in the Staff Report.

Water Recycling

As discussed in Staff Report Section 8.3.4, *Water Recycling*, recycled water is primarily municipal wastewater that has been treated in a wastewater facility and complies with existing water regulations for a specific beneficial use. It is generated by treating domestic wastewater to make the water suitable for a direct beneficial use that would not otherwise occur. There are different required levels of treatment corresponding to the proposed use of the recycled water. Use of recycled water is part of the state's larger strategy to develop more resilient water supplies and increase regional self-reliance. Recycled water use can help reduce local water scarcity and can be a cost-effective solution for bringing supply and demand into a better balance.

Some commenters stated that the 2023 draft Staff Report failed to adequately consider recycled water projects. Others stated that recycled water projects take decades to develop and often come with their own environmental impacts and that in some regions water recycling is cost prohibitive. Some commenters emphasized that water recycling is the future of California. Staff Report Section 8.3.4, *Water Recycling*, discusses recycled water and provides rough cost estimates for different kinds of water reuse projects. The state has been active in developing legislation, adopting resolutions and policies, setting goals for recycled water use, and funding recycled water projects. The California Legislature has expressed its intent that the state undertake all possible steps to encourage development of water recycling facilities so that recycled water may be made available to help meet the state's growing water needs. (Wat. Code, § 13512.) The proposed Plan amendments may increase the need for other water supplies and accelerate efforts to implement water supply portfolio strategies, including water recycling.

Water Conservation and Efficiency

As discussed in Section 8.3.6, *Water Conservation and Water Efficiency Measures*, water conservation is an efficient and cost-effective way to quickly reduce water demand and extend existing supplies. Several commenters touted the benefits of promoting water use efficiency, especially in the

agricultural sector. The legislature, Governor, and government agencies agree as a matter of principle and practice and have adopted efficient water use as official State policy:

“The policy of the State of California is to reduce reliance on the Delta in meeting California’s future water supply needs through a statewide strategy of investing in improved regional supplies, conservation, and water use efficiency. Each region that depends on water from the Delta watershed shall improve its regional self-reliance for water through investment in water use efficiency, water recycling, advanced water technologies, local and regional water supply projects, and improved regional coordination of local and regional water supply efforts.” (Wat. Code, § 85021).

The Water Conservation Act of 2009 (SBx7-7) required agricultural water suppliers that provide water to more than 25,000 irrigated acres (excluding recycled water) to develop and adopt agricultural water management plans every 5 years. These plans must include reports on the implementation status of specific efficient water management practices. In addition, the 2018 Water Conservation Legislation requires agricultural water suppliers to set annual water budgets and prepare for drought.

As discussed in Staff Report Section 6.6.1.4, *Water Conservation*, management practices to improve agricultural water use efficiency include advances in irrigation technology, fertilizer technology, crop selection, and genetically modified crop development. From 2001 to 2010, there was a reduction in the use of gravity irrigation systems as growers have moved toward more frequent use of more water-efficient pressurized irrigation systems such as sprinkler, drip, and micro spray. Drip/micro irrigation usage increased from 15 to 30 percent, while gravity irrigation methods decreased from 67 to 43 percent. Land acreage irrigated by drip/micro irrigation methods increased by 16 percent between 2001 and 2011, while the acreage of land irrigated by surface irrigation methods decreased by 13 percent.

As discussed in Staff Report Section 8.3.6, *Water Conservation and Water Efficiency Measures*, traditionally when agricultural water conservation is implemented, saved water has remained in control of the growers by increasing yields on the same crops, exchanging to more profitable but higher water-using crops, spreading to other irrigated lands (even if not expanding the irrigated footprint, which is usually prohibited when farmers use public cost-share funds), or reducing use of supplemental groundwater later in the season. In some circumstances, saved water may be used in long-term or permanent water transfers.

As discussed in Staff Report Section 7.4.2.5, *Water Supply and Irrigation*, the State supports agricultural water use efficiency by funding programs that save water. Proposition 1 (Assembly Bill 1471, [Rendon], Statutes of 2014 [added sections 5096.968 and 75089 to the Pub. Resources Code]) authorized \$30 million to finance water supplier modernization, automation, and capital outlay projects, as well as research, development and technical assistance that support growers’ implementation of on-farm water-use efficiency measures. The State Water Efficiency and Enhancement Program awards funding for projects such as irrigation efficiency upgrades and soil water monitoring. The federal government provides grant funding through the U.S. Bureau of Reclamation’s Water Smart Program, which supports water supplier water conservation and water-use efficiency projects. Other grant programs, such as the Agricultural Water Use Efficiency and State Water Efficiency and Enhancement Program (SWEEP) could help to enhance future agricultural water use efficiency and water conservation. These programs support conveyance enhancements and on-farm agricultural water use efficiency improvements. The California Department of Food and Agriculture estimates that SWEEP projects help save over 140 TAF of water annually. Additionally, water quality programs for agriculture (e.g., Irrigated Lands Regulatory

Program) provide additional incentive to implement efficient irrigation management programs (e.g., timing, uniformity testing), technologies (e.g., spray, drip irrigation, tailwater return) as methods to minimize discharge of waste to surface water and percolation to groundwater.

Commenters also expressed concerns about water conservation for municipal purposes. As discussed in Common Response 8.1, *Economic Analysis and Other Considerations*, commenters expressed concerns about the analysis of municipal water supply economic effects presented in the Staff Report. They argued that the economic analysis underestimated or overestimated a number of variables. According to the commenters, these variables included the economic effects that would arise to municipal water providers due to the plan amendments, cost differences of replacement water supplies, the feasibility of obtaining replacement water, and uncertainty in alternative water supply weighting factors used in the analysis. Common Response 8.1 responds to these comments.

See Staff Report Chapter 13, *Revised Proposed Plan Amendments*, and Section 8.3, *Costs Associated with Other Water Management Actions*, for additional information and consideration of costs and economic considerations of reasonably foreseeable response actions to the Plan amendments, including water conservation and efficiency actions.

New and Modified Facilities

Other potential sources of alternative water supplies involve modification to existing facilities or construction of new facilities, such as desalination plants and new or modified reservoirs, and these types of construction-related activities are analyzed in Section 7.22, *New or Modified Facilities*, and Chapter 13, *Revised Proposed Plan Amendments* (e.g., at Table 13.7.22-3). The Staff Report considers actions that entities may take involving construction to modify or build new facilities and infrastructure to supplement or conserve surface water supplies and other construction projects that may result from implementation of the Plan amendments. Projects include new or modified dams/reservoirs and points of diversion; groundwater wells and groundwater storage and recovery projects; and new or modified drinking water treatment plants, including desalination plants and WWTPs. New and modified facilities are evaluated as reasonably foreseeable response actions to reduced Sacramento/Delta supply but are not included or identified as mitigation measures for water supply impacts. The new or modified facility actions would likely need approval from the State Water Board or the applicable regional water board authorizing changes or new water rights and/or discharges of waste associated with individual projects.

In addition to projects that may result from implementation of the Plan amendments, the Staff Report also considers cumulative impacts from other water supply projects that are currently being proposed (e.g., Sites Reservoir in the Sacramento Valley). Potential cumulative effects for projects are considered within Section 7.23, *Cumulative Impact Analysis, Growth-Inducing Impacts, and Significant Irreversible Environmental Changes*. For more discussion on the scope and adequacy of the cumulative impacts analysis and mitigation measures identified for the Plan amendments, please see Common Response 7.23, *Cumulative Impact Analysis*.

The State Water Board received several comments related to desalination facilities which can be used as an alternative source of water in areas with limited groundwater or surface water availability. Desalination facilities can treat both ocean and brackish water to provide potable water. Throughout northern and southern California, water agencies for inland and coastal areas utilize desalination technology to expand water supply.

Desalination of ocean or brackish water could provide a reliable water supply regardless of climatic conditions (such as droughts) or availability of other surface water supplies. In 2015, the State Water Board adopted an amendment to the *Water Quality Control Plan for the Ocean Waters of California* (Ocean Plan) to address effects associated with construction and operation of seawater desalination facilities (Desalination Amendment). The Desalination Amendment supports the use of ocean water as a reliable supplement to traditional water supplies while protecting marine life and water quality (^SWRCB 2019). It provides a uniform, consistent State/Regional Water Board process for permitting seawater desalination facilities and provides specific implementation, monitoring, and reporting requirements (^SWRCB 2019).

Comments received pertaining to desalination are similar to those for recycled water, such as the costs are too high to be an alternative water supply. While construction and operational costs for desalination remain high compared to other water supplies, desalinization technologies have improved over time and are becoming more cost-effective, especially in regions with access to brackish water, leading some communities (especially in the Central Coast) to reconsider previously deferred desalination plants. In 2025, the City of Antioch completed its Antioch Brackish Water Desalinization Plant to improve the reliability of the City's water supply and for operational flexibility. The plant provides up to 6 million gallons per day of potable water from its brackish water source, helping the City reduce water purchases from Contra Costa Water District (DWR 2025). Staff Report Section 8.3.5, *Desalination*, discusses desalinization and provides cost estimates for both seawater and brackish water sources.

One commenter expressed concern that the Staff Report's consideration of desalination was not specific enough for the commenter's local circumstances. As discussed above, it is speculative and unknown exactly how the various water users that may experience reduced Sacramento/Delta supplies will manage their water supply portfolios in response to reduced supplies, and this type of quantification is beyond the scope of detail required in this planning process. Instead, the Staff Report provides general information about how different regions may respond to reduced Sacramento/Delta surface supply and the impacts and costs associated with those response actions. Use of other water management actions in any particular geographic area depends on many factors, such as groundwater overdraft conditions, proximity to municipal recycled wastewater or desalination facilities, availability of water transfers, and other factors. For more discussion on the project in the context of CEQA and the adequacy of the project description, please see Common Response 7.1, *General CEQA and Approach to the Analysis*.

Some commenters suggest that the State Water Board should require additional water supply infrastructure, especially storage. However, the role of the State Water Board is not to build or require water supply infrastructure for water users. Rather, it is generally the responsibility of water users, purveyors, distributors, wholesalers, and retailers to build and maintain their water supply and distribution systems. The Staff Report acknowledges new and modified facilities may be necessary and discusses several state and local agencies working on a myriad of solutions to address California's water supply challenges. The State Water Board's role is to contribute toward achieving water management solutions, while considering and balancing beneficial uses and public trust resources, within its regulatory and statutory framework.

Commenters expressed concern that alternatives in the Staff Report would impair the efficacy of new water storage projects, including managed aquifer recharge. However, the Plan amendments may stimulate storage projects, including below-ground storage, and the State Water Board recognizes the contributions of local entities to develop alternative supplies that are grounded in

regional dynamics. Common Response 1.3, *Revised Proposed Plan Amendments*, provides additional information on other water supply projects.

In addition to other water supply projects discussed in the Staff Report, the revised proposed Plan amendments recommend and provide a framework that allows stakeholders to implement complementary ecosystem projects. These actions include physical habitat restoration projects as well as predation and invasive species control measures. For example, the cold water habitat objective in the Plan amendments could be implemented in part through certain construction projects such as reservoir temperature management facilities (often referred to as temperature control devices [TCDs]) or fish passage projects. These habitat restoration and ecosystem projects that other entities could take would contribute to the overall goal of providing reasonable protection to fish and wildlife in the Sacramento/Delta, and may help reduce the amount of water it takes to reasonably protect fish and wildlife. For example, fish passage that allows native fish to access higher elevation habitats may be a more efficient way to provide salmon and steelhead access to cold water compared to the existing dam infrastructure that acts as migration barriers and limits salmon and steelhead to low elevations near the floor of the Central Valley where air and water temperature can be extremely warm. Managing and providing cold water habitat within the valley floor is water intensive and may be more expensive than providing fish passage in certain tributary watersheds. California's cold water fish species require cold water, and there should be considerable effort put forth to efficiently provide cold water downstream of California's reservoirs (e.g., TCDs), and to provide migratory fish access to the cold water above these reservoirs. Improved cold water management and infrastructure will improve California's native fish populations and may save water compared to the current cold water management and dam infrastructure. Section 7.21, *Habitat Restoration and Other Ecosystem Projects*, evaluates construction and operational impacts related to habitat restoration and other ecosystem projects and is summarized in Table 13.7.22-2 with applicable mitigation measures.

As discussed above and in the Staff Report, the impaired hydrology in the Sacramento/Delta watershed is negatively affecting native fish. The Plan amendments aim to improve flows for the reasonable protection of fish and wildlife. The Staff Report acknowledges and discloses that flow improvements for fish and wildlife will reduce water supplies for other uses, including those that have been overallocated and overdrafted. Given that water is a finite resource, some rebalancing to prevent further collapse, and in some cases extinction, of the fish, wildlife, and ecosystem of the Bay/Delta watershed is acknowledged.

As discussed in the Staff Report, in keeping with the State Water Board's authority and responsibility to protect the quality of the waters of the state and the beneficial uses of those waters, the Plan update focuses largely on flow-related issues. However, the Plan amendments recognize that other actions, such as habitat restoration, are important to protect the Bay-Delta ecosystem. The State Water Board will work cooperatively with other agencies and organizations to promote such actions. The program of implementation in the Plan amendments provides recommendations to other entities, and describes the tools that the State Water Board will employ to ensure that needed complementary non-flow measures are pursued, including those that may result in the need for less flow to achieve the protection of native fish and wildlife (e.g., suitable temperature habitat may be achieved with a temperature control device more efficiently than through flow alone, and habitat alterations/restoration can yield food for native fish and take less water to create floodplain habitat).

The State Water Board's Bay-Delta planning and implementation efforts are part of a multi-faceted approach needed to address the systemic ecological and water supply concerns in the Bay-Delta and reconcile an altered ecosystem. The State Water Board is committed to collaborating and coordinating with other science, regulatory, and restoration efforts that inform adaptive implementation and future decisions.

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