Master Response 1.1
General Comments

Overview

One of the purposes of public review of the substitute environmental document (SED) is to evaluate the adequacy of the environmental document and its analysis for compliance with the California Environmental Quality Act (CEQA). The purpose of each response to a comment in the SED is to address the significant environmental issue(s) raised by each comment, as well as to address comments on the plan amendments. As stated in State CEQA Guidelines, section 15204, subdivision (subd.) (a), lead agencies are not obligated to undertake every test, research, study, and experimentation suggested by commenters. When an agency responds to comments, it must respond only to significant environmental issues and does not have to provide all information requested by reviewers, as long as a concerted effort at full disclosure is made in the environmental document. While the State Water Resources Control Board (State Water Board) is not required to respond to those comments received that do not raise a significant environmental issue, through this master response, it is providing general responses to those comments and to general comments, assertions, and questions related to the plan amendments.

The State Water Board acknowledges receipt of these general support and general opposition comments and thanks all commenters for their participation. The decision-making process requires the State Water Board members to objectively consider the record of this proceeding, including all timely comments made and received during the public hearing and comment period. The State Water Board also has the responsibility to comply with and follow applicable laws, CEQA and the Porter-Cologne Water Quality Control Act, as it relates to amending the 2006 *Water Quality Control Plan for the San Francisco Bay/Sacramento–San Joaquin Delta Estuary* (Bay-Delta Plan). The State Water Board recognizes the controversial nature of the plan amendments and while not all stakeholders will feel satisfied with the ultimate decision, it is the State Water Board's hope that all stakeholders feel that their concerns have been heard and fairly considered.

Each subsection of this master response summarizes and addresses comments that were general in nature in that they fit one or more of the following categories.

- Opposed or supported the plan amendments but did not (1) provide any rationale, or (2) raise any issues related to the adequacy of the environmental impact analysis.
- Raised an environmental issue but did not provide supporting information.
- Questioned the adequacy of the environmental impact analysis but did not provide a rationale.
- Made other conclusory statements but did not provide rationale or supporting information.
- Made additional recommendations without explanation, supporting information, or rationale.

The State Water Board reviewed all general comments and developed this master response to address recurring comments and common themes. Comments that were more specific in nature and provided supporting information are addressed in the individual unique responses in Volume 3, Chapter 4, *Responses to Comments Tables*.

Written or verbal general comments often included introductory information about the commenter's agency or organizations' mission, background information, or the importance of the plan amendments to the agency or organization. Multiple commenters provided a variety of personal and professional background information in their letters. The State Water Board appreciates receiving this type of information because it provides context in understanding the comments of a particular commenter that are germane to the SED and plan amendments; however, this type of information does not raise significant environmental issues or make comments on the plan amendments and does not require a response. The State Water Board acknowledges receipt of this information.

A substantial number of commenters expressed general opposition to the Lower San Joaquin River (LSJR) alternatives evaluated in the SED on the basis that implementing a required percent of unimpaired flow would result in impacts on some resources (e.g., surface water supplies) and would not result in protections for fisheries. Conversely, a substantial number of commenters expressed support for a specific percent of unimpaired flow that was consistent with or higher than the LSJR alternatives evaluated in the SED on the basis that increased flow is needed to protect fisheries. The State Water Board appreciates the active engagement of the public and stakeholders in the water quality control planning and CEQA processes and considered all comments in support and opposition of the plan amendments or a specific percent requirement of unimpaired flow.

The State Water Board acknowledges that the plan amendments are controversial among stakeholders, including individual members of the public; local, regional, and statewide organizations; and elected officials, many of whom have expressed views that are strongly held. The State Water Board respects that amending the 2006 Bay-Delta Plan presents many complex and challenging issues and recognizes the efforts of all interested parties in reviewing and commenting on the proposed plan amendments and the SED. The State Water Board has made a concerted effort to understand and respond to the general issues, concerns, and questions raised by the commenters by summarizing and responding to comments in this master response. The State Water Board recognizes and appreciates that concerned Californians have strongly held beliefs about what the State Water Board should do with respect to the approval of the plan amendments.

While this master response addresses general public comments, these comments were often related to additional subjects addressed in other master responses. Accordingly, this master response references related master responses, as appropriate, where recurring comments and common themes overlap with other subject matter areas. For related comment response discussions, please see Master Response 1.2, *Water Quality Control Planning Process*, which addresses general comments regarding the peer review process for the plan amendments, additional Bay-Delta Plan updates through independent proceedings, the adequacy of legal and regulatory compliance, Federal Energy Regulatory Commission flow requirements, consideration of beneficial uses through the water quality control planning process, and the water rights priority process. Please see Master Response 2.1, *Amendments to the Water Quality Control Plan*, for responses to general comments regarding changes to the plan amendments and for further discussion of the unimpaired flow requirements and adaptive implementation; the project description; the geographic boundaries of the plan area and extended plan area; the Stanislaus, Tuolumne, and Merced Working Group; and non-flow measures.

This master response includes for ease of reference a table of contents on the following page to help guide readers to specific subject areas. The table of contents is based on general recurring and

common themes found in the comments that were received. It is provided to help guide readers in finding where the topics of their concern are addressed.

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Acknowledgment of Elected Representative and Other Community Member Concerns

The State Water Board recognizes that many commenters, including state and local elected representatives, are concerned as to how implementation of the plan amendments could affect their communities. These commenters have emphasized the importance of agriculture to the local economies and described long-standing struggles in many areas related to unemployment and poverty. Many commenters urged a balanced approach to the plan amendments.

The State Water Board is and has been considering such concerns in adopting the plan amendments, but a balanced approach means the State Water Board must also fulfill its duty to reasonably protect fish and wildlife. On average under the current Bay-Delta Plan, approximately 80 percent of the unimpaired flow is being diverted for human uses. Currently, there are times when over 90 percent of the unimpaired flow in the Stanislaus, Tuolumne, and Merced Rivers is being diverted for human uses. In developing these amendments, the State Water Board looked at a variety of factors necessary to reasonably protect fisheries, including flow and temperature, but also examined the water costs of various approaches in relation to expected benefits. Appendix K, *Revised Water Quality Control Plan,* describes the new objective, which requires 40 percent of the unimpaired flows, February–June, with an allowed adaptive range between 30–50 percent, to reasonably protect fish and wildlife beneficial uses. For the Stanislaus River, that is an increase of approximately 20 percent of the unimpaired flow to meet the objective, leaving approximately 60 percent of the unimpaired flow, on average, available for human uses. Under the adaptive range, the increase, on average, of unimpaired flow to meet the objective could range from as low as 10 percent to as high as 30 percent, February–June, for the Stanislaus River. This means that approximately 50–70 percent of the unimpaired flows, on average, February–June, would still be available for human uses.

The State Water Board also wishes to acknowledge that ongoing local involvement will be critical. Implementation of objectives in watershed plans such as water quality control plans has the greatest chance of success when stakeholders are engaged in developing management options that directly address their concerns and needs. Besides providing opportunities for voluntary agreements, the program of implementation for the plan amendments includes a Stanislaus, Tuolumne, and Merced Working Group (STM Working Group). Through this working group local water districts and others can help develop operational plans and other measures that thoughtfully shape flows in ways that will maximize their functionality and may preclude the need for additional flows up to the maximum percent unimpaired flow in the range represented by the LSJR alternatives. This is a recognition that local expertise is needed to best implement the LSJR flow objectives and that with local engagement, the State Water Board can best increase reliability for all uses.

Description and Objectives of the Plan Amendments

Based on the content of many of the thousands of comment letters submitted, it is evident that multiple commenters have misinterpreted the purpose of the plan amendments, the meaning and use of unimpaired flow, and the extent of the study area. To provide context for this master response, this section summarizes the purpose and objectives of the plan amendments, explains the concept of unimpaired flow, and defines the geographic scope of the plan amendments.

As described in the *Executive Summary*; Chapter 1, *Introduction*; and Chapter 3, *Alternatives Description*, the 2006 Bay-Delta Plan designates beneficial uses of water within the Bay-Delta, water quality objectives for the reasonable protection of those beneficial uses, and a program of implementation for achieving the water quality objectives. The plan amendments would establish the following updates to the 2006 Bay-Delta Plan.[1]

- New flow water quality objectives for the LSJR and its three eastside, salmon-bearing tributaries[2] for the protection of fish and wildlife beneficial uses.
- Revised water quality objectives for the protection of agricultural beneficial uses in the southern Delta.
- A program of implementation to achieve these objectives.
- Monitoring and special studies necessary to fill information needs and determine the effectiveness of, and compliance with, the new objectives.

The new LSJR flow objectives and revised southern Delta water quality (SDWQ) objective and associated program of implementation would revise the existing LSJR flow and southern Delta salinity objectives and associated program of implementation in the 2006 Bay-Delta Plan. These objectives are analyzed in the SED as the LSJR and SDWQ alternatives.

As stated in Chapter 3, *Alternatives Description*, Section 3.2, *Purposes and Goals,* the revised LSJR flow objectives are necessary because the Bay-Delta is in ecological crisis, and fish species have not shown signs of recovery since adoption of the 1995 Bay-Delta Plan objectives for the protection of fish and wildlife. The purposes and goals related to the establishing of new LSJR flow objectives and an associated program of implementation are as follows.

1. Maintain inflow conditions from the San Joaquin River (SJR) Watershed sufficient to support and maintain the natural production of viable native fish populations migrating through the Delta.
2. Provide flows that more closely mimic the natural hydrographic conditions (including frequency, timing, magnitude, and duration of natural flows) in the LSJR and three eastside, salmon-bearing tributaries to which these migratory native fish species are adapted.
3. Provide flows in a quantity necessary to achieve functions essential to native fishes such as increased floodplain inundation, improved temperature conditions, improved migratory conditions, and promote other conditions that favor native fishes over nonnative fishes.
4. Allow adaptive implementation of flows that will afford maximum flexibility in establishing beneficial habitat conditions for native fishes, addressing scientific uncertainty and changing conditions, developing scientific information that will inform future management of flows, and meeting biological goals, while still reasonably protecting the fish and wildlife beneficial uses.

[1] The plan amendments are for the LSJR and Southern Delta update to the 2006 Bay-Delta Plan (sometimes referenced, for administrative convenience, as "Phase I"). In a separate process, the State Water Board will review and consider revisions to other elements of the Bay-Delta plan including the Sacramento River and its tributaries (the Sacramento/Delta update, sometimes referenced, for administrative convenience, as "Phase II").

[2] The LSJR is that portion of the SJR between its confluence with the Merced River and downstream to Vernalis, and its three eastside tributaries, the Stanislaus, Tuolumne, and Merced Rivers.

5. Promote transparency in decision-making and provide certainty to the regulated community by expressing flow requirements for the protection of fish and wildlife as a share of the total quantity of water available for all beneficial uses.
6. In establishing flow water quality objectives to reasonably protect fish and wildlife, take into consideration all of the demands being made and to be made on waters in the LSJR and the three eastside, salmon-bearing tributaries and the factors to be considered for establishing water quality objectives in Water Code Section 13241, including, but not limited to, past, present and probable future beneficial uses and economic considerations.
7. Provide for the development and implementation of an appropriate monitoring and evaluation program to inform adaptive implementation of LSJR flows and future changes to the Bay-Delta Plan.
8. Provide for, and encourage, collaboration, coordination, and integration of regulatory, scientific, and management processes related to LSJR flows.

The purpose and goals of establishing updated SDWQ objectives and the associated program of implementation are as follows.

1. Provide salinity conditions that reasonably protect agricultural beneficial uses of surface waters in the southern Delta.
2. In establishing salinity water quality objectives to reasonably protect agricultural beneficial uses, take into consideration all of the demands being made and to be made on waters in the southern Delta, the LSJR and the three eastside, salmon-bearing tributaries, and the factors to be considered for establishing water quality objectives in Water Code Section 13241, including, but not limited to, past, present and probable future beneficial uses and economic considerations.
3. Establish salinity objectives, supported by existing scientific information, that are not lower than necessary to reasonably protect the most salt sensitive crops currently grown or suitable to be grown on saline- and drainage-impaired soils in the southern Delta.
4. Maintain or improve salinity conditions in the southern Delta to comply with state and federal antidegradation policies.
5. Provide for development and implementation of monitoring and modeling studies needed to better understand the characteristics of salinity conditions in the southern Delta and the dynamics of factors controlling or contributing to those conditions.

As described in the *Executive Summary* and Chapter 1, *Introduction*, the plan area encompasses the areas where the plan amendments apply to protect fish and wildlife and agricultural beneficial uses of water. For example, the LSJR flow objectives would require flows below the rim dams on the eastside tributaries and the mainstem of the LSJR between the confluence of the Merced River to Vernalis to protect fish and wildlife beneficial uses in those reaches. Thus, these plan amendments could directly affect portions of the SJR Basin and Delta that drain into, divert water from, or otherwise obtain beneficial use (e.g., surface water supplies) from the following waterbodies.

- Stanislaus River Watershed from and including New Melones Reservoir to the confluence of the LSJR.
- Tuolumne River Watershed from and including New Don Pedro Reservoir to the confluence of the LSJR.

- Merced River Watershed from and including Lake McClure to the confluence with the LSJR.
- Mainstem of the LSJR from the confluence of the Merced River to Vernalis.
- Areas that receive a portion of their water supply from and that are contiguous with the above areas.
- The southern Delta, including the SJR from Vernalis to Brandt Bridge, Middle River from Old River to Victoria Canal, and Old River/Grant Line Canal from the Head of Old River to West Canal.

Throughout the SED, these portions of the SJR Basin and Delta are referred to as the *plan area* (see Figure ES-2).

The LSJR flow objectives are based on a percent of February–June unimpaired flow. The percent of unimpaired flow ultimately required by the plan amendments would remain in the rivers to reasonably protect the fish and wildlife beneficial use of the rivers. This amount of water would be unavailable to those seeking to store, divert, or otherwise use the water from a river (with the exception of hydropower generation that is incidental to the release of water from or passage of water through the reservoirs in the plan area). Because the flow requirement corresponds to a percentage of total unimpaired flow, as the volume of total unimpaired flow increases or decreases with hydrologic conditions, so would the volume of the flow requirement (see Figure 1.1-1 in this master response).

A common misconception is that the unimpaired flow requirement would completely eliminate water in the river. These types of comments generally attributed this concern to: (1) naturally low flows; or (2) low flows in response to the proposed flow requirements. Neither could occur under the plan amendments. In the first example, commenters suggested that total unimpaired flow could be zero or very low in some particularly dry circumstances. Existing flow requirements, which are included in both baseline conditions and the LSJR alternatives, would prevent rivers from running dry at any time of year (see Appendix F.1, *Hydrologic and Water Quality Modeling)*. In the second example, a river could hypothetically become dry if diversions to storage or direct diversions were to retain or remove all the water in the river. The percent of unimpaired flow requirement, the narrative objective requirements, and implementation provisions of the flow requirement, however, would prevent the dewatering of the river at any time. Per the program of implementation, provisions of the flow requirement are as follows (see *Implementation of February through June LSJR Flow Objectives* in Appendix K, *Revised Water Quality Control Plan*):

> When implementing the LSJR flow objectives, the State Water Board will include minimum reservoir carryover storage targets or other requirements to help ensure that providing flows to meet the flow objectives will not have adverse temperature or other impacts on fish and wildlife.

This is intended to prevent unintended consequences at other times of the year, such as higher temperatures, as result of providing more February to June flows. Consistent with this, Appendix K, Table 3, has been revised to state that flows provided to meet the February to June flows must be managed in a manner to avoid causing significant adverse impacts to fish and wildlife beneficial uses.

Another common misconception is that no water would be available for other uses under the unimpaired flow requirement. The unimpaired flow requirement specifies the amount of water that is required to stay in stream for the protection of fish and wildlife. This means that for a requirement of 40 percent unimpaired flow, 40 percent of the unimpaired flow February–June is

dedicated to the protection of fish and wildlife, and the remaining 60 percent of unimpaired flow can be diverted or stored for other beneficial uses (see Figure 1.1-1 in this master response).

As shown in Table F.1.3-4d in Appendix F.1, *Hydrologic and Water Quality Modeling*, average annual reduction in water supply for the three eastside tributaries under the 40 percent unimpaired flow requirement ranges from 0 percent (in wet years) to 38 percent (in critically dry years). For more information on reduction in surface water supply, please Master Response 3.2, *Surface Water Analyses and Modeling*. For the scientific basis of using the percentage of unimpaired flow as the instream flow requirement in the plan amendments, please see Master Response 3.1, *Fish Protection*.

Public Review and Recirculation Process

The following section is intended to address common issues raised regarding the recirculation process and legal triggers for recirculation of an environmental document.

Scoping and 2012 Public Review

The Recirculated SED contains substantial changes to content presented in the 2012 Draft SED. These changes were made in consideration of the oral and written public comments received concerning the 2012 Draft SED document. Prior to the release of the 2012 Draft SED, the State Water Board conducted two public scoping meetings, one on March 30, 2009, and the other on June 6, 2011. These scoping meetings were followed by a number of other public meetings to receive information regarding the development of SDWQ and LSJR flow objectives. Appendix A, *NOP Scoping and Other Public Meetings*, provides a summary of the issues raised by agencies and the public with the meeting dates. The following list identifies the areas of controversy that are based on this initial scoping and are addressed in the SED.

- Evaluation of a reasonable range of alternatives.
- Impacts on agricultural resources associated with a potential reduction in surface water diversions.
- Impacts on energy production and generation associated with potential changes to hydropower operation.
- Economic impacts on the agricultural sector and other sectors associated with the potential reduction in surface diversions.
- Interactions with groundwater quantity and quality.
- Impacts on fisheries resources associated with the LSJR alternatives.

The 2012 Draft SED was released for public comment on December 31, 2012, and the public review period ended on March 29, 2013. The State Water Board held 2 days of public hearing to receive public comments. The State Water Board received approximately 4,000 comments, most of which were form letters containing substantially the same content. Of these, the State Water Board identified 119 comments that covered the range of substantive comments. These comments are summarized in Appendix M, *Summary of Public Comments on the 2012 Draft SED*.[3]

[3] Comments received on the 2012 Draft SED are included in the administrative record.

What is unimpaired flow?

The graphs below are a conceptual representation of the unimpaired flow requirement under the plan amendments. They illustrate that a percentage of the unimpaired flow would still be available for other beneficial uses. These graphs are not based on modeling data and do not include adaptive implementation. The precipitation year in each graph illustrates a conceptual-level comparison of the unimpaired flow requirement.

Unimpaired low represents the water production of a river basin, unaltered by upstream diversions, storage, or by export or import of water to or from other watersheds. It differs from natural flow because unimparied flow is the flow that occurs at a specific location under the current configuration of channels, levees, floodplains, wetlands, deforestation, and urbanization. Natural flow is the flow that would naturally occur in the watershed in the absence of modifications.

Rivers would not run dry
From February-June, the percent of unimpaired flow requirement ensures water remains in the rivers. Existing regulations would ensure that water remains in the rivers the remainder of the year.

Water could still be diverted
While a percentage of the unimpaired flow would be required to stay in the river to reasonably protect fish and wildlife, the remaining amount of water (as shown in blue in the graphs) would be available for other uses.

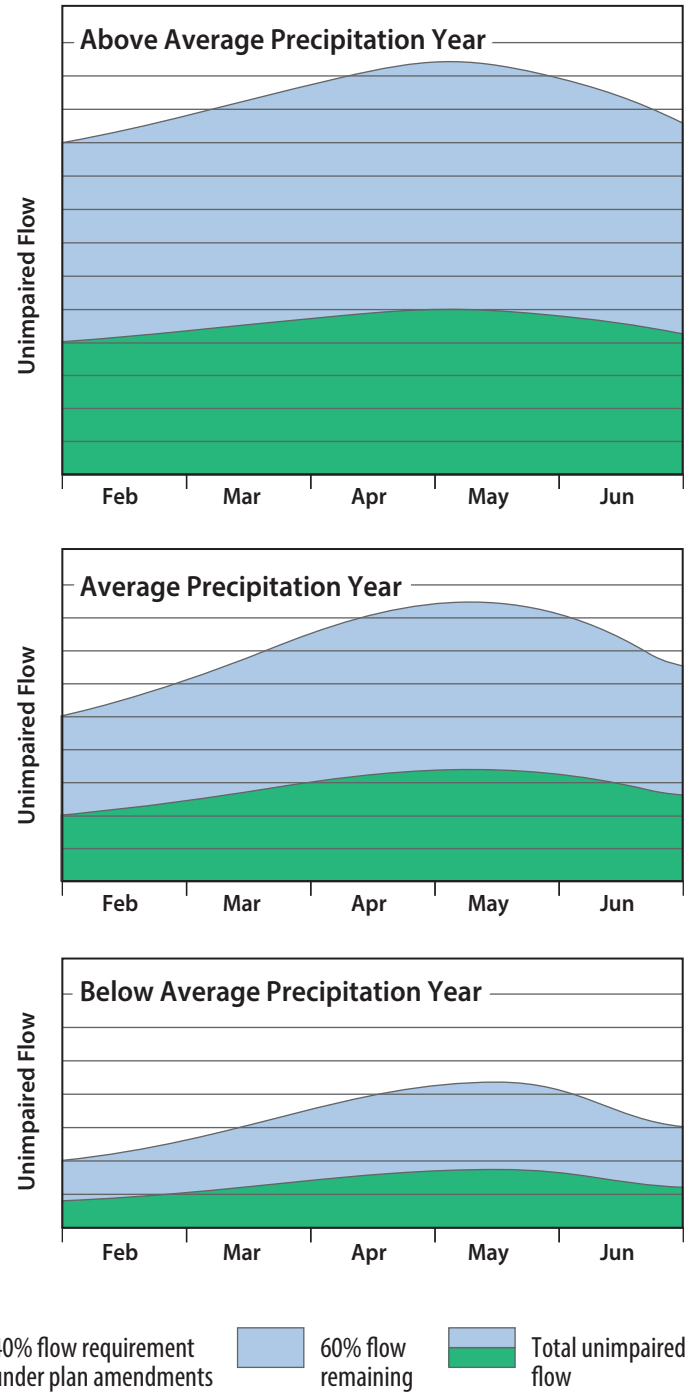

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Figure 1.1-1
Unimpaired Flow Concept

Based on agency and public comments, as well as additional material, including information stemming from the recent drought, the State Water Board made substantial revisions to the SED after the 2013 comment period concluded. Changes were also made in response to the state's adoption in 2014 of a state policy for sustainable groundwater management (Wat. Code, § 113) and passage of the Sustainable Groundwater Management Act (SGMA) (Wat. Code, §§ 10720 et seq.), which provide for sustainable local groundwater management.

In light of these changes, and in accordance with Public Resources Code (Pub. Resources Code) section 21092.1 and State CEQA Guidelines, section 15088.5, the State Water Board recirculated the SED in its entirety to members of the public, agencies, and other interested entities for a formal review and comment and required them to submit new comments.

Legal Basis for Recirculation

Some commenters suggested that the Recirculated SED should be circulated once more. Others stated that the Recirculated SED evaluates a new project from the one noticed through the 2009 notice of preparation (NOP) and evaluated in the 2012 Draft SED. Comments that provided specific additional information in support of recirculation are addressed in topic-specific master responses or in the individual unique responses in Volume 3, Chapter 4, *Responses to Comments Tables*. Please see Master Response 2.5, *Baseline and No Project*, for information regarding the 2009 and revised 2011 NOP. Also note that the Recirculated SED evaluates the same project identified in the 2009 NOP and that a new NOP is not needed with recirculation.

According to the State CEQA Guidelines, a lead agency is required to recirculate a draft environmental impact report (EIR) for additional comments if "significant new information" is added to the document after the notice of the draft EIR but before certification.

"Significant" new information that would require recirculation includes the following.

(1) A new significant impact would result from the project or from a new mitigation measure proposed to be implemented.

(2) A substantial increase in the severity of an impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.

(3) A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the significant impacts of the project, but the project proponents decline to adopt it.

(4) The draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded. (Cal. Code of Regs., tit. 14, § 15088.5.)

The State CEQA Guidelines further explain what is not considered significant new information.

> New information added to an EIR is not "significant" unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect (including a feasible project alternative) that the project's proponents have declined to implement. (*Id*.)

The State CEQA Guidelines state that recirculation is not required "where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR" and "if the revision is limited to a few chapters or portions of the EIR, the lead agency need only recirculate the chapters or portions that have been modified." *(Id.)*

Analysis presented in the Final SED does not reveal new significant impacts, substantially increase the severity of an impact, or add a new feasible alternative or mitigation measure that is considerably different from others previously analyzed that would clearly lessen significant impacts. Further, the SED adequately allows for meaningful public review and comment on substantial adverse environmental effects of the plan amendments and ways to mitigate or avoid such impacts. Additional and refined information in the Final SED merely clarifies or amplifies previous information and analysis or makes insignificant modifications to the Recirculated SED. Therefore, the State Water Board is not required to recirculate again. Please see Master Response 2.3, *Presentation of Data and Results in the SED and Responses to Comments*, for more information regarding analysis and data contained in the Final SED.

Public Outreach Process

The following section is intended to address common comments regarding the public outreach process including the adequacy of public outreach and notifications, duration of the comment period, and accessibility of public hearings.

The public review process for the Recirculated SED and plan amendments was extensive and lasted for a period longer than the 45-day public review period required under the State Water Board's CEQA regulations or under the federal Clean Water Act. The document was released for public review on September 15, 2016, for a total of a 6-month public review period that ended on March 17, 2017, at 12 noon. The State Water Board originally released the document for a 60-day review period (from September 15, 2016, to November 15, 2016). However, in response to public requests, the original 60-day review period was extended two times to allow for additional public review: first from November 15, 2016, to January 17, 2017, at 12 noon; and then from January 17, 2017, to March 17, 2017, at 12 noon.

A *Notice of Filing and Recirculation, Notice of Opportunity for Public Comment and Notice of Public Hearing on a proposed amendment to the Water Quality Control Plan for the San Francisco Bay/Sacramento–San Joaquin Delta Estuary (Plan Amendment) and the supporting Draft Revised Substitute Environmental Document* notifying the public about the filing and availability of the SED was sent to all interested parties and public agencies through the State Water Board's email list subscription system. In addition, noticing was completed in compliance with CEQA by submitting the notice of completion and the SED to the State Clearinghouse, posting the notice of availability at 12 county clerk offices, and publishing the notice in the following public newspapers: The Sacramento Bee, The Modesto Bee, and The San Francisco Chronicle.

A link to electronic copies of the SED chapters, appendices, and modeling documents were and continue to be available on the State Water Board's website at: www.waterboards.ca.gov/DeltaWQCP-LSJRSD. The SED chapters, appendices, and reference documents were also available for public review during the 6-month public review period on weekdays from 8:30 a.m. to 5:00 p.m. at: Division of Water Rights Records Unit, State Water Resources Control Board, 1001 "I" Street, 2nd Floor, Sacramento, CA 95814. The SED chapters and appendices were also available for public review after September 19, 2016, at public libraries in Alpine, Alameda, Calaveras, Contra Costa, Madera, Mariposa, Merced, Sacramento, San Francisco, San Joaquin, Stanislaus, and Tuolumne Counties. These libraries are listed in the *Executive Summary*, Section ES10.5, *Availability of the Substitute Environmental Document*, and were included in the original September 15, 2016, *Notice of Filing and Recirculation, Notice of Opportunity for Public*

Comment and Notice of Public Hearing on Amendment to the Water Quality Control Plan for the San Francisco Bay/Sacramento–San Joaquin Delta Estuary and Supporting Draft Revised Substitute Environmental Document, and subsequent revised notices.

In addition, for minimal cost, an electronic copy of the documents on disk could be obtained by contacting the Division of Water Rights Records Unit at (916) 341-5421 or at dwr@waterboards.ca.gov.

Although CEQA does not require a public hearing at any stage during the environmental review process, within the 6-month public review period, 5 days of public hearings were conducted throughout the plan area. Public hearings were held on the following days, during which oral and written comments were received.

- November 29, 2016, in Sacramento, California
- December 16, 2016, in Stockton, California
- December 19, 2016, in Merced, California
- December 20, 2016, in Modesto, California
- January 3, 2017, in Sacramento, California

During the 6-month public comment period for the SED, approximately 3,100 letters/communications amounting to about 10,000 comments were received from federal, state, and local agencies; elected officials; stakeholders; and members of the public.

In addition to the activities discussed in the *Public Review and Recirculation Process* section of this master response, State Water Board staff met with stakeholder groups and held outreach events in the plan area and in Sacramento during the 6-month public comment period. State Water Board staff, and up to two Board members, when available, provided information on the SED at a series of informal meetings with stakeholders. These meetings were held to help stakeholders understand the plan amendments so that they were better able to comment on the adequacy of the SED, either in writing or orally, at the scheduled hearing days. State Water Board staff attended County Board of Supervisor meetings for Merced, Stanislaus, and San Joaquin Counties in October and November 2016, at which staff provided an update on the plan amendments and the SED. State Water Board staff also participated in more than a dozen meetings with various federal, state, regional, and local agencies and water districts, as well as organizations that expressed interest in the SED. These meetings included discussions of such topics as the assumptions, modeling, and conclusions of the SED.

State Water Board staff also hosted a 2-day public technical workshop in Sacramento on December 5, 2016, and December 12, 2016.[4] The workshop was held to provide technical information and an explanation of the analytical tools used in developing the plan amendments and the SED. The State Water Board sent the notice of the workshop to individuals, organizations, and agencies through its interested parties email list system. During the workshop, the public was given an opportunity to

[4] The notice and agenda for the first day of the technical workshop can be found here: http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/water_quality_control_planning/docs/notice_bdp_ph1_stafftechwrkshp.pdf.
The notice and agenda for the second day of the technical workshop can be found here: https://www.stancounty.com/news-room/news-releases/news-2016/pdf/press-release-20161115-water.pdf.

ask clarifying questions about the analytical tools and analyses at the end of each staff presentation. A webcast of the workshop was also made publicly available at https://video/calepa.ca.gov/.

Table ES-28 in the *Executive Summary* provides a timeline of public involvement,[5] public workshops, and public hearings for the planning process and CEQA noticing for the preparation of the Final SED.

Length and Complexity of the SED

Some commenters felt that the SED is too lengthy, difficult to understand, and unclear. The State Water Board acknowledges the complexities of the plan amendments and the science that supports them, and the State Water Board has made every attempt to present the information in plain language and in a clear format with emphasis on the information that is useful to the public, agencies, and decision-makers. CEQA recommends summarizing information to reduce paperwork and to make the environmental documents understandable. The State Water Board attempted to do this by providing the following tools.

- An *Executive Summary* in the Recirculated SED and this Final SED.
- A road map for the location and type of certain analyses found in Chapter 4, *Introduction to Analysis.*
- An alternatives comparison table at the beginning of each resource section for readers to understand individual impacts associated with and between different alternatives.
- A series of summary alternative comparison tables by geography and resource in Chapter 18, *Summary of Impacts and Comparison of Alternatives.*
- Two fact sheets at the release of the SED summarizing the process and content of the plan amendments and SED.[6]
- Outreach to stakeholders and agencies as described above in *Public Outreach Process* in this master response.

CEQA imposes no mandatory limit on the length of a draft EIR. Although the State CEQA Guidelines encourage, but do not require, EIRs for proposals of unusual scope or complexity to "normally" be less than 300 pages, in practice the page limits recommended by the State CEQA Guidelines are frequently exceeded because CEQA places a greater focus on adequacy of the analysis and the readability of the document than on document length. The legal sufficiency of the SED depends on the substantive content and the overall quality of the document. The State Water Board worked to identify significant environmental issues and alternatives deserving of study and to narrow the scope of the document when practical by using the State Water Board's Environmental Checklist in

[5] This table does not provide an exhaustive list of all public notices related to the project but, rather, identifies key events relating to public involvement.

[6] Fact sheets can be found at:
http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/water_quality_control_planning/2016_sed/docs/ph1_fact.pdf
and
http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/water_quality_control_planning/2016_sed/docs/prp_update_sum.pdf.

Appendix A of the State Water Board's CEQA regulations (Cal. Code Regs, tit. 23, §§ 3720–3781) to screen out particular resource areas. However, because of the highly technical and complex nature of the plan amendments and because of the importance of the three eastside tributaries and the southern Delta to different beneficial uses, SED contains considerable amounts of information.

Voluntary Agreements

The following section addresses common comments received regarding the support for the voluntary agreement process, the concern that the voluntary agreement process and the opportunity to reach settlement has ended due to the recirculation of the SED and the close of the public comment period.

The State of California is exploring regulatory and voluntary approaches to improve stream conditions and increase populations of native fish in California. The California Natural Resources Agency has been facilitating voluntary agreements between stakeholders that may include specific flow and non-flow measures that, when implemented, support fisheries and ecological restoration (CNRA 2016). According to the California Natural Resources Agency, the purpose and goal of voluntary agreements are as follows (CNRA, CDFA, and EPA 2014).

> The purpose of the voluntary agreements is to help achieve implementation of the State Water Resources Control Board's water quality objectives in the Water Quality Control Plan to benefit fish and wildlife resources while protecting reliable water supply for agriculture, drinking water, hydropower, and other competing beneficial uses.
>
> The goal is to negotiate durable and enforceable Voluntary Agreements that will be approved by applicable regulatory agencies, will represent the program of implementation for the water quality objectives for the lower San Joaquin and Sacramento Rivers and Delta, will forego an adjudicatory proceeding related to water rights, and will resolve disputes among the parties regarding water management in the Sacramento-San Joaquin-Bay-Delta Watershed.

The State Water Board recognizes that voluntary agreements can help inform and expedite implementation of flow objectives and provide durable solutions in the Delta watershed, and the State Water Board continues to support voluntary agreements. In addition, the State Water Board believes that suitable voluntary agreements can provide reasonable protections for fish and wildlife and provide a faster, more durable implementation route if done correctly. As a result, and since the State Water Board cannot compel or require stakeholders to negotiate, the State Water Board encourages stakeholders to work together to reach voluntary agreements incorporating a mix of flow and non-flow measures that meet or exceed the objectives and protect fish and wildlife uses.

The fact that the public comment period has ended does not preclude the continuation of the settlement process or agreement between parties for a voluntary agreement, nor would adoption of the plan amendments preclude voluntary agreements. The State Water Board oversees and regulates water rights and water quality and, as such, holds the authority to approve voluntary agreements to implement the Bay-Delta Plan. The State Water Board will consider a voluntary agreement as part of its proceedings to implement the plan amendments, consistent with its obligations under applicable law. Voluntary agreements may serve as an implementation mechanism of the LSJR flow objectives as a whole, an individual tributary, or some combination thereof. In evaluating any proposal, the State Water Board will consider whether the agreement will help achieve the LSJR flow objectives, help protect fish and wildlife beneficial uses, and be enforceable through State Water Board action.

The State Water Board has committed to giving careful consideration to voluntary settlements in the planning process. In October 2015, California Department of Fish and Wildlife (CDFW) Director Charlton H. Bonham, along with Assembly Members Adam Gray and Kristin Olsen, wrote to State Water Board Chair Felicia Marcus and proposed voluntary agreements as a possible mechanism to help implement objectives that the State Water Board will set in its Bay-Delta Plan update. In their letter, they made the following request (CDFW 2015).

> Specifically, we ask that the Board include language highlighted in the introductory or preface section of the revised Substitute Environmental Document that is an express acknowledgement of the Board's willingness to carefully consider and give preference to negotiated settlements between diverse coalitions as a means for implementing and achieving flow and water quality objectives in the Stanislaus, Merced, and Tuolumne river watersheds.

Chair Marcus responded that the State Water Board intended to give careful consideration to any such settlements and would include an express commitment to that effect in subsequent regulatory documents. Chair Marcus's letter made clear, however, that such agreements must ensure reasonable protection of fish and wildlife, ensure downstream water quality, and respect water rights (State Water Board 2015).

In February 2016, Executive Director of the State Water Board, Thomas Howard sent a letter to the Resources Agency providing information to assist the Resources Agency in the settlements negotiations. The letter stated that for the State Water Board to approve settlements, the settlement discussions should recognize that the State Water Board's final decision concerning amendments to the Bay-Delta Plan, including implementation of the objectives through any voluntary agreement, must be guided by the State Water Board's statutory and constitutional obligations. A voluntary agreement should include the following requirements.

- Identification of the actions to be taken to meet the requirements adopted by the State Water Board, and the agreement participants responsible for each action.
- A schedule for implementation of each action.
- Provisions that ensure adequate funding to carry out the proposed actions.
- A description of measurable indicators (e.g., biological goals and habitat conditions) that will be used to evaluate compliance with the objective and effectiveness of actions taken, and to inform potential changes in implementation to achieve the objective.
- Procedures for adaptive implementation to better achieve the objective based on measurable indicators, monitoring and review results and other scientific information.
- A description of, and commitment to conduct, annual reporting to the State Water Board that includes the actions taken during the previous water year, the results of the implemented actions, and an implementation plan for meeting the objective in the following year.
- A description of and commitment to conduct a comprehensive review and report to the State Water Board, on at least a triennial basis, of the actions taken, the results of actions taken, monitoring and review results, progress in achieving the objective, and any proposed changes in implementation to better achieve the objective. This element is not intended to supplant the State Water Board's responsibilities under state or federal law.
- Identification of the participants to whom the State Water Board will assign responsibility for achieving the objective through a water right proceeding or other Board proceeding.

- Procedures for coordinating actions, evaluations, adaptive implementation, monitoring, and reporting with, at a minimum, the State Water Board, CDFW, the National Marine Fisheries Service (NMFS), the United States Fish and Wildlife Service (USFWS), and water users on the Merced, Tuolumne, and Stanislaus Rivers.

The importance of voluntary agreements is recognized and acknowledged in the SED. Specifically, voluntary agreements are discussed in the *Executive Summary* and Appendix K, *Revised Water Quality Control Plan*. As described in the *Executive Summary*, Section ES 3.1, *Lower San Joaquin River Flow and Southern Delta Salinity Proposals*, the plan amendments provide a framework for accepting local agreements with alternative methods for enhancing fish and wildlife in the tributaries. Appendix K also recognizes the importance and need for voluntary agreements by dedicating a section on voluntary agreements and how the State Water Board will consider them.

Some commenters suggested delaying the water quality control planning process while voluntary agreements are negotiated. The State Water Board is pursuing an accelerated schedule for completing its Bay Delta Plan update in response to the Governor's September 2016 letter and the overall desire to bring faster relief to the Delta ecosystem and more certainty to urban and agricultural water users. Ultimately, the State Water Board has the responsibility and obligation under the Porter-Cologne Water Quality Control Act to adopt water quality objectives that reasonably protect beneficial uses.

Relationship with Other Plans, Programs, Policies, and Agencies

The following section is intended to address common comments that expressed general opposition or support of other water-related plans and programs that are being pursued by other state or local agencies. Some commenters also mischaracterized or incorrectly suggested that the amendments to the 2006 Bay-Delta Plan are connected to the California WaterFix Project (California WaterFix). Other commenters made general suggestions regarding whether this effort is or should be connected to the California Water Action Plan, the Delta Plan, or the San Joaquin River Restoration Program (SJRRP). Other commenters suggested that the state should prioritize its pursuit of other efforts, such as reservoir storage; coastal desalination; and more aggressive conservation requirements for municipal and agricultural users, storm water capture, or other water management activities. Other commenters suggested eliminating or reducing state spending on certain programs in order to dedicate more funding toward water management such as redirecting money for the California High-Speed Rail to reservoir construction. Still others suggested that the state create an agency to replace private water contractors.

There is no question that the State of California has a multitude of water management challenges ahead and that a number of actions are needed to comprehensively address those challenges. Comprehensively addressing all of the state's water management needs and establishing budgets for programs outside of the State Water Board's purview, however, are beyond the scope of the plan amendments and the role of the State Water Board. The State Water Board is considering the amendments to the 2006 Bay-Delta Plan pursuant to its independent obligation and responsibility to protect the quality of the waters of the state to protect beneficial uses. The State Water Board's amendments to the 2006 Bay-Delta Plan are separate and distinct from any other program, plan,

project, or proceedings within the State Water Board's jurisdiction, or that of any other state, federal, or local agency.

Additional information regarding the plan amendments and their relationship to other programs and policies, including the 2010 *Development of Flow Criteria Report for the Sacramento–San Joaquin Delta Ecosystem* (2010 Delta Flow Criteria Report) authored by the State Water Board, is provided in Master Response 1.2, *Water Quality Control Planning Process*.

Development of Flow Criteria for the Sacramento–San Joaquin Delta Ecosystem

As stated in the *Executive Summary*, Section ES4.1, *Need for Flow Objectives,* revising the flow requirements is necessary because the Bay-Delta is in ecological crisis and fish species have not shown signs of recovery since adoption of the 1995 Bay-Delta Plan objectives for the protection of fish and wildlife. The Legislature acknowledged this crisis in adopting the Sacramento–San Joaquin Reform Act of 2009 (Delta Reform Act), which established coequal goals for the Delta to provide a more reliable water supply and to protect, restore and enhance the Delta ecosystem. The Delta Stewardship Council, established under the Delta Reform Act, has identified updating the Bay-Delta Plan's water quality objectives as an important element of protecting the Delta ecosystem and reliability of the Delta's water supplies. Similarly, the California Water Action Plan identifies completion of the Bay-Delta Plan update as key element to achieve the coequal goals for the Delta.

The State Water Board's 2010 Delta Flow Criteria Report (State Water Board 2010), and subsequent scientific assessments, including those identified in Appendix C, *Technical Report on the Scientific Basis for Alternative San Joaquin River Flow and Southern Delta Salinity Objectives*, and in Master Response 3.1, *Fish Protection*, provide additional reasons for revising the flow requirements. These reports and assessments have shown that flows are important through the full geographic range of fish migration (See Master Response 1.2, *Water Quality Control Planning Process*, for more information regarding the 2010 Delta Flow Criteria Report). Currently, the Bay-Delta Plan's flow water quality objective for the SJR only applies at Vernalis (see Table 3, *Water Quality Objectives for Fish and Wildlife Beneficial Uses*, in the 2006 Bay-Delta Plan). Moreover, nearly every feature of habitat that affects fish and wildlife is, to some extent, determined by flow. The Stanislaus, Tuolumne and Merced Rivers (individually or combined) have had larger reductions in the natural production and returns from the ocean of adult fall-run Chinook salmon than any of the other tributaries (or combination of tributaries) to the Sacramento River or SJR when comparing the 1967–1991 and 1992–2010 time periods.

Water-Related Projects, Programs, and Policies

California WaterFix Project

The State Water Board will determine whether it should approve, subject to terms and conditions, a joint petition filed in August 2015 by DWR and USBR to add three new points of diversion and/or points of rediversion of water to specified water right permits for the SWP and the CVP associated with California WaterFix. The petition is the subject of an adjudicatory hearing by the State Water Board that began on July 26, 2016, and is expected to continue through 2018. The State Water Board has authority to approve or deny the petition pursuant to California Water Code sections 1700–1707 and in consideration of the public trust and public interest. The State Water Board's

adjudicatory hearing is being held in a process that is separate and distinct from the rulemaking process for approval of the plan amendments and certification of the SED.

The State Water Board will also consider and act on an application for a water quality certification pursuant to Clean Water Act, section 401, for California WaterFix. In September, 2015, DWR filed an application for water quality certification under Clean Water Act, section 401, with the State Water Board for California WaterFix. In the February 2016 Pre-Hearing Conference Ruling, the State Water Board hearing officers made the following determination (State Water Board 2016).

> In order to ensure that parties do not have to duplicate their participation in two proceedings [water right change petition and water quality certification for the California WaterFix] with overlapping issues, and to allow the decisions on the 401 Application to be informed by the significant information that will be produced in the hearing process, the Executive Director will not issue a decisions on the 401 Application until after the hearing record for the water right petition closes... the State Water Board plans to process and act on the 401 Application separately.

The State Water Board has authority to approve or deny the certification pursuant to 33 U.S. Code section 1341 and California Code of Regulations, title 23, section 3855, et seq., and will do so in a process that is separate and distinct from the approval of the plan amendments and certification of the SED.

Multiple commenters expressed either support or opposition to California WaterFix. Other commenters made claims that higher flows do not benefit fish populations and suggested that the plan amendments (i.e., a general increase in flows for the February – June timeframe compared to current conditions) are a means to counteract perceived negative effects of the California WaterFix project. As described above, California WaterFix is a completely separate project from the plan amendments and the LSJR and SDWQ alternatives described in the SED. For a discussion of the benefits of increased flow to fish, see Chapter 19, *Analyses of Benefits to Native Fish Populations from Increased Flow between February 1 and June 30*, and Master Response 3.1, *Fish Protection.*

The State Water Board included California WaterFix on the cumulative project list in Chapter 17, *Cumulative Impacts, Growth-Inducing Effects, and Irreversible Commitment of Resources*, and determined that the project would have potential cumulative impacts on the following resources: surface hydrology and water quality, aquatic biological resources, agricultural resources, and service providers. California WaterFix could affect hydrodynamics (i.e., flow paths) and water quality in the Delta, including the southern Delta. If surface water is diverted in the northern Delta, in lieu of at the SWP Clifton Court Forebay and the CVP Jones Pumping Plant in the southern Delta, it could reduce the reverse flow effect that occurs when Sacramento River and SJR flows are drawn south instead of moving west, as they would naturally, toward the San Francisco Bay. Reducing reverse flows would generally result in improved hydrologic conditions for aquatic species as both fish and food production would not be drawn toward the southern Delta where chances of survival for at-risk native fish species diminish.

However, drawing less Sacramento River water to the southern Delta could also result in increased salinity and generally reduced water quality in the southern Delta as Sacramento River water is less saline than the brackish waters in the southern Delta. In general, increased salinity in the southern Delta could have a cumulative effect on surface hydrology and water quality, aquatic biological resources, agricultural resources, and service providers. Additionally, there could be construction-related impacts associated with the installation of new gates at Clifton Court Forebay in the southern Delta. However, specific cumulative effects of California WaterFix cannot be determined because the project will be affected by other projects, such as the 2009 NMFS Biological Opinion and

Conference Opinion on the Long Term Operations of the CVP and SWP (NMFS BiOp) Reasonable and Prudent Alternative (RPA); USFWS Biological Opinion on the Long-Term Operations of CVP and SWP (USFWS BiOp) (delta smelt); and, the Sacramento/Delta update to the 2006 Bay-Delta Plan.

Delta Reform Act

The Sacramento–San Joaquin Delta Reform Act of 2009 (Act) was enacted by the Legislature in 2009, Senate Bill (SB) No. 1 (SBX7 1), as part of a landmark package of bills aimed at establishing new water policy for the state. The Act established as state policy the management of the Delta and Suisun Marsh (together referred to as the "Delta" in the Act) in support of the coequal goals of "providing a more reliable water supply for California and protecting, restoring and enhancing the Delta ecosystem." (Pub. Resources Code, § 29702, subd. (a).) Under the Act, the coequal goals are described as "the basic goals for the state for the Delta." (Pub. Resources Code, § 29702.) The Act provides that the coequal goals "shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place." (Pub. Resources, Code § 29702, subd. (a).)

The Act contains numerous additional provisions and responsibilities that extend beyond the scope of the State Water Board's authorities.[7] However, under the Act (Legislative Counsel's Digest, SBX7 1, § 1) the State Water Board was specifically directed to establish the following.

- New flow criteria of the Delta ecosystem.
- A Delta Watermaster.
- A system of Delta Watershed diversion data collection and public reporting.

On August 3, 2010, the State Water Board adopted Resolution 2010-0039 approving a report determining new flow criteria for the Sacramento–San Joaquin Delta ecosystem necessary to protect public trust resources pursuant to the State Water Board's public trust obligations in compliance with Water Code Section 85086.

[7] The Act assigns specific responsibility for ensuring the protection of the "Delta as place" to the Delta Stewardship Council and the Delta Protection Commission by requiring the Delta Protection Commission to "develop, for consideration and incorporation into the Delta Plan by the [Delta Stewardship] council, a proposal to protect, enhance and sustain the unique cultural, historical, recreational, agricultural and economic values of the Delta as an evolving place, in a manner consistent with the coequal goals." (Wat. Code, § 85301, subd. (a); Pub. Resources Code, §29703.5, subd. (a).) The legislation also established in the California Natural Resources Agency the Sacramento-San Joaquin Delta Conservancy, which is required to act as "a primary State agency" to implement ecosystem restoration in the Delta and to support efforts that advance environmental protection "and the economic well-being of Delta residents." (Legislative Counsel's Digest Sen. Bill BX7 1, § 1; Pub. Resources Code § 32322, subds. (a) and (b).) In addition, the Act establishes state policy "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 plan amendments do not impede the development of such regional water investment strategies and, in fact, the State Water Board explains in Chapter 9, Groundwater Resources, Chapter 11, Agricultural Resources, and Chapter 22, Integrated Discussion of Potential Municipal and Domestic Water Supply Options, that local water suppliers, regional groundwater management agencies, and irrigation districts could improve water management using advanced water technologies, increase water use efficiency, establish and improve conjunctive use of surface water and groundwater, and use recycled water.

The State Water Board appointed the first Watermaster in 2010. The Watermaster is an independent officer of the state, appointed to a 4-year term by the State Water Board, reporting jointly to the Water Board and to the Delta Stewardship Council. The Watermaster is responsible for overseeing the day-to-day administration of water rights and, when necessary, for taking enforcement action related to water diversions within the Delta. The Watermaster also confers with and assists both the State Water Board and the Delta Stewardship Council as they carry out their respective legislative mandates to achieve the dual objectives of enhancing the Delta ecosystem and improving water supply reliability within the constraints of the water right system and the Delta being an ever-evolving place.

The Water Rights Online Reporting Program was established in 2009 with the passage of SB 8. SB 8 authorized the State Water Board to implement online (rather than paper) reporting of water right information. At that time, water right holders were required to report their water use information every 3 years. The Division of Water Rights collects approximately 38,500 annual water use reports from diverters with riparian (direct diversion and use) water rights, appropriative (storage) water rights, and some groundwater users.

Multiple commenters suggested that the plan amendments are inconsistent with the policies set forth in the Act related to management of the Delta toward the achievement of the two coequal goals of water supply reliability and ecosystem restoration and that the plan amendments are required to comply with the Delta Reform Act.

The Act does not require the State Water Board to achieve the coequal goals of protecting water supply reliability and the Delta ecosystem in adopting water quality objectives in the Bay-Delta Plan. Rather, water quality control plans must conform to the policies of the Porter-Cologne Water Quality Control Act that

> …activities and factors which may affect the quality of the waters of the state shall be regulated to attain the highest water quality which is reasonable, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible. (Wat. Code, §§ 13000, 13170, 13240.)

In addition, in adopting water quality objectives, the State Water Board must consider factors including past, present, and future beneficial uses and economics. (Wat. Code, § 13241.) Notwithstanding that the act does not require the State Water Board to achieve the coequal goals, the plan amendments would further the coequal goals by proposing flow water quality objectives that reasonably protect fish and wildlife while continuing to provide water supplies for other beneficial uses.

The Delta Plan

Similar to comments regarding the Delta Reform Act, some commenters suggested that the plan amendments are required to be adopted as part of the Delta Stewardship Council's Delta Plan and required to file a consistency certification.

The Delta Plan is currently the subject of litigation, which arose soon after the Delta Plan was adopted in 2013. In May 2016, the Sacramento Superior Court issued a ruling invalidating the Delta Plan, pending the correction of deficiencies identified by the court. The ruling has been appealed, thereby staying the invalidation of the Delta Plan pending further action by the Court of Appeal. The Delta Plan currently remains in force, and project proponents of covered actions under the Delta Plan remain legally required to file consistency certification with the Delta Stewardship Council.

Under the Delta Reform Act, certain actions are exempt from the Delta Stewardship Council's regulatory authority. (Wat. Code, § 85057.5, subd. (b).) A regulatory action of a state agency, such as the adoption of a water quality control plan by the State Water Board, is one such exemption. Consistent with the Act, the Delta Plan does not include the water quality control planning process as a covered action that would require a consistency determination. Rather, the Delta Plan recommends that the State Water Board update the flow objectives for the Delta and high-priority tributaries in the Bay-Delta Plan because they are key to achievement of the coequal goals (DSC 2013:Chapter 4). However, as mentioned in Chapter 16, *Evaluation of Other Indirect and Additional Actions*, other agencies may need to comply with the Delta Plan if they perform actions in the Delta that are covered by the Delta Plan and require a consistency analysis. In addition, the State Water Board included the Delta Plan on the cumulative project list in Chapter 17, *Cumulative Impacts, Growth-Inducing Effects, and Irreversible Commitment of Resources*, and the Delta Plan could result in cumulatively considerable impacts on various resources.

Sustainable Groundwater Management Act

On January 1, 2015, it became California state policy (Wat. Code, § 113) that "groundwater resources be managed sustainably for long-term reliability and multiple economic, social, and environmental benefits for current and future beneficial uses" and that sustainable groundwater management "is best achieved locally through the development, implementation, and updating of plans and programs based on the best available science." SGMA (Wat. Code, § 10720 et seq.) provides the framework to implement this policy by requiring that local agencies in high- and medium-priority basins[8] (DWR 2017a) form groundwater sustainability agencies (GSAs) by June 30, 2017, that will develop and implement groundwater sustainability plans (GSPs) that achieve sustainable groundwater management within 20 years. SGMA defines sustainable groundwater management as "the management and use of groundwater in a manner that can be maintained during the [50 year] planning and implementation horizon without causing undesirable results." Undesirable results are defined as any of the following effects.

1. Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and groundwater recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.
2. Significant and unreasonable reduction of groundwater storage.
3. Significant and unreasonable seawater intrusion.
4. Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.

[8] One hundred and twenty-seven of California's 515 alluvial groundwater basins, which account for 96 percent of California's annual groundwater pumping, were identified as high- or medium-priority. Prioritization factors include, but are not limited to, the level of population overlying the basin or subbasin, the projected rate of population growth for the basin or subbasin, the number of public supply wells dependent on the basin or subbasin, the irrigated acreage overlying the basin or subbasin, and the degree of reliance on groundwater. (Wat. Code, § 10933, subd. (b).)

5. Significant and unreasonable land subsidence that substantially interferes with surface land uses.

6. Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water. (Wat. Code, § 10721, subd (x).)

If local agencies are unwilling or unable to manage their groundwater resources, SGMA authorizes the State Water Board to step in to protect a groundwater basin in limited circumstances: (1) if no agency has opted by June 30, 2017 to serve as a GSA for a basin,[9] (2) when a GSA does not complete a GSP by the relevant deadline (2020 or 2022), or (3) when the GSP is inadequate or the GSP is not being implemented in a manner that is likely to achieve the plan's sustainability goal(s), and the basin is either in a condition of long-term overdraft or, after January 31, 2025, the State Water Board determines that the basin is in a condition under which groundwater extractions result in significant depletions of interconnected surface waters.

Some commenters were concerned that the availability of surface water will decrease as a result of the plan amendments and, as such, it will make it difficult for local service provider agencies to comply with the mandates of SGMA. Achieving sustainable groundwater management is required under SGMA. However, it is early in the SGMA process, and specific changes to groundwater pumping have not been determined; any attempt to analyze potential changes would be too speculative to result in any useful conclusions.

Restoring flows for the reasonable protection of fish and wildlife in the LSJR and its tributaries 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. Surface water and ground water have both been over extracted for a long time. Over reliance on surface and groundwater for consumptive purposes in the region has degraded commercial, recreational, and native fish populations, increased river temperatures, depleted groundwater basins, and caused land subsidence. LSJR flow objectives and SGMA are responses to the over reliance on surface water and groundwater and are intended to achieve a balanced and sustainable level of water use. LSJR flow objectives and SGMA are establishing complementary paths toward sustainable surface water and groundwater use. The Board recognizes that adjusting to reductions in water supplies will be challenging for water users as these actions progress.

Compliance with the plan amendments and SGMA will require comprehensive and integrated planning that proactively addresses surface water flows and groundwater basins and does not trade impacts between the two. Sustainable groundwater management is required to be achieved over time, and the plan amendments inform the GSP planning effort with respect to the true amount of surface water availability. Achieving sustainability will require effort but will benefit all Californians.

The State Water Board appropriately references and includes SGMA in Chapter 9, *Groundwater Resources*; Chapter 13, *Service Providers*; and Chapter 17, *Cumulative Impacts, Growth-Inducing Effects, and Irreversible Commitment of Resources*. Chapter 9 and Chapter 13 state that local agencies can and should exercise their police powers and groundwater management authority under SGMA

[9] In addition, if an agency fails to form a GSA by the deadline, local groundwater users must begin reporting groundwater use to the State Water Board.

to address groundwater depletion and contamination. Chapter 17 identifies that cumulative impacts would occur to agricultural resources with the implementation of SGMA because less groundwater may be pumped to support those uses depending on the actions of the GSAs and the contents of the GSPs. Please see Master Response 2.5, *Baseline and No Project*, for information regarding baseline as it relates to SGMA and Master Response 3.4, *Sustainable Groundwater Management Act and Groundwater Resources*, for more information regarding SGMA and the incorporation of SGMA into the SED analyses.

California Water Action Plan

Released in 2014 by the Governor's Office, the California Water Action Plan (CWAP) laid out a 5-year roadmap for the state's journey toward sustainable water management. CWAP was updated in 2016 to reflect the considerable progress that has been made and reaffirm the goals set forth in 2014. Some commenters suggested that there are certain parts of CWAP that should or should not be pursued or that certain aspects of CWAP should be pursued in-lieu of the plan amendments or that the plan amendments need to be consistent with the goals set forth in CWAP and general statewide policies. Other commenters suggested that the state should rely more heavily on solutions identified in CWAP, such as increased storage, conservation, and desalination. CWAP clearly identifies the update of the Bay-Delta Plan as an important step toward achieving the coequal goals for the Delta and "balancing competing uses of water including municipal and agricultural supply, hydropower, fishery protection, recreation, and other uses (CNRA, CDFA, and EPA 2014:10)." The State Water Board and CWAP acknowledge that efforts to increase supplies through conservation, recycling, and desalination are part of the comprehensive set of solutions that are needed for the state to sustainably manage its water supplies. Further prioritization of certain actions or specific financial support would be done at the direction of the executive and legislative branches as those decisions are not within the State Water Board's authority. As mentioned in the following sections of Chapter 16, *Evaluation of Other Indirect and Additional Actions*, the State Water Board acknowledges that certain actions identified in the CWAP such as conservation, recycling, desalination, and other actions are in response to the plan amendments. Costs and funding sources for these types of actions are identified in Chapter 16 and Chapter 20, *Economic Analyses* and include, but are not limited to the following sections.

- Section 16.2.2, Aquifer Storage and Recovery
- Section 16.2.4, Recycled Water Sources for Water Supply
- Section 16.2.6, Water Supply Desalination
- Section 16.2.7, *New Surface Water Supplies* (i.e., surface water reservoirs)

State Water Project

The following section is intended to respond to comments that mischaracterized and incorrectly suggested that an underlying purpose for the plan amendments is to increase the amount of water available for diversion through the SWP by water users south of the Delta. Some comments on this topic suggested that Northern California (Delta) water is being exported to Southern California and Central Valley large corporate agribusiness at the expense of smaller farms, urban users, fish, migratory birds, and the ecosystem. Commenters suggested that instead, Southern California should focus on restoring its watersheds and take measures to localize its water supply.

The purpose of the plan amendments is to reasonably protect the designated beneficial use of water for fish and wildlife in the three eastside tributaries and the LSJR identified in the 2006 Bay-Delta Plan. As stated in Chapter 5, *Surface Hydrology and Water Quality*, the State Water Board is currently in the process of reviewing the export restrictions included in the 2006 Bay-Delta Plan as part of its periodic review of the plan (Section 5.4.2, *Methods and Approach, Exports and Outflow*). Through that process, the State Water Board will determine what changes, if any, should be made to the export restrictions (Section 5.4.2, *Methods and Approach, Exports and Outflow*). The State Water Board will then determine what actions are needed to implement changes to the flow and export objectives (Section 5.4.2, *Methods and Approach, Exports and Outflow*).

As described in Chapter 5, Chapter 17, *Cumulative Impacts, Growth-Inducing Effects, and Irreversible Commitment of Resources,* and Appendix F.1, *Hydrologic and Water Quality Modeling*, the plan amendments have the potential to increase the estimated annual average of exports depending on the time of year, but any change would be relatively small compared to historical exports. The amount of water actually exported in any given year is ultimately dependent upon on rainfall, snowpack, runoff, reservoir storage, pumping capacity from the Delta, and legal environmental constraints on project operations. It is important to note that the State Water Board does not have a role in determining the annual water allocations. Annual water supply allocations to SWP users are determined by DWR based on precipitation, runoff, and storage conditions.

San Joaquin River Restoration Program

The SJRRP is being implemented jointly by USBR and USFWS with assistance from CDFW. The SJRRP is the result of a settlement reached on an 18-year legal dispute and is aimed at restoring and maintaining fish populations in "good condition" on the SJR below Friant Dam to the confluence of the Merced River. As such, the SJRRP is beyond the geographic scope of the plan amendments. The SJRRP is appropriately included in Chapter 17, *Cumulative Impacts, Growth-Inducing Effects and Irreversible Commitment of Resources*. Chapter 17 identifies that there could be potential cumulative impacts on aquatic resources and flooding and erosion and sediment. In addition, as described in Chapter 3, *Alternatives Description*, the area upstream of the Merced River confluence (i.e., Upper SJR) does not currently support viable native fish populations, and including the area would not reduce or avoid impacts. For example, such an alternative would not reduce the quantity of water needed from the three eastside tributaries to achieve the goals of the plan amendments. Inclusion of the LSJR alternatives for the Upper SJR would also increase the adverse environmental effects of the LSJR alternatives in a larger geographic area by reducing the quantity of water available for other uses in areas that rely upon water supplies in the Upper SJR, which would lead to environmental effects associated with actions undertaken in response to reduced diversions.

As stated in Appendix K, *Revised Water Quality Control Plan*, CDFW, USBR, NMFS, and USFWS, in coordination with the Interagency Ecological Program, STM Working Group, and other interested parties, should evaluate SJRRP flow contributions to flow and water quality requirements at Vernalis. The State Water Board may consider water quality objectives in future Bay-Delta Plan updates to protect beneficial uses in other areas like the Upper SJR. For more information regarding the Upper SJR, please see Master Responses 2.1, *Amendments to the Water Quality Control Plan*, and 2.4, *Alternatives to the Water Quality Control Plan Amendments*.

Collaboration with Agencies

Some commenters identified willingness to collaborate and cooperate with the State Water Board. For example, commenters generally requested that the State Water Board work with local elected officials, local agencies, stakeholders, and irrigation districts in order to be inclusive of all ideas and viewpoints. Other commenters suggested that that State Water Board develop a transparent process and roadmap of how best to plan, partner, and collaborate during implementation.

The State Water Board appreciates all offers to collaborate and cooperate in its efforts to amend the Bay-Delta Plan, reasonably protect the beneficial uses of fish and wildlife, and reasonably protect the beneficial use of agriculture in the southern Delta. The plan amendments provide several opportunities for coordination and collaboration. The State Water Board will continue to work with local officials and managers to best protect the Delta and water supplies and supports all on-going collaborative relationships at the local, regional, and state level. The State Water Board has also collaborated with a number of agencies and scientific entities throughout the development of the updated Bay-Delta Plan and will continue to collaborate throughout the implementation process. A description of agency and entity roles and the nature of the collaborations are described in the following sections.

Also, please see Master Response 2.1, *Amendments to the Water Quality Control Plan*, regarding the purpose of the STM Working Group and the roles and responsibilities of the participants of the STM Working Group as described in the program of implementation of Appendix K. The STM Working Group will assist with the implementation, monitoring, and effectiveness assessment of the February–June flow requirements and will include participants from state and federal agencies, water users, and others that the Executive Director determines have appropriate expertise. The latter category may potentially include some of those agencies and scientific entities, or members thereof, identified below. In addition, the plan amendments provide for a comprehensive monitoring, special studies, evaluation, and monitoring program for which parties are encouraged to work collaboratively in one or more groups and in consultation with the STM Working Group, U.S. Bureau of Reclamation (USBR), and the California Department of Water Resources (DWR).

Delta Stewardship Council

The 2009 Delta Reform Act (SBX7 1) created the Delta Stewardship Council (Council) in 2010, which comprises seven members who provide broad, statewide perspective and expertise and are advised by a 10-member board of nationally and internationally renowned scientists. The Council was created to advance the state's coequal goals for the Delta. The council developed the Delta Plan, an enforceable, long-term sustainable management plan for the Delta, adopted in 2013. Part of the Council is the Delta Science Program, charged with providing the best possible unbiased scientific information to inform water and environmental management decisions for the Delta. The Council appoints a Lead Scientist to oversee the program and also appoints the 10 members of the Delta Independent Science Board, which has broad authority to provide oversight of the scientific research, monitoring and assessment programs that support adaptive management of the Delta (Delta Stewardship Council 2017).

Delta Independent Science Board

The State Water Board has collaborated with the Delta Independent Science Board (ISB) on issues regarding the 2006 Bay-Delta Plan update since 2012 when ISB responded to the State Water Board

request to endorse the use of unimpaired flow. ISB gave a qualified endorsement based on their reading of the *Technical Report on the Scientific Basis for Alternative San Joaquin River Flow and Southern Delta Salinity Objectives* (Appendix C). Collaboration will continue throughout implementation of the plan amendments, specifically related to biological goals, monitoring, and reporting. Recommendations by ISB are to provide elements of a science-based adaptive management program that indicate what types of monitoring and performance measures will be used as the basis for adaptive management decisions and requests a timeframe within which these decisions will be made. ISB also recommends giving more specific information on finances, organization and oversight needed to ensure that adaptive management is implemented over the projected 30-year life span (Delta Independent Science Board 2012). The State Board and the ISB met in September and October of 2017 to coordinate the development of biological goals to assess the success of flow and non-flow measures within the context of adaptive implementation identified in the plan amendments for the 2006 Bay-Delta Plan update.

Fishery Management Agencies

The State Water Board collaborates with a number of fishery management agencies as a member of or an invitee of advisory teams. These teams provide technical and biological expertise regarding water management recommendations in the Bay-Delta.

Delta Operations for Salmonids and Sturgeon

The Delta Operations for Salmonids and Sturgeon (DOSS) is a technical advisory team that provides recommendations to Water Operations Management Team and NMFS on measures to reduce adverse effects of Delta operations of the Central Valley Project (CVP) and the State Water Project (SWP) to salmonids and green sturgeon. The DOSS team provides written reports to USBR, DWR, and NMFS, including a summary of major actions taken during the year to implement Action Suite IV of the 2009 NMFS BiOp RPA, an evaluation of their effectiveness and recommendations for future actions. The State Water Board provides expertise on issues pertinent to Delta water quality, hydrology, and environmental parameters. This group was formed in 2009, and the State Water Board is a member agency. Other members are CDFW, DWR, NMFS, U.S. Army Corps of Engineers (USACE), USBR, U.S. Environmental Protection Agency (USEPA), and USFWS. (NOAA 2017a.)

Stanislaus Operations Group

The Stanislaus Operations Group (SOG) was created by USBR to provide a forum for real-time operational flexibility and implementation of the alternative actions defined in the 2009 NMFS BiOp RPA. This group provides direction and oversight to ensure that the East Side Division actions are implemented, monitored for effectiveness, and evaluated. USBR, in coordination with SOG, submits an annual summary of the status of these actions. Stakeholders interested in providing information to USBR and NMFS regarding Stanislaus River operations are invited to do so through the Stanislaus River Forum (SRF). This group was formed in 2009, and the State Water Board is a member agency. Other members are DFW, DWR, NMFS, USACE, USBR, USEPA, and USFWS. (NOAA 2017b.)

Scientific Evaluation Process Group

The purpose of the Scientific Evaluation Process Group's (SEP's) efforts is to restore conditions in the LSJR and its tributaries that will support sustainable native fish populations and other living resources by articulating a clear, scientifically justified expression of policy guidance regarding the

desired status of fall-run and spring-run Chinook salmon and *O. mykiss*, (both resident and anadromous) in the Stanislaus River and larger SJR Basin. SEP's goal involves providing well-documented and transparent technical guidance and a foundation for evaluating the effectiveness of proposed actions to achieve the conditions necessary to realize the group's purpose. Development of the SEP vision resulted in a common scientific foundation useful for parties pursuing a comprehensive approach to restoring native species and habitats in the SJR Basin and in establishing a framework for addressing relevant regulatory processes including the State Water Board Bay-Delta Plan update (SEP Group 2016). Members include CDFW, USFWS, USBR, NMFS, American Rivers, The Bay Institute, Trout Unlimited, and the Nature Conservancy. The State Water Board is not a member agency but regularly participates in meetings.

San Joaquin River Basin Agency Coordination

These meetings occurred between State Water Board staff and fishery agencies (CDFW, NMFS, USFWS) for updates and coordination among agencies. The State Water Board's presence is useful to respond to questions regarding the Bay-Delta Plan update process and drought issues. The most recent meeting was in November 2016.

Biotelemetry Project Work Team

This work team is part of the Interagency Ecological Program (IEP) made up of the State Water Board, DFW, USGS, NMFS, USACE, USEPA, DWR, USBR, and USFWS. The main objectives of the team are to provide a forum for collaborative telemetry discussion and research on Central Valley migratory fishes; provide guidance and review of Central Valley migratory fish telemetry research and monitoring; and increase linkages between telemetry research and application to further development of detailed work plans for new studies. This team meets twice per year. (DWR 2017b.)

San Joaquin Fisheries Agencies Technical Team

This forum discusses flow scheduling, salmonid sampling, and research/monitoring updates specific to the SJR Basin. The State Water Board is a participant to receive and disseminate flow scheduling updates and information regarding compliance with Vernalis flow. This team was initially a part of SEP and meets two to four times per year.

State Water Board Authorities

This section is intended to respond to comments that did not provide supporting evidence, but claimed that the plan amendments are in violation of a variety of laws, including applicable statutes, regulations, and principles designed to protect water rights and the use of water pursuant to such established rights and that the plan amendments exceed the jurisdiction of the State Water Board. This section provides a response to such comments and other general comments on various board authorities. In addition to the following sections, readers should also refer to Master Response 1.2, *Water Quality Control Planning Process* and Master Response 2.1, *Amendments to the Water Quality Control Plan*, for additional discussion on the State Water Board's authorities and plan amendment compliance with relevant laws.

Water Rights

The following section addresses common general comments asserting that the State Water Board has no legal basis for appropriating water from irrigation districts or for enforcing implementation of the plan amendments through water rights. Other comments stated that the reservoirs were built by the irrigation districts for storing pre-1914 water and, therefore, the water rights cannot be changed or altered to implement the plan amendments. Some commenters expressed general concern that the plan amendments would negatively affect the flexibility of reservoir operations and that the State Water Board is proposing to take control of locally managed water sources. Some commenters asked that the State Water Board uphold the water rights system.

The State Water Board exercises regulatory and adjudicatory functions of the state in the field of water resources. (Wat. Code, § 174.) The Legislature combined the water rights, water quality, and drinking water functions within the State Water Board to provide for the coordinated consideration of water rights, water quality, and safe and reliable drinking water. (*Ibid*.) The plan amendments further the State Water Board's obligation and responsibility to formulate and adopt the Bay-Delta Plan and include water quality objectives designed to ensure that the beneficial uses of California's waters are reasonably protected. (Wat. Code, §§ 13170, 13240, 13241.) As set forth in Appendix K, *Revised Water Quality Control Plan*, the State Water Board will implement the LSJR flow objectives through water right or water quality actions.

With respect to water rights, California has established a water right system that allows for the orderly allocation and use of its water supply. Although California law recognizes several types of rights to surface water, riparian and appropriative rights are the most common. A riparian right exists by reason of ownership of land abutting a water body. Unless adjudicated, a riparian right is not quantified. Riparian rights are correlative, meaning that when natural flow is insufficient, riparian right holders share in the shortage. No permit or license is necessary to divert water under a claim of riparian right. Unlike riparian rights, an appropriative right carries a priority relative to other appropriative rights. The water user who is first in time is entitled to the full quantity of water specified under the right before junior appropriators may exercise their rights. Pre-1914 appropriative rights are not subject to the water right permitting system administered by the State Water Board. Since 1914, appropriative rights have been obtained by receiving a permit or license from the State Water Board or its predecessor agency. For more information regarding the water right priority system, see Master Response 1.2, *Amendments to the Water Quality Control Plan.*

In implementing the plan amendments and program of implementation, the State Water Board has authority to amend an existing water right on several grounds. First, the State Water Board may invoke its reserved jurisdiction over certain water right permits under Water Code section 1394, under which it may amend, revise, supplement, or delete terms and conditions of a permit under specified circumstances. Second, the State Water Board has continuing authority to prevent waste and unreasonable use, or unreasonable method of use or diversion of water, under the California Constitution (Cal. Const.). All water rights, including pre-1914 appropriative, are subject to the overriding constitutional limitation that water use must be reasonable. (Cal. Const., art. X, § 2; Wat. Code, § 100; *California Farm Bureau Federation v. State Water Resources Control Bd*. (2011) 51 Cal.4th 421, 429 [State Water Board has authority to prevent waste or unreasonable use of water, regardless of the basis under which the right is held].) Adverse water quality impacts are an appropriate basis for finding water use unreasonable. (*United States of America v. State Water Resources Control Board*, (1986) 186 Cal.App.3d 82, 130.) The "Board's power to prevent unreasonable methods of use should be broadly interpreted to enable the Board to strike the proper

balance between the interest in water quality and project activities in order to objectively determine whether a reasonable method of use is manifested." (*Ibid*.) Finally, the State Water Board has its continuing authority to protect public trust uses of water. Navigable waters of the state are subject to the public trust, and the State Water Board has a duty to preserve this trust property from harmful diversions by water right holders, and no one has a vested right to use water in a manner harmful to the state's waters. (*National Audubon Society v. Superior Court* (1983) 33 Cal.3d 419, 445-–448.)

Although not entirely clear due to the general nature of these comments, it appears that some commenters mistakenly believe that the plan amendments require a specific set of reservoir operations. As identified in Appendix K, *Revised Water Quality Control Plan*, the State Water Board will include minimum reservoir carryover storage targets or other requirements to help ensure that providing flows to meet the LSJR flow objectives will not have significant adverse temperature or other impacts on fish and wildlife or, if feasible, on other beneficial uses. Specific carryover or other requirements will be established when implementing the plan amendments through water right and water quality proceedings, during which comments by reservoir operators would be considered.

The State Water Board modeled potential reservoir operations for the purpose of analyzing impacts of the plan amendments. The modeling included constraints to retain coldwater storage, including carryover storage, to avoid adverse temperature impacts consistent with the plan amendments. The modeled operations are not prescriptive, but represent likely effects from reasonable implementation of the plan amendments. The modeling analysis is intended to show the range of potential impacts in such a way that the public and the State Water Board can compare the relative effects. Please see the section in this master response, *Program-Level Document and Project-Level Analysis*. Please also refer to Master Response 3.2, *Surface Water Analyses and Modeling*, for additional information regarding the modeling of reservoir operations.

Some commenters expressed concerned that senior water right holders (pre-1914) are already not receiving their fair share of water because of riparian right holders, infrastructure-related issues, flow for wildlife and fish, and the plan amendments would require additional releases from the tributary rivers and major reservoirs further reducing available supplies to pre-1914 water right holders downstream. Ultimately, the State Water Board may consider changes to water rights and other actions to implement plan amendments as described in Appendix K, including adding conditions to existing water rights or taking other water right actions that would require some water right holders to not divert water when flows are required to meet the LSJR flow objectives. Some commenters suggested that unlawful taking of water by junior water right holders is causing poor water quality and affecting Delta agriculture. The State Water Board is responsible for investigating complaints of possible illegal, wasteful, or unreasonable uses of water but those investigations are beyond the scope of the plan amendment process.

Consideration of Beneficial Use

Multiple comments received addressed the beneficial use of water. Some commenters expressed the understanding that water is a finite resource that needs to be shared, conserved, and protected as a public resource such that all beneficial uses (e.g., fisheries and wildlife, municipal use, agriculture, and recreation, economic considerations) are met, allowing flexibility to make changes as needed. Many wanted to see a compromise between stakeholders to adequately meet all interests and suggested that the State Water Board use a combination of strategies for the state to achieve such a compromise (see *Non-Flow Measures* in this master response). Some commenters emphasized their

emotional connection to the rivers and, accordingly, their concern that California's water be used wisely for the sake of future generations. Other commenters objected to the plan amendments saying people and (agriculture-based) food are more important than fish, stating that farms produce more food than does the fish population (i.e., salmon). Some commenters suggested that beneficial uses be redefined to prioritize or, in some cases, restrict or exclude certain activities, such as certain agriculture practices. They suggested changes to the existing beneficial use designations, such as restricting the definition of beneficial agricultural use to include only irrigation of low-water crops or crops that are primarily consumed in the U.S. and not those that are exported overseas.

Beneficial uses of waters of the state that may be protected against degradation include, but are not limited to, domestic, municipal, agricultural and industrial supply, power generation, recreation, aesthetic enjoyment, navigation, and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves. (Wat. Code, § 13050, subd. (f).) The proposed flow and salinity water quality objectives are necessary to reasonably protect fish and wildlife and agricultural beneficial uses, consistent with Water Code section 13241. The State Water Board's responsibility is to protect and maintain existing beneficial uses, not to redefine or exclude beneficial uses. (40 C.F.R. § 131.12(a)(1); *PUD No. 1 of Jefferson County v. Washington Department of Ecology*, (1994) 511 U.S. 700; Wat. Code, § 13241.) Where a designated beneficial use is not an existing use, it may be removed if the State Water Board can demonstrate that attaining the use is not feasible. (40 C.F.R. § 131.10.) Further discussion on the consideration of beneficial uses within the context of the water quality control planning process is provided in Master Response 1.2, *Water Quality Control Planning Process*. Please refer to Master Response 2.1, *Amendments to the Water Quality Control Plan*, regarding general responses to commenter suggested modifications to existing designated beneficial uses in the Bay-Delta plan.

The State Water Board understands a perceived conflict between the interests of people versus fish; however, the beneficial uses outlined in Appendix K, *Revised Water Quality Control Plan*, establish that the plan protects beneficial uses for both fish and human interests. The State Water Board requires that California's water be used wisely in that all uses of the state's water, including public trust uses, be both reasonable and beneficial.[10] As stated in Article X, section 2 of the California Constitution:

> …the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare.

The State Water Board places limitations on water rights by prohibiting the waste, unreasonable use, unreasonable method of use, and unreasonable method of diversion of water.[11]

Public Trust

This section addresses common general comments raised that suggested that the State Water Board would be violating the public trust doctrine by implementing the plan amendments. Other commenters asserted that the State Water Board has no public trust authority or that public trust

[10] *National Audubon Society v. Superior Court* (1983) 33 Cal.3d 419, 443.

[11] Water Plan Update 2009, page 1.

authority does not apply to the beneficial use of water or water rights. Still other commenters suggested that unless the State Water Board implements the highest percent of unimpaired flow in the plan amendments, they would not be following the public trust doctrine. Some commenters stated that the public trust values extend beyond fisheries and that the SED fails to analyze the full range of public trust resources in the plan area. Others commented that the State Water Board failed to provide a methodology and analysis to support its affirmative duty to protect and balance public trust uses with other uses. Other commenters stated that the SED fails to acknowledge or quantitatively analyze the full range of public trust resources in the project area and, consequently, fails to conduct a defensible balancing of public trust benefits and resources and the existing consumptive uses of water, which is a violation of CEQA's requirements for analysis and fair disclosure and the State Water Board's legal responsibility to adequately and fairly balance the public trust.

Under the public trust doctrine, the state, as a trustee for the benefit of the people, has a continuing obligation to protect public trust resources in navigable waterways and lands lying beneath them.

> [The] public trust is more than an affirmation of state power to use public property for public purposes. It is an affirmation of the duty of the state to protect the people's common heritage of streams, lakes, marshlands and tidelands, surrendering that right of protection only in rare cases when the abandonment of that right is consistent with the purposes of the trust. (*National Audubon Society v. Superior Court* (1983) 33 Cal.3d 419, 441.)

The State Water Board has an affirmative duty to take the public trust into account in the planning and allocation of water resources and to protect public trust uses whenever feasible. (*Id*. at 446.) The purpose of the public trust is protect navigation, fish, recreation, environmental values, and fish and wildlife habitat, although the objective of the public trust has and can evolve "in tandem with the changing public perception of the values and uses of waterways." (*Id*. at 434–435.)

The public trust doctrine requires the State Water Board to consider the effect of the diversion or use of water on streams, lakes, or other bodies of water and "preserve, so far as consistent with the public interest, the uses protected by the trust." (*Id*. at 447.) Thus, before the State Water Board approves an appropriative water right diversion, it must consider the effect of such diversions on public trust resources and avoid or minimize any harm to those resources, when feasible. No party can acquire a vested right to appropriate water in a manner harmful to the public trust. (*Id*. at 445.) But water may be appropriated despite harm to public trust interests if the public interest in the diversion outweighs the harm to public trust values. (*Id*. at 446–447.) Even after a water right appropriation has been approved, the public trust imposes a duty of continuing supervision on the State Water Board. In applying the public trust doctrine, the State Water Board has the power to reconsider past water allocations even if the State Water Board considered public trust impacts in its original water allocation decision. (*Id*. at 447.)

The plan amendments to reasonably protect fish and wildlife beneficial uses are consistent with the State Water Board's public trust obligations to protect public trust resources such as fisheries. It is incorrect to say that the State Water Board is obligated to adopt the highest percent of unimpaired flow because the public trust doctrine does not require only consideration of public trust resources. (*Id*. at 446–447.) A delicate balance of the conflicting demands for water is required. "[T]he public trust permits—indeed requires—the balancing of competing uses." (Stevens 1980). Consistent with this balancing, the LSJR flow objectives would protect fish and wildlife, while also considering past, present, and future beneficial uses of water, as required under section 13241 of the Porter-Cologne

Water Quality Control Act for establishing water quality objectives. (Wat. Code, § 13241.) This includes competing demands for water, such as water for municipal and agricultural beneficial uses.

Neither the public trust nor CEQA requires the State Water Board to articulate every public trust resource in the plan area. Consistent with CEQA, however, the State Water Board describes the physical environmental conditions in the environmental setting section of each resource chapter in the SED, including public trust uses such as recreation and fish and wildlife habitat. As stated above, the plan amendments consider and are consistent with the public trust doctrine and the required balancing of competing uses.

Clean Water Act

Multiple commenters stated that the plan amendments would violate the Clean Water Act without providing specific reasoning or evidence. Chapter 5, *Surface Hydrology and Water Quality*, discusses the applicability of federal Clean Water Act and the State Water Board's role in administering the act. Chapter 5 further explains that the Bay-Delta Plan supersedes the Central Valley Water Board's Basin Plan on any points that may conflict, and the Central Valley Water Board actions must conform to the Bay-Delta Plan. Additional information regarding the State Water Board's authorities pursuant to the Porter-Cologne Water Quality Control Act is provided in Master Response 1.2, *Water Quality Control Planning Process*.

LSJR Alternatives Development

The following section addresses comments that, without providing support for their suggestions, expressed concern about the adequacy of the alternatives and suggested that other flow options, as well as non-flow measures, should be considered and selected in favor of the LSJR alternatives. In addition, commenters identified that the plan amendments should have measurable resource objectives and biological goals and objectives.

Under CEQA, the lead agency must consider a reasonable range of alternatives that would feasibly attain all or most of the project objectives but would avoid or substantially lessen any of the significant impacts of the proposed project. (Cal. Code Regs., tit. 14, §15126.6, subd. (a).) However, CEQA does not requires that the scope of alternatives included be exhaustive, and lead agencies need not consider every conceivable alternative to a project or action.

Furthermore, according to CEQA case law, where the alternatives analyzed in the EIR allow for a wide range of choices with varying degrees of environmental impacts, the document may support the ultimate approval not only of the fully developed alternatives, but also of what might be called "hybrid" alternatives the features and impacts of which occur within the analytical continuum between the "bookends" created by the least impacting and most impacting alternatives, respectively.[12]

As described in greater detail in Master Response 2.4, *Alternatives to the Water Quality Control Plan*, many alternatives were reviewed and considered during the development of the plan amendments.

[12] See, e.g., *Village Laguna of Laguna Beach, Inc. v. Board of Supervisors* (1982) 134 Cal.App.3d 1022, 1028–1029; *California Oak Foundation v. Regents of University of California* (2010) 188 Cal.App.4th 227, 274–277; *Cherry Valley Pass Acres and Neighbors et al. v. City of Beaumont* (2010) 190 Cal.App.4th 316, 353–356.

The plan amendments were further refined based on comments on the 2012 Draft SED, which resulted in the Recirculated SED.

Each of the LSJR alternatives includes adaptive implementation because the State Water Board recognizes that understanding and monitoring the effectiveness of the plan amendments is paramount to reasonably protecting the fish and wildlife the amendments are designed to protect. The periodic review and update of the 2006 Bay-Delta Plan will serve as an opportunity to assess necessary modifications to the plan. Specifically discussed in Appendix K, *Revised Water Quality Control Plan*, and Chapter 3, *Alternatives Description*, the STM Working Group will assist with implementation, monitoring, and assessment activities for the LSJR flow objectives and with developing biological goals to help evaluate the effectiveness of the flow requirements and adaptive implementation actions.

Scientific Basis

This section addresses general comments that suggested the addition of new research information or more recent data be used in the SED's analysis and expressed the need to include more progressive scientific studies. Similarly, some commenters made unsupported assertions that the SED did not provide sufficient evidence—information, data, and studies—for its conclusions related to how the plan amendments would reasonably protect fish. Some commenters suggested that there is no scientific basis for increased flows and that the issue of predation is the primary cause of fish mortality. Other commenters expressed more general concerns about other effects on fish such as lack of food, unsuitable water temperature, and lack of spawning habitat. Still others stated that the conclusions of studies commissioned by local entities do not support the plan amendments. Some commenters claimed that changing fish populations each year have no relationship with the amount of flow in the rivers and that flows have not changed significantly from year to year, especially during the most recent drought period.

The scientific basis of any State Water Board rule or regulation must undergo external peer review before adoption by the State Water Board or Regional Water Boards. (Health & Saf. Code, § 57004) The plan amendments are based on nearly 8 years of study and analysis on what actions would provide greater protection of fish and wildlife. The overwhelming body of evidence demonstrates that increased flow is the foundation for fish survival, as explained in Appendix C, *Technical Report on the Scientific Basis for Alternative San Joaquin River Flow and Southern Delta Salinity Standards*; Chapter 19, *Analyses of Benefits to Native Fish Populations from Increased Flow between February 1 and June 30*; and Master Response 3.1, *Fish Protection*. The scientific basis is distinct from the programmatic-level evaluation presented in the SED and conducted in compliance with CEQA to inform decision-makers about the potential environmental consequences of the plan amendments.

The plan amendments are founded on the established scientific basis that additional flows will help to improve habitat conditions, survival, and reduce predation. The scientific basis of the plan amendments were subject to external peer review; peer reviewers agreed with the conclusion that under the current altered flow regime, fish and wildlife beneficial uses are being impaired and that a more natural flow pattern would be beneficial to such beneficial uses. Measured data showing historic variability in flows in the LSJR and three eastside tributaries are presented in Appendix F.2, *Evaluation of Historical Flow and Salinity Measurements of the Lower San Joaquin River and Southern Delta*, and discussion of how different flows affect fish can be found in Chapter 7, *Aquatic Resources*, and Chapter 19, *Analyses of Benefits to Native Fish Populations from Increased Flow between February 1 and June 30.* Included as attachments to Appendix C are the peer reviews and a summary of the

State Water Board staff's response. See Master Response 3.1, *Fish Protection*, for additional information regarding the scientific basis of the plan amendments. Also see the *Substantial Evidence* section in this master response for more discussion on the scientific rationale underlying the plan amendments.

Unimpaired Flow Requirements

A significant portion of the general comments received expressed support for or opposition to the plan amendments, a percent of unimpaired flow, and/or an LSJR alternative. Some comments supported percentages of unimpaired flow that are higher or lower than the plan amendment flows (i.e., 20 percent unimpaired flow or 60 percent unimpaired flow). This section discusses general support or opposition and the State Water Board responses to those general comments.

Plan Amendment Flow Requirements

Some commenters were supportive of the narrative and numeric flow requirements of the plan amendments. Multiple commenters supported allowing increased flows to reasonably protect fisheries and the general health of the Bay-Delta estuary's ecosystem. These commenters emphasized the importance of biodiversity and the need for more water for salmon; the irreplaceability and importance of the estuary as a state and national treasure; the need for increased flows to prevent saltwater intrusion into the Delta and the aquifer; and the need to protect water quality, which supports agriculture, drinking water, municipal discharge, fisheries, and groundwater recharge.

Multiple commenters were in support of increased flow levels to improve fish passage, dilute pollutants, lower water temperature, increase dissolved oxygen, enhance migratory cues for salmon returning to spawn, inundate floodplains for habitat, and maintain the food web. Some said that while non-flow measures, such as habitat restoration, are beneficial, they alone are insufficient without changed water management (i.e., increased flows), including outflow through the estuaries that are needed to protect fish and wildlife beneficial uses. In addition, some support increased flows to improve the health of the salmon fishing industry as a source of healthy food for Californians, through both direct consumption of salmon and through indirectly providing nutrients for agricultural lands. For more information on how the LSJR flow objectives would benefit aquatic resources, see Chapter 7, *Aquatic Resources*; Chapter 19, *Analyses of Benefits to Native Fish Populations from Increased Flow between February 1 and June 30*; and Master Response 3.1, *Fish Protection*.

Some commenters supported increased flows because the Delta is suffering from water hyacinth, toxic algae, and high salinity because of flows that are reduced or are too low under baseline conditions. More flow would restore the watershed's proper chemistry, diminishing the growth of cyanobacteria and increasing oxygen levels allocating or allowing the ecosystem to flourish and naturally maintain its health. As stated in Chapter 5, *Surface Hydrology and Water Quality*, increases in flow at Vernalis would, in general, improve water quality in the southern Delta by diluting pollutant concentrations with the addition of relatively clean water from the eastside tributaries. Dissolved oxygen (DO) within the Stockton Deep Water Ship Channel is also generally improved (increased) by increases in flow through several different mechanisms including a reduction in the concentration of algae from reduced travel time for algal growth (Central Valley Water Board 2015; ICF International 2010).

Multiple commenters were opposed to the narrative and numeric flow requirements of the plan amendments. Multiple commenters opposed increased flows to reasonably protect the beneficial use of fish and wildlife and opposed the use of unimpaired flow in the numeric requirement to reasonably protect this beneficial use. Some of these commenters requested lowering the percent of unimpaired flow requirement, and some did not agree with the use of unimpaired flow (see following sections that discuss higher and lower unimpaired flows). The State Water Board provided the scientific basis for the percent of unimpaired flow requirement in Appendix C*, Technical Report on the Scientific Basis for Alternative San Joaquin River Flow and Southern Delta Salinity Objectives, and* provides clarifying information in Master Response 3.1, *Fish Protection.* As described in Master Response 3.1, scientific studies show that flow is a major factor in the survival of fish, such as salmon. This Bay-Delta Plan update is part of a multi-pronged approach to address the ecological crisis and protect beneficial uses in the Bay-Delta and tributary watersheds. The LSJR narrative flow objective is an expression of the desired flow and biological conditions in the LSJR and three eastside tributaries that would reasonably protect fish and wildlife, including requiring flows to be managed in a manner that avoids adverse impacts on fish. The numeric flow objectives are designed to provide flow conditions that will eventually attain the narrative objective. The LSJR narrative and numeric flow objectives apply in the February–June time period because the majority of yearly precipitation falls within these months, target fish species need in-stream habitat conditions to support early life stages, and conflicts with water needs for consumptive uses increase in the late spring and early summer months.

Higher Flow Requirements

While some commenters supported the plan amendments, some wanted higher flow requirements but did not provide supporting information for their statements. These commenters expressed their belief that the salmon population and Delta ecosystem are in such a crisis of collapse that there need to be higher flows throughout the year than the plan amendments propose—not just higher flows in the February–June time period. The February–June time period was chosen for the plan amendments because this period is most critical to support ecosystem functions and several critical life stages of salmon, steelhead, and other native fishes. Appendix C, *Technical Report on the Scientific Basis for Alternative San Joaquin River Flow and Southern Delta Salinity Objectives*, explains how scientific information indicates that higher flows of a more natural pattern are needed from the three eastside, salmon-bearing tributaries to the LSJR during the spring (February–June) to protect fish and wildlife beneficial uses (including SJR Basin fall-run Chinook salmon). As shown in Appendix C, approximately 80 percent of the annual volume of unimpaired flow occurs February–June (based on 1984–2009 unimpaired flow data).

Similarly, some commenters supported flows higher than those that would be required February–June under the plan amendments, citing that the State Water Board's 2010 Delta Flow Criteria Report determined that approximately 60 percent of unimpaired flow February–June would be fully protective of fish and wildlife in the LSJR and the eastside tributaries. As explained further in Appendix C, these flow criteria did not consider other factors that determine the reasonable protection of fish and wildlife, such as the consideration of other beneficial uses. See Master Response 1.2, *Water Quality Control Planning Process*, for more information regarding the 2010 Delta Flow Criteria Report.

Some commenters who support higher flows for fish expressed the misconception that the plan amendments would be maintaining current water levels with no change in water management of the

eastside tributaries. The plan amendments, however, would, once implemented, generally increase flows February–June by requiring 40 percent unimpaired flow, which could be adjusted through adaptive methods. More information on the flow requirement changes and adaptive implementation can be found in Appendix K, *Revised Water Quality Control Plan for the San Francisco Bay/Sacramento–San Joaquin Delta Estuary*, and Master Response 2.2, *Adaptive Implementation*. For more information on baseline conditions and the effect of the LSJR alternatives on the flow for each of the eastside tributaries and on the SJR at Vernalis, see Chapter 5, *Surface Hydrology and Water Quality*, and Appendix F.1, *Hydrologic and Water Quality Modeling*.

Lower Flow Requirements

Some commenters said, without providing evidence for their statements, that there is not sufficient water in the major reservoirs and three eastside tributaries to support the plan amendment flow requirement and meet the needs of other beneficial uses, especially in critically dry years, and that the flow requirement should, therefore, be lower. As identified, however, in Chapter 5, *Surface Hydrology and Water Quality*, and Appendix F.1, *Hydrologic Modeling*, there is enough water in the system to support the unimpaired flow requirement under the plan amendments. With an increase in the required percentage of unimpaired flow, the percent of water available for storage and diversion would decrease, thereby resulting in more water in the rivers. During critically dry years, the volume of water needed to meet the required percentage of unimpaired flow would decrease because this water volume would adjust with the total amount of unimpaired flow available during any given year. In other words, the amount of water required to flow down the rivers is a ratio of the total water available (Figure 1.1-1).

Some commenters said that other means, such as controlling water temperatures, reducing predation, and habitat restoration are more effective than increasing flows to increase fish populations and, thus, suggested that flow requirements should be lower than the percent of unimpaired flow required by the plan amendments. The plan amendment flows would benefit fish by increasing water temperatures (see Chapter 7, *Aquatic Resources*, and Chapter 19, *Analyses of Benefits to Native Fish Populations from Increased Flow between February 1 and June 30*), and for information on the relationship between the plan amendments and predation, see *Aquatic Biological Resources* in this master response. As explained in *Description and Objectives of the Plan Amendments* in this master response, the State Water Board's objectives for the plan amendments are solely based on flow and water quality requirements. Non-flow measures (e.g., habitat restoration) other entities can take to manage water use and benefit aquatic resources that would be in addition to the State Water Board's flow requirements are discussed in *Commenter Suggested Plans and Proposals* in this master response and in Chapter 16, *Evaluation of Other Indirect and Additional Actions*.

Other commenters suggested that flows are already high enough to support salmon populations. As described in Appendix C, *Technical Report on the Scientific Basis for Alternative San Joaquin River Flow and Southern Delta Salinity Objectives*, the SJR Basin once supported large spring-run and fall-run Chinook salmon populations; however, the basin now only supports a declining fall-run population. Scientific evidence cited in Appendix C indicates that in order to protect fish and wildlife beneficial uses in the SJR Basin, including increasing the populations of fall-run Chinook salmon and Central Valley steelhead to sustainable levels, changes to the altered hydrology of the SJR Basin are needed. To read more about salmon population status and the existing conditions of other aquatic resources in the LSJR and three eastside tributaries, please refer to Appendix C; Chapter 7, *Aquatic*

Resources; and Chapter 19, *Analyses of Benefits to Native Fish Populations from Increased Flow between February 1 and June 30.*

Some commenters also claimed that most salmon are out of the river by mid-March and that flows beyond March are unnecessary. The February–June timeframe was chosen for the plan amendments because this period is most critical to support ecosystem functions and several critical life stages of salmon, steelhead, and other native fishes, as described in this master response under *Higher Flow Requirements*, and as analyzed in Appendix C.

Commenter Suggested Plans and Proposals

This section addresses general comments that suggest the State Water Board should consider or adopt other plans and actions instead of, or in addition to, the plan amendments presented in the SED but did not provide sufficient rational. Some of these commenters espoused plans by various other entities instead of, or in addition to, the State Water Board's plan amendments, or suggested their own alternative proposals. The primary interests of these commenters were to protect fish or surface water supplies.

The State Water Board considered multiple alternatives in the development of the plan amendments. CEQA requires identification of any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process with a brief explanation of the reasons underlying the lead agency's determination. (Cal. Code Regs., tit. 14, , § 15126.6, subd. (c).) Among the factors that may be used to eliminate alternatives from detailed consideration are: "(i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts." (*Ibid.*) Chapter 3, *Alternatives Description*, outlines the purposes and goals of the plan amendments and summarizes alternatives that the State Water Board considered and eliminated from detailed analysis. Chapter 3 includes a discussion of suggestions that were received from the public during the comment periods associated with the February 13, 2009, NOP and the April 1, 2011, revised NOP. These alternatives were considered and dismissed, having been evaluated for their ability to: (1) meet most of the underlying fundamental purposes and goals of the plan amendments, (2) be feasible, and (3) be able to avoid significant effects on the environment.

The SED includes recommended actions for other agencies and lists non-flow measures that should be implemented in Appendix K, *Revised Water Quality Control Plan,* and considers non-flow actions in Chapter 16, *Evaluation of Other Indirect and Additional Actions*. However, as described in Master Response 2.4, *Alternatives to the Water Quality Control Plan Amendments*, and Master Response 5.2, *Incorporation of Non-Flow Measures*, these non-flow actions are not considered alternatives because they would not feasibly attain most of the basic project objectives. (Cal. Code Regs., tit. 14, § 15126.6, subd. (a).). Moreover, non-flow actions have the potential for significant and unavoidable impacts as disclosed in Chapter 16, *Evaluation of Other Indirect and Additional Actions*.

Please also see Master Response 2.4, *Alternatives to the Water Quality Control Plan Amendments*, for more information about what defines an alternative under CEQA and Master Response 2.1, *Amendments to the Water Quality Control Plan*, for more information on the specific suggested changes to the Bay-Delta Plan.

Merced S.A.F.E Plan

Multiple commenters expressed support for or suggested that the State Water Board consider the Merced S.A.F.E Plan to enhance Delta fisheries; however, these commenters did not identify how the S.A.F.E. Plan meets most of the plan amendment objectives or how it would reduce or eliminate significant impacts identified in the SED. The information provided to the State Water Board on the S.A.F.E. Plan during the comment period lacks the specificity needed to evaluate it as a potentially feasible alternative to the plan amendments.

City and County of San Francisco Lower Tuolumne River Alternative

Some commenters expressed support for the "Alternative to promote the expansion of fall-run Chinook salmon and *Oncorrhynchus mykiss* populations in the lower Tuolumne River while maintaining water supply reliability," submitted by the City and County of San Francisco and the San Francisco Public Utilities Commission (SFPUC). The alternative proposed by SFPUC includes four components: habitat management, predation management, environmental flow management, and hatchery management. The proposal is intended to provide a comprehensive alternative for the management of salmonids in the lower Tuolumne River. Although some elements of the proposal are similar to those described in Chapter 16, *Evaluation of Other Indirect and Additional Actions*, the proposal does not meet most of the basic objectives of the plan amendments as required by CEQA. A full discussion of the feasibility of the SFPUC alternative is addressed in Master Response 2.4, *Alternatives to the Water Quality Control Plan Amendments*.

Non-Flow Measures

Multiple commenters suggested that the State Water Board take other actions in lieu of, or in addition to, flow measures so as not to increase surface water flows. Suggestions included increasing water storage, implementing alternative water use measures, and taking alternative ecologically based actions (e.g., restoration), and simplified permitting for non-flow projects. Although commenters assert that non-flow measures are alternatives, or substitutes, to the plan amendments, these measures are not alternatives under CEQA because they do not "feasibly attain most of the basic objectives of the project" (Cal. Code Regs., tit. 14, § 15126.6, subd. (a).) Specifically, suggestions for the State Water Board to take non-flow actions in place of a water quality objective based on flow fail to meet the fundamental purpose and goal of the plan amendments, which is, "Maintain inflow conditions from the SJR Watershed sufficient to support and maintain the natural production of viable native fish populations migrating through the Delta." For more detail regarding the other purposes and goals of the plan amendments and the inability of non-flow measures to meet them, please see Master Response 2.4, *Alternatives to the Water Quality Control Plan Amendments*.

As explained in Chapter 16, *Evaluation of Other Indirect and Additional Actions*, the State Water Board would not directly undertake non-flow actions because that is beyond its regulatory authority under the plan amendments. Rather, the entities affected by the LSJR alternatives or the resource agencies with authority to undertake these actions could do so in order to inform the body of scientific information on special-status fish to help make adaptive implementation decisions regarding the LSJR flow objectives. Accordingly, Chapter 16 provides a description and environmental analysis of non-flow measures that affected entities may undertake in the plan area. The following non-flow measures are evaluated in Chapter 16.

- Floodplain and riparian habitat restoration

- Reduce vegetation-disturbing activities in floodplains and floodways
- Gravel augmentation
- Enhance in-channel complexity
- Improve temperature conditions
- Fish passage improvements—fish screens (screen unscreened diversions in tributaries and LSJR)
- Fish passage improvements—physical barriers in the southern Delta
- Fish passage improvements—removal or modification to human-made barriers to fish migration
- Predatory fish control
- Invasive aquatic vegetation control (i.e., plant control)

Another non-flow measure that some commenters suggested is to build salmon fish farms in the bay to increase fish numbers. However, the goal of the plan amendments is to improve conditions for the beneficial use of water for fish and wildlife (i.e., aquatic and terrestrial ecosystems), not solely for the purpose of human consumption.

Please also see Master Response 2.1, Amendments to the Water Quality Control Plan, Master Response 2.4, Alternatives to the Water Quality Control Plan Amendments, and Master Response 5.2, Incorporation of Non-Flow Measures, regarding State Water Board authorities related to non-flow measures and the incorporation of non-flow measures into Appendix K, Revised Water Quality Control Plan.

Ecological Approach and Restoration Actions

Some commenters emphasized that salmon, the environment, and people are inextricably connected and that the flow criterion, therefore, needs to serve the needs of both individual species and the broader ecosystem. These commenters said that flow is but one factor that affects fish and wildlife and that increasing flow alone will not achieve desired ecological outcomes but, rather, there is a need for an integrative, holistic approach to determining ecological needs. Some commenters also urged that the State Water Board consider a holistic approach by focusing on predation and habitat restoration and improve dams, weirs, and blockages by building fish ladders. As explained in the *Executive Summary*, the plan amendments are part of the State Water Board's multi-pronged, multi-phased approach to address the ecological crisis in the Delta and protect beneficial uses in the Bay-Delta and tributary watersheds. The proposed amendments allow maximum flexibility through adaptive implementation to address scientific uncertainty and respond to changing conditions. Moreover, the *Executive Summary* acknowledges the multifaceted nature of the stressors facing fish and wildlife and recommends that certain non-flow actions be part of the program of implementation of the plan amendments.

> [w]hile flow remains a key factor, the State Water Board also recognizes that a number of other factors, such as nonnative species, predation, high water temperatures, barriers to fish passage, and habitat loss contribute to the degradation of fish and wildlife beneficial uses in the LSJR. Direct actions to address these other stressors would complement LSJR flows to protect fish and wildlife. The State Water Board, therefore, recommends certain [non-flow] actions in the program of implementation. These recommended actions, together with the coordinated monitoring and adaptive implementation described above, are expected to improve habitat conditions that benefit

native fish and wildlife or are expected to improve related science and management within the LSJR Watershed, and could reduce the flows needed, within the adaptive range, to achieve reasonable fish and wildlife protection goals.

Other commenters expressed their general support of programmatic or simplified permitting to get non-flow projects approved efficiently and effectively without compromising environmental protections. The State Water Board agrees that efficient permitting is important for non-flow projects that will benefit fish and wildlife beneficial uses. Such projects often require approvals by agencies other than or in addition to the State Water Board, which coordinates with other agencies to ensure an efficient permitting process.

See Master Response 3.1, *Fish Protection*; Chapter 7, *Aquatic Biological Resources*; and Chapter 19, *Analyses of Benefits to Native Fish Populations from Increased Flow between February and June 30,* for further discussion of the plan amendments and their ecological protections. For more about habitat improvements, see Chapter 16, *Evaluation of Other Indirect and Additional Actions.*

Increased Storage

Multiple commenters suggested, without providing support, that more storage (reservoirs) should be the solution to California's water problems rather than further control of the reservoirs (flow), and that less water should be allowed to flow down the tributary rivers and through the Delta. The State Water Board does not undertake or mandate the construction of reservoir projects. Furthermore, increasing storage does not meet the objectives of amending the Bay-Delta Plan to reasonably protect the beneficial use of fish and wildlife as identified in Chapter 3, *Alternatives Description*, or Master Response 2.4, *Alternatives to the Water Quality Control Plan* through the establishment of flow objectives for February – June. . For clarifying information regarding water management in the state, including storage, see *Relationship with Other Plans, Programs, and Agencies* in this master response and Chapter 2, *Water Resources*. In addition, see Chapter 16, *Evaluation of Other Indirect and Additional Actions*, for a discussion of alternative storage options that could be implemented by those entities affected by the plan amendments.

Some commenters also emphasized the importance of voluntary agreements in terms of building more storage. The State Water Board supports voluntary agreements and recognizes that these agreements can provide durable solutions in the LSJR Watershed. See *Voluntary Agreements* in this master response, the *Executive Summary*, and Appendix K, *Revised Water Quality Control Plan*, for further discussion.

Improved Infrastructure

Some commenters expressed concern that instead of flow measures, the State Water Board's focus should be on fixing infrastructure to avoid losing water through system distribution seepage and evaporation. As stated previously in this master response, the role of the State Water Board is not to control all of the state's water management needs or infrastructure needs; the State Water Board does not have the authority to prioritize the state's budget for water infrastructure projects. It is generally the responsibility of water purveyors, distributors, wholesalers, and retailers to maintain their water distribution systems and account for system loss. As discussed in the *Relationship with Other Plans, Programs, and Agencies* section of this master response, there are a number of 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 those solutions within its regulatory and statutory framework.

Improved Water Management

Some commenters made general comments that suggested the state invest in alternative water management methods in order to protect surface water supplies. Suggested options included desalination, water conservation, more efficient agricultural irrigation systems, water reuse/recycling, and commercial water use restrictions. Some said that such water efficiency and management efforts could create additional agricultural jobs. The State Water Board appropriately identified irrigation efficiency and demand management measures in the SED as potential mitigation measures in Chapter 9, *Groundwater Resources*, and Chapter 11, *Agricultural Resources*, recognizing that these measures do conserve water and could reduce significant impacts on groundwater resources and agricultural resources. For a discussion of economic impacts, see *Economics* in this master response and Master Response 8.1, *Local Agricultural Economic Effects and the SWAP Model*. In addition, see Chapter 16, *Evaluation of Other Indirect and Additional Actions*, for a discussion of various water supply options (e.g., desalination, water recycling, and new surface water supplies [i.e., reservoirs]).

SDWQ Alternatives Development

The State Water Board received some general comments both in support of and in opposition to amending the 2006 Bay-Delta Plan salinity objectives. The southern Sacramento–San Joaquin Delta is recognized for its thousands of acres of fertile farmland, a diverse ecosystem, and a system of channels and waterways that are vital to California water management (see *Executive Summary* Section ES.1, *Introduction*). Because the southern Delta represents many things to many people, commenters expressed, without providing supporting information for their opinions, that the SDWQ objective should be higher, lower, or the same as proposed in the plan amendments or as evaluated in the SED as SDWQ Alternatives 2 or 3, depending on the focus of their interests in the southern Delta. While the salinity objectives of the plan amendments is one part of the State Water Board's proposed update to the 2006 Bay Delta Plan, they are complementary to the LSJR flow objectives. Increased flows under the LSJR flow alternatives would have the incidental benefit of providing a low salinity irrigation water supply to flush salts early in the irrigation season, and thus provide better salinity conditions during spring germination of crops, which is generally the most salt sensitive time (*Executive Summary*, Section ES6.1, *Southern Delta Water Quality Alternatives*, and Chapter 18, *Summary of Impacts and Comparison of Alternatives*, Table 18-4). The complementary nature of both objectives (i.e., salinity and flow) allows the plan amendments to provide a comprehensive solution for the maximization of the beneficial uses of water (for both fish and wildlife and agriculture) (*Executive Summary*, Section ES4, *Purpose, Need, and Goals*). For more information on the reasoning and justification for updating the southern Delta salinity objective and related discussion, see Master Response 3.3, *Southern Delta Water Quality*.

Some commenters made general statements, without providing specific reasoning or supporting evidence, that the plan amendments would not do enough to protect water quality in the southern Delta for salinity or other water quality constituents, such as methylmercury or algae. Some commenters also were concerned that the current water quality standards need to be improved and enforced throughout the entire irrigation season (i.e., April–September) to protect the water quality, crops, and soil in the southern Delta and that the plan amendments would not provide water benefits downstream of the three tributaries.

Commenters also misinterpreted that the plan amendments would "relax" the salinity standard such that a degradation of water quality would occur. Commenters incorrectly characterized the plan amendments as causing reduced flows into the Delta, thereby incorrectly assuming that the plan amendments would consequently degrade water quality and increase salinity. Similarly, some commenters expressed the misunderstanding that the plan amendments represent a permanent relaxation of the flow standards employed during the recent drought and that this would result in lower water quality. Some commenters suggested permanently reducing exports in lieu of modifying the salinity standard, and others suggested the existing salinity requirement identified in Table 2 of the Bay-Delta Plan remain unchanged. It is unclear why commenters believe that there would be less flow in the Delta as commenters provided no evidence for the claim. Also, Chapter 5, *Hydrology and Water Quality*, describes the impacts of the plan amendments and shows there would be no impact or less than significant impacts on water quality. For further discussion, see Master Response 3.3.

As described in the *LSJR Alternatives Development* section of this master response, CEQA requires that the lead agency consider a reasonable range of alternatives that would feasibly attain all or most of the project objectives. Chapter 3, *Alternatives Description,* describes how the alternatives were selected based on very specific goals and that the alternatives are supported by Appendix C, *Technical Report on the Scientific Basis for Alternative San Joaquin River Flow and Southern Delta Salinity Objectives*. In addition, Appendix E, *Salt Tolerance of Crops in the Sacramento–San Joaquin Delta*, details how salinity affects agricultural soils and crops in the plan area. The report in this appendix provides conclusions and recommendations to the State Water Board based upon peer-reviewed literature, modeling, and data evaluation and concluded that the water quality standard could be increased to as high as 0.9 to 1.1 decisiemens per meter (dS/m) and, therefore, all of the crops normally grown in the southern Delta would be protected. For further information on how the plan amendments would affect water quality for crops and soil, please refer to Appendix E; Master Response 3.3, *Southern Delta Water Quality*; and Chapter 11*, Agricultural Resources*.

As explained throughout the SED and in Master Response 2.1, *Amendments to the Water Quality Control Plan,* and Master Response 2.4, *Alternatives of the Water Quality Control Plan,* the plan amendments and their goals are to reasonably protect fish and wildlife beneficial uses, not to lower flows in rivers and/or reduce water quality standards. Master Response 2.4 includes additional discussion regarding the alternatives reviewed and considered during the development of the plan amendments and the refinements made based on comments on the 2012 Draft SED, which resulted in the Recirculated Draft SED. Information on the recent drought and its relationship to the plan amendments is presented in Chapter 21, *Drought Evaluation*.

As described in Chapter 5 and Master Response 3.3, *Southern Delta Water Quality*, the water quality in the southern Delta under the plan amendments would not change relative to the general range of historical salinity. Appendix C, *Technical Report on the Scientific Basis for Alternative San Joaquin River Flow and Southern Delta Salinity Objectives*, and Appendix E, *Salt Tolerance of Crops in the Southern Sacramento–San Joaquin Delta*, provided the basis for modifying the salinity standard. The current salinity objective is lower than is needed to reasonably protect the agricultural beneficial uses, and the plan amendment would better reflect conditions needed to reasonably protect agricultural use.

As explained under *Unimpaired Flow Requirements* in this master response, the February–June timeframe was chosen for the plan amendments because this period is most critical to support ecosystem functions for native fishes and several critical life stages of salmon, including spawning,

rearing, and outmigration. Also explained under *Surface Water/Hydrology and Water Quality* in this master response, changes in flow at Vernalis that would result from the plan amendments would improve water quality in the southern Delta by diluting pollutant concentrations with the addition of relatively clean water from the three eastside tributaries. The Chapter 11, *Agricultural Resources*, impact analysis discusses how the plan amendments would affect water quality as it relates to farming in the southern Delta (Impact AG-1, AG-2, AG-3 and AG-4). The Chapter 11 analysis concludes that no reduction or conversion of agricultural acreage is likely because water quality within the southern Delta is expected to remain unchanged due to the U.S. Bureau of Reclamation being responsible for complying with the same salinity requirements that currently exist at Vernalis. In addition, as described in Chapter 5, *Surface Hydrology and Water Quality*, Impact WQ-3, changing the baseline monthly flows could change the dilution of any pollutants (e.g., 303[d] pollutants listed in Table 5-4 and DO) that enter the LSJR or its tributaries or the southern Delta as a point source or non-point source. Please see *Surface Water/Hydrology and Water Quality* in this master response for more information on water quality it relates to the salinity objective.

In future updates to the Bay-Delta Plan, the State Water Board will review the export restrictions included in the 2006 Bay-Delta Plan. Through that process, the State Water Board will determine what changes, if any, should be made to the export restrictions. The State Water Board will then determine what actions are needed to implement changes to the flow and export objectives.

Approach to Analyses

This section describes key topics related to the approach to the analyses, including the programmatic level of analysis in the SED, general methods and modeling approach, general baseline discussion, and the use of a Substitute Environmental Document to meet the requirements of CEQA. The State Water Board prepared the SED with a sufficient degree of analysis to inform the decision-makers about the environmental consequences of their decision and in light of what is reasonably feasible considering the magnitude of the plan amendments and their geographic scope. The State Water Board is not required to and did not conduct a site-specific, project-level analysis (Cal. Code Regs., tit. 23, § 3777), but made reasonable assumptions to disclose a full range of potential environmental impacts or economic considerations. For analyses or modeling approaches and assumptions related to specific topics please see the following Master Responses: 2.3, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 6.1, 7.1, 8.0, 8.1, 8.2, 8.4, and 8.5.

Use of an SED to Meet CEQA Requirements

As described in the Executive Summary, CEQA authorizes the Secretary of the Resources Agency to certify a regulatory program of a state agency as exempt from the requirements for preparing environmental impact reports (EIRs), negative declarations, and initial studies if certain conditions are met. The State Water Board's water quality control planning program is a certified regulatory program and, thus, a SED may be prepared in lieu of an EIR. Specifically, under defined circumstances, and to avoid redundancy, CEQA authorizes the Secretary of the Natural Resources Agency to certify that an agency's regulatory program under separate legislation is the equivalent of CEQA review when the program meets certain criteria, such as when the enabling legislation of the regulatory program includes protection of the environment among its principal purposes and contains authority for the agency to adopt rules for the protection of the environment. (Pub. Resources Code, § 21080.5) The Secretary of the Natural Resources Agency has certified the State

Water Board and regional water boards' basin planning process as a "certified regulatory program" under CEQA. (Cal. Code Regs., tit. 14, § 15251, subd. (g).) The State Water Board is thus allowed to use a written report in lieu of an EIR or a negative declaration, here the SED. (Cal. Code Regs., tit. 23, §§ 3775 et seq.) The SED fulfills the requirements of CEQA and the State Water Board's CEQA regulations to analyze the environmental effects of the plan amendments, as well as requirements of the Porter-Cologne Water Quality Control Act and other applicable requirements. Please refer to the *Executive Summary* and Chapter 1, *Introduction*, Section 1.4, *State Water Board Authorities*, for additional information.

Program-Level Document and Program-Level Analysis

This section addresses common general comments raised regarding the whether the SED process is authorized and applicable and whether use of a program-level environmental review was appropriate. Some commenters asserted that a project-level review was appropriate and requested the State Water Board conduct a project-level review and recirculate the SED once more. Commenters also asserted that the level of analysis was too broad and programmatic such that they could not effectively comment on the document and that decision-makers would be unable to make an educated and informed decision about the plan amendments. Some identified the level of analysis for some chapters, Chapter 19 specifically, was more detailed than analyses contained in other parts of the SED. Finally, commenters questioned what the triggers and timelines were for the project-level analysis to be prepared.

CEQA identifies various types of EIRs and provides the lead agency with discretion to craft the appropriate type of EIR for the project under review (Cal. Code Regs., tit. 14, §15160 et seq.). The types of EIRs listed in the State CEQA Guidelines are intended only as examples of the types of documents that can be used to satisfy the requirements of CEQA. The State CEQA Guidelines state that the variations included in the guidelines are not meant to be exclusive, and note that documents can be tailored for different situations and uses depending on circumstances (Cal. Code Regs., tit. 14, §15160).

CEQA specifically contemplates that programmatic planning decisions, like amending the Bay-Delta Plan, may be evaluated by master, program, or tiered EIRs, deferring review of more specific, related projects. (See, e.g., *Rio Vista Farm Bureau Center v. County of Solano* (1988) 5 Cal.App.4th 351, 371–372.) A *program* EIR is an EIR that may be prepared on a series of actions that can be characterized as one large project and are related either geographically or in connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, among other criteria. (Cal. Code Regs., tit. 14, § 15168). The purpose of such programmatic EIRs is to "allow a lead agency to focus on decisions ripe for review." (Pub. Resources Code, § 21093, subd. (a); Cal. Code Regs., tit. 14, § 15385, subd. (b).) An agency that chooses to tier may provide analysis of general matters in a broader EIR, then focus on narrower project-specific issues in later EIRs. (Cal. Code Regs., tit. 14, § 15152, subd. (a); *In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceeding* (2008) 43 Cal.4th 1143, 1173.) And,

> Where a lead agency is using the tiering process in connection with an EIR for a large-scale planning approval, such as a general plan or component thereof . . . , the development of detailed, site-specific information may not be feasible but can be deferred, in many instances, until such time as the lead agency prepares a future environmental document in connection with a project of a more limited geographic scale, as long as deferral does not prevent adequate identification of significant effects of the planning approval at hand. (Cal. Code Regs., tit. 14, § 15152, subd. (c).)

As explained by the California Supreme Court, "[t]iering is properly used to defer analysis of environmental impacts and mitigation measures to later phases when the impacts or mitigation measures are not determined by the first-tier approval decision but are specific to the later phases." (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 431.)

Programmatic analyses are, by their very nature, broader and less detailed than project-level analyses because the details that are needed to conduct a project-level analysis are not yet known. The degree of specificity in an environmental document corresponds to the degree of specificity involved in the underlying activity that is described in the environmental document (Cal. Code Regs., tit. 14, § 15146). As acknowledged by the State CEQA Guidelines, an environmental document disclosing the impacts of a construction project will necessarily be more detailed than those evaluating a plan because the effects of the construction can be predicted with much greater accuracy. (Id. at subd. (a).). An environmental document analyzing a plan need not be as detailed as an environmental document on a specific construction project. (Id. at subd. (b).).

The SED, specifically the Executive Summary through Chapter 18, has been prepared pursuant to the State Water Board's certified regulatory program and is a program-level, not project-level, first-tier evaluation, consistent with the State CEQA Guidelines, section 15168. Chapters 19 and 20 were prepared to assist the State Water Board in its water quality planning process and its decision making as part of that process. The plan amendments meet the criteria of section 15168 of the guidelines because it is a rule, regulation, and plan to govern the conduct of a continuing program to achieve compliance with water quality objectives to reasonably protect beneficial uses. Furthermore when adopting "a rule or regulation requiring the installation of pollution control equipment, or a performance standard or treatment requirement," the Board must comply with Section 21159 of CEQA, which requires the analysis of the reasonably foreseeable methods of compliance. (Pub. Resources Code, § 21159.) That section states that it "does not require the agency to conduct a project-level analysis" and that the "the agency may utilize numerical ranges or averages where specific data is not available; however, the agency shall not be required to engage in speculation or conjecture." (*Id*. at subd. (a) and (d).) (Pub. Resources Code, § 21159- Cal. Code Regs., tit. 23, § 3777, subd. (c).)

The plan amendments establish the broad policy and the water quality objectives that will apply to future water right and water quality proceedings for implementing the water quality objectives consistent with the program of implementation. The Bay-Delta Plan does not in itself approve any water right or, for that matter, any particular project-specific construction activity. It provides a framework for the next steps in the regulatory process. Subsequent State Water Board activities in the program, such as discretionary actions to implement the plan amendments, will be examined in light of the SED to determine whether an additional environmental document must be prepared, as further explained in the following paragraphs. Other actions taken in response to the plan amendments may also be subject to future project-specific CEQA review by those entities with authority over those projects once they are developed and proposed.

The SED adequately identifies the significant effects of the planning approval at hand, while deferring the development of detailed site-specific information to future project-specific review. The SED has been prepared with a sufficient degree of analysis 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, § 15151). Exact project-specific impacts cannot yet be identified as exact impacts depend in part on how the regulated community responds

to the plan amendments in terms of reservoir operation decisions and actions in response to reduced surface water supplies. Accordingly, the State Water Board made reasonable assumptions regarding the implementation of the plan amendments and evaluated environmental impacts in a broad, programmatic way. The fact that the analyses are programmatic in the SED does not negate the ability of commenters to provide comments on the analyses. In addition, as identified in the State CEQA Guidelines, persons and public agencies should focus on the sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated. The adequacy of an environmental document is determined in terms of what is reasonable and feasible, in light of factors such as the magnitude of the project at issue, the severity of its likely environmental impacts, and the geographic scope of the project (Section 15024(a)).

As identified in Appendix K, *Revised Water Quality Control Plan*, the *Executive Summary*, and Chapter 3, *Alternatives Descriptio*n, the State Water Board intends to implement the plan amendments through water right actions or water quality actions, such as a FERC hydropower licensing processes, by 2022. For example, the State Water Board could conduct a water right proceeding to allocate responsibility for implementing the Bay-Delta Plan's objectives, as it did in its Water Right Decision 1641 (D-1641) (revised March 15, 2000) to implement the water quality objectives in the 1995 Bay-Delta Plan (State Water Board 2000). In that proceeding, the State Water Board prepared an EIR that tiered off the programmatic environmental report prepared for the 1995 Bay-Delta Plan. The State Water Board noted that the Deputy Secretary and General Counsel of the California Resources Agency, which is responsible for adopting the State CEQA Guidelines, had advised the State Water Board that an environmental analysis prepared under its certified regulatory programs can be used as a programmatic document if it meets the criteria in State CEQA Guidelines, section 15168 (State Water Board 1999) Finding that the 1995 Bay-Delta Plan environmental report met the criteria, the EIR for D-1641 built upon and incorporated by reference the earlier programmatic environmental report.

Much like in D-1641, when the State Water Board conducts a water right proceeding to allocate responsibility for implementing the plan amendments, it would have to comply with CEQA because such a proceeding involves a discretionary approval of a project that may have a physical change in the environment. (Pub. Resources Code, § 21065; Cal. Code Regs., tit. 14, §§ 15060, subd. (c), 15352, 15378.) And as in D-1641, the State Water Board can tier off the programmatic analyses contained within the SED in its subsequent environmental document because the SED, too, meets the criteria in State CEQA Guidelines, Section 15168. This would allow the State Water Board to avoid redundancy and focus on project-specific impacts. The analysis of general matters in the SED can help inform the project-level (second-tier) initial study for determining whether the second-tier action may have any significant effects on the environment. (Cal. Code Regs., tit. 14, § 15168, subd. (d).) The State Water Board can also focus the second-tier environmental document on effects that were not examined as significant effects in the SED or that can be mitigated. (Cal. Code Regs., tit. 14, § 15152, subd. (d).) During this second-tier review, the project-specific details that were speculative and unknown at the time of the SED analysis and that have potentially significant environmental effects would have to be evaluated. The State Water Board can also incorporate feasible mitigation measures identified in the SED and adopt them as requirements as part of its project-specific approval. Finally, the SED can be incorporated by reference in the subsequent environmental document to deal with regional influences, secondary effects, and cumulative impacts, among other matters. (*Id.* at 15168, subd. (d).)

With respect to some comments that said the Chapter 19 contains more detailed analysis than other chapter, the level of analysis in Chapter 19 is capable of being more detailed regarding benefits to fish because the amount/volume of water and habitat conditions, such as temperature, in the tributaries can be reasonably estimated and evaluated using the modeling tools available because there are a limited number of variable inputs. It is unreasonable and inappropriate to evaluate impacts to other resources at a similar level of detail because there are too many unknown variable inputs, such as the myriad of options that regulated entities could take in response to the plan amendments, that any attempt at such an analysis beyond what is contained in the SED would be speculative.

Watersheds Considered

This section addresses common general comments that raised concerns regarding the inclusion of the Merced, Tuolumne, and Stanislaus Rivers and no other tributaries in the LSJR system, including the SJR, in its analysis. As stated in Chapter 2, *Water Resources*, the SED discusses existing surface and groundwater resources and the management of those resources within the plan area and extended plan area (described in Chapter 1, *Introductio*n), as well as resources upstream that drain to the plan area and extended plan area. The plan area encompasses the areas where the plan amendments apply to protect beneficial uses of water. The SJR upstream of the Merced River confluence is not currently a salmon-bearing tributary of the LSJR and is, therefore, not included in the plan area. The plan amendments could directly affect portions of the SJR Basin and Delta that drain into, divert water from, or otherwise obtain beneficial use (e.g., surface water supplies) from the following: the Stanislaus River Watershed from New Melones Reservoir, the Tuolumne River Watershed from New Don Pedro Reservoir, the Merced River Watersheds from Lake McClure, the mainstem LSJR between the confluence of the Merced River to Vernalis, the areas that receive a portion of their water supply from and that are contiguous with these areas, and the southern Delta. These portions of the SJR Basin and Delta are referred to as the *plan area* in the SED.

The plan amendments also have the potential to affect the Stanislaus, Tuolumne, and Merced Watersheds above the rim dams. These areas are referred to as the *extended plan area* throughout the SED. The plan amendments also have the potential to affect areas outside of the plan area or extended plan area that obtain beneficial use of water from the three eastside tributaries and the LSJR downstream of the Merced River, but are not contiguous with the plan area or extended plan area.

As explained in Chapter 5, *Surface Hydrology and Water Quality*, given the small volume of water held in non-hydropower post-1914 rights for consumptive use in the extended plan area compared to the volume held in non-hydropower post-1914 water rights used below the rim dams, most of the effects of implementing the LSJR alternatives would occur at, or downstream of, the major rim dams in the three eastside tributaries. As such, the overall analysis of impacts in the SED focuses on the plan area, downstream of the rim dams, where the LSJR flow objectives would be implemented at the confluence of the Stanislaus, Tuolumne, and Merced Rivers. The primary means by which the extended plan area reservoirs and rivers might be affected is if water is bypassed by junior water right holders, in accordance with the rules of priority and applicable law, to achieve the required flows in the three eastside tributaries and the LSJR.

General Methods and Modeling

Some commenters asserted, without providing supporting evidence, that not all relevant environmental issues were evaluated or that there was no proof of what impacts the plan amendments would have on fish and other resources. Some commenters stated that other issues needed to be evaluated but were not specific about which issues were lacking proper analysis and did not provide rationale or support for their statements. The State Water Board has done its best to make the SED as fair, objective, and complete as possible. As described in the SED, scoping was conducted in 2009 to gather public, stakeholder, and agency input on the environmental issues that should be addressed in the SED. Based on the comments received during the scoping process, the State Water Board refined the list of resources to be analyzed. Information regarding scoping is provided in the SED Appendix A, *NOP Scoping and other Public Meetings*.

Other commenters expressed concern about the reliability of the modeling and other information provided but did not cite specific information that should be corrected or offer evidence supporting their preferred modeling approach. During the early stages of development, the State Water Board held workshops to provide technical information and an explanation of the analytical tools used in developing the plan amendments and the SED. The State Water Board acknowledges that there is more than one way to approach modeling and analysis and that there are many data sources available. The State Water Board is not obligated to conduct an exhaustive analysis using every approach, modeling tool, and data set available. The State Water Board recognizes that there may be differing opinions as to how to approach an analysis for a given resource or which data sets should be used, but these differing opinions do not equate to inadequacy. A disagreement among experts does not make an EIR inadequate. (*Town of Atherton v. California High-Speed Rail Authority* (2014) 228 Cal.App.4th 314). The "relevant issue is only whether the studies are sufficiently credible to be considered as part of the total evidence that supports the agency's decision," not whether the studies "are irrefutable or whether they could have been better." (*State Water Resources Control Board Cases* (2006) 136 Cal.App.4th 674, 795.)

The State Water Board strived to use the best available science throughout the SED and the modeling is credible because it is based on reasonable assumptions and allows a comparative analyses between baseline and alternative conditions. The Water Supply Effects (WSE) model inputs and results were compared with other models to verify their accuracy (e.g., CalSim or the water balance models for individual tributaries). In addition, the various models used were vetted by calibration and validation with measured data, either during use for other projects or through peer review. Please see Master Response 3.2, *Surface Water Analyses and Modeling,* Master Response 8.1, *Local Agricultural Economic Effects and the SWAP Model,* Master Response 8.2, *Regional Agricultural Economic Effects,* and Master Response 8.5, *Assessment of Potential Effects on the San Francisco Bay Area Regional Water System,* for additional discussion on models used in the SED analyses. Please see Master Response 3.2 for a discussion of the modeling approach and the use of the WSE model to programmatically analyze effects.

For additional information regarding how data and results are presented in the SED, refer to Master Response 2.3, *Presentation of Data and Results in SED and Responses to Comments*. For information regarding the temperature and floodplain analyses used to evaluate benefits and impacts on fish, please see Master Response 3.1, *Fish Protection*. For information related to the SalSim model, also see Master Response 3.1. For information regarding the Statewide Agricultural Production Model (SWAP) and its use in the agricultural impact analysis and its use in the local agricultural effects

analysis please see Master Response 3.5, *Agricultural Resources*, and Master Response 8.1, *Local Agricultural Economic Effects and the SWAP Model*.

Substantial Evidence

This section addresses common general comments asserting that neither the plan amendments nor the SED is supported by substantial evidence, but did not elaborate further. The State Water Board's consideration and adoption of the proposed plan amendments is not governed by the substantial evidence standard. The State Water Board is acting in a quasi-legislative capacity when amending a water quality control plan to adopt water quality objectives and a program of implementation. Great deference must be given to the State Water Board's determination, and judicial review is narrowly limited. (*United States v. State Water Resources Control Board* (1986) 182 Cal.App.3d 82, 112 citing *California Hotel & Motel Assn. v. Industrial Welfare Com*. (1979) 25 Cal.3d 200, 212.)

> A reviewing court will ask three questions: first, did the agency act within the scope of its delegated authority; second, did the agency employ fair procedures; and third, was the agency action reasonable. Under the third inquiry, a reviewing court will not substitute its independent policy judgment for that of the agency on the basis of an independent trial de novo. A court will uphold the agency action unless the action is arbitrary, capricious, or lacking in evidentiary support. A court must ensure that an agency has adequately considered all relevant factors, and has demonstrated a rational connection between those factors, the choice made, and the purposes of the enabling statute.

The proposed plan amendments are neither arbitrary, capricious, nor lacking in evidentiary support. The proposed water quality objectives set forth in Appendix K seek to reasonably protect fish and wildlife and agricultural beneficial uses in the LSJR, its three eastside tributaries, and the southern Delta, respectively. The plan amendments are based on sound scientific rationale (see Appendix C, *Technical Report on the Scientific Basis for Alternative San Joaquin River Flow and Southern Delta Salinity Objectives*, and Appendix E, *Salt Tolerance of Crops in the Southern Sacramento–San Joaquin Delta*) and contain sufficient parameters to protect fish and wildlife and agricultural beneficial uses. Chapter 19, *Analysis of Benefits to Native Fish Populations from Increased Flow between February 1 and June 30* presents biologically important and measurable benefits of providing higher and more variable flows, further supporting the plan amendments. The program of implementation describes the nature of actions that are necessary to achieve the objectives, a time schedule for the actions to be taken, and the surveillance to be undertaken to determine compliance with the objectives, as required by Water Code section 13242.

In contrast, the adequacy of the SED's findings and conclusions is governed by the substantial evidence standard. "Substantial evidence" means "enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached." (Cal. Code Regs., tit. 14, § 15384, subd. (a).) Substantial evidence includes facts, reasonable assumptions based on facts, and expert opinion supported by facts. (Cal. Code Regs., tit. 14, § 15064, subd. (f)(5) (6).) It does not include argument, speculation, unsubstantiated opinion or narrative, evidence that is clearly inaccurate or erroneous, evidence that is not credible, or evidence of economic or social impacts that do not contribute to or are not caused by physical impacts. (*Ibid*.) Under the substantial evidence test, a reviewing court does not reweigh the evidence, but determines whether the record contains enough relevant information to support the conclusion reached. (*Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 393.) A court must resolve reasonable doubts in favor of the administrative finding, even though other conclusions might be reached from the same body of evidence. (*Ibid*.) The SED is supported by substantial evidence in the record, and specific and

supported comments alleging otherwise are addressed either individually or in other master responses.

Baseline

This section addresses common general comments regarding the baseline used in the SED's analysis. Some commenters did not approve that the surface water studies are not based on natural flow conditions or pre-SWP/CVP salinity-level conditions, with some suggesting that the State Water Board should not restrict or otherwise control flows.

The State Water Board's role is to work within California's highly engineered water system to reasonably protect fish and wildlife. The State Water Board is legally obligated under CEQA to analyze effects relative to an environmental baseline that represents the physical environmental conditions that existed at the time the CEQA process began. The environmental baseline for this SED is February 2009, the date that the NOP for the SED was issued. The baseline reflects the physical conditions in 2009 as they existed under the 2006 Bay-Delta Plan. Each resource chapter in the SED describes the existing environmental conditions relevant to a particular resource. See Master Response 2.5, *Baseline and No Project*, for a more detailed discussion of baseline conditions, as well as Chapter 2, *Water Resources*, for further explanation of baseline hydrology.

The flow requirements analyzed in the SED are expressed as a required range of unimpaired flows. Unimpaired flow represents the water production of a river basin, unaltered by upstream diversions, storage, or by export or import of water to or from other watersheds. Unimpaired flow, however, differs from natural flow because unimpaired flow is the flow that occurs at a specific location under the current configuration of channels, levees, floodplain, wetlands, deforestation, and urbanization. The State Water Board does not propose to revert to natural flows. Though unimpaired flow is not the same as natural flow, it is nevertheless reflective of the frequency, timing, magnitude, and duration of the natural flows to which fish and wildlife have adapted and have become dependent upon. A flow objective based on unimpaired flows is intended to restore a specific percent of these flows for the reasonable protection of fish and wildlife beneficial uses. Natural flow is not representative of existing conditions and is, therefore, not a proper baseline for CEQA analysis. (*Citizens for East Shore Parks v. California State Lands Commission* (2012) 202 Cal.App.4th 549).

The baseline salinity objective analyzed in the SED is the historic range of salinity concentration within the southern Delta. Periodic exceedances of the interior southern Delta salinity objectives occur in the historical record and, likewise, remain in the modeled baseline condition (see Chapter 4, *Introduction to the Analysis*, and Table 2 of the 2006 Bay-Delta Plan). For further salinity evaluation, see Appendix F.2, *Evaluation of Historical Flow and Salinity Measurements of the Lower San Joaquin River and Southern Delta*, and Appendix E, *Salt Tolerance of Crops in the Southern Sacramento–San Joaquin Delta.*

For more information on the role of the State Water Board in allocating water in California, see Volume 3, Chapter 1, *Introduction to and Approach to Responses to Comments*. For more information regarding the baseline used in the SED, see Master Response 2.5, *Baseline and No Project;* Master Response 3.2, *Surface Water Analyses and Modeling*; Chapter 4, *Introduction to the Analysis*; and Chapters 5–18.

Mitigation Measures

Multiple commenters asserted that the State Water Board must mitigate or compensate for an unspecified reduction in either surface or groundwater water supply or other unspecified impacts. The concept of mitigation as defined by CEQA does not equate to general compensation to make an agency, individual, or entity whole as a result of an approval of a plan or project. Mitigation under CEQA is focused on avoiding or mitigating significant effects on the environment, which means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by a project. (See Cal. Code Regs., tit. 14, §§ 15126.2, 15126.4, 15382.) Accordingly, the State CEQA Guidelines define mitigation as including the following. (Cal. Code Regs., tit. 14, § 15369.5.)

- Avoiding the impact altogether by not taking a certain action or parts of an action.
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- Compensating for the impact by providing substitute resources or environments.

Under CEQA, the need for mitigation measures arises out of the substantive policy of CEQA that public agencies should not approve proposed projects that would cause significant environmental impacts without first adopting any feasible mitigation measures and considering any feasible alternatives that would substantially lessen such significant effects. (Pub. Resources Code, §§ 21002, 21081; Cal. Code Regs., tit. 14, §§ 15002, subd. (a)(3), 15021, subd. (a)(2).) This can be met through the adoption of feasible mitigation measures, the approval of a feasible alternative other than the proposed project, or a combination. The key is the feasibility of both the mitigation measures and alternatives. As such, in formulating mitigation measures, the lead agency must be cognizant of any limitations on their own regulatory powers or those of other agencies with potential mitigation responsibilities.

The State Water Board acknowledges and discloses the potential reduction in surface water may result in different choices being made by affected stakeholders and as a result physical environmental impacts may occur. CEQA does not grant an agency new powers independent of the powers granted to the agency by other laws. (Cal. Code Regs., tit. 14, § 15040, subd. (b).) If the lead agency does not have the authority to mitigate the significant impact on the physical environment and it cannot compel others to do so, mitigation is determined to be infeasible, and significant impacts may be determined to be unavoidable. The State Water Board's obligations under CEQA are to identify the significant environmental effects of the plan amendments on the environment and to mitigate for those effects through feasible mitigation measures and alternatives. Its CEQA obligations are not to compensate and make whole those agencies, entities, and persons who might be affected by the plan amendments.

Because of the State Water Board's obligation under CEQA, the reduction of a surface water supply to an irrigation district or other entity, in and of itself, does not represent a significant effect on the physical environmental impact as defined by CEQA (Cal. Code Regs., tit. 14, Section 15382). As such, the fact that there may be a potential reduction in surface water supplies to an irrigation district under the plan amendments do not require mitigation. The State Water Board properly evaluates

the physical environmental impacts that may result from the plan amendments, such as from actions irrigation districts or others may take (e.g., municipalities) as a result of potential reductions in surface water supplies throughout the entire SED.

Multiple commenters asserted that the State Water Board needed to mitigate significant impacts, had the authority to mitigate significant impacts, was required to mitigate significant impacts, could not defer mitigation, or otherwise made comments regarding the mitigation of impacts. Some of these commenters specified the impacts in question (e.g., groundwater impacts) and some commenters did not specify the impact in question that needed mitigation. Some commenters expressed concern that the State Water Board is taking control over local service provider authorities (reservoir operations, irrigation districts). Others said that to meet the goal of improving water quality, the State Water Board's focus should be on improving wastewater treatment plants. Other commenters suggested that the State Water Board should have included mitigation for economic impacts. For specific information regarding the mitigation of resource-specific impacts, please see Master Responses 3.4, *Groundwater Resources and the Sustainable Groundwater Management Act*; 3.5, *Agricultural Resources*, 3.6, *Service Providers*; 3.7, Greenhouse Gas Emissions and Analysis, and 8.0; *Economic Analyses Framework and Assessment Tools*.

The SED provides several summaries regarding significant and unavoidable impact determinations after incorporation of mitigation measures. These summary locations are listed below.

- Table ES-20, *Summary of CEQA Significance Determinations in Chapters 5–15, Plan Area,* summarizes those impacts under each alternative evaluated in the SED determined to be significant and unavoidable after the evaluation of potential mitigation measures in the plan area.
- Table ES-21, *Summary of CEQA Significance Determinations in Chapters 5–14, Extended Plan Area,* summarizes those impacts under each alternative evaluated in the SED determined to be significant and unavoidable after the evaluation of potential mitigation measures in the extended plan area.
- Table ES-22 and Table 18-6, *CEQA Significance Summary of LSJR Alternatives—Other Indirect Actions,* summarizes those impacts under different indirect actions (e.g., construction or operation of new surface water reservoirs) evaluated in the SED determined to be significant and unavoidable after the evaluation of potential mitigation measures.
- Table ES-23 and Table 18-7, *CEQA Significance Summary of LSJR Alternatives Non-Flow Measures,* summarizes those impacts under different non-flow measures (e.g., construction or operation of gravel augmentation) evaluated in the SED determined to be significant and unavoidable after the evaluation of potential mitigation measures.
- Table ES-24 and Table 18-8, *CEQA Significance Summary SDWQ Alternatives-Methods of Compliance,* summarizes those impacts under different methods of compliance (e.g., construction or operation desalination at wastewater treatment plants) evaluated in the SED determined to be significant and unavoidable after the evaluation of potential mitigation measures.
- Table ES-29 and Table 18-4, *Impact Determinations Identified in Chapters 5–15*, summarizes impact determinations and mitigation measures under different alternatives evaluated in the SED.

- All summary tables at the beginning of Chapters 5–15 (e.g., Table 5-1, *Summary of Impact Determinations*) identify the impact determinations for a particular resource before and after potential mitigation.
- Table 18-1, *Summary of CEQA Significance Determinations in Chapters 5–15*, summarizes those impacts under each alternative with adaptive implementation evaluated in the SED determined to be significant and unavoidable after the evaluation of potential mitigation measures in the plan area.
- Table 18-2, *Summary of CEQA Significance Determinations in Chapters 5–14, Extended Plan Area*, summarizes those impacts under each alternative with adaptive implementation evaluated in the SED determined to be significant and unavoidable after the evaluation of potential mitigation measures in the extended plan area.
- Table 16-38, *Potential Mitigation for Construction and Operation Activities Related to Other Indirect and Additional Actions,* identifies possible mitigation for all potentially significant impacts identified related to the construction and operation of activities related to other indirect and additional actions (e.g., desalination for water supply or for waste water treatment) discussed in Chapter 16.
- Table 16-39, *Potential Mitigation for Construction and Operation Activities Related to Non-Flow Measures*, identifies possible mitigation measures for all potentially significant impacts identified related to the construction and operation of non-flow measures (e.g., gravel augmentation) discussed in Chapter 16.

To meet its obligations under CEQA and its certified regulatory program to reduce significant impacts to a less-than-significant level, the State Water Board incorporated and evaluated potential mitigation measures throughout the SED (as evidenced by the list above). Section 15126.4 of the State CEQA Guidelines describes the considerations and discussion of mitigation measures that should be included in environmental documents to minimize significant environmental effects. The State Water Board's certified regulatory program regulation identifies that SEDs should include, at a minimum, mitigation measures to avoid or reduce any significant or potentially significant adverse environmental impacts and an analysis of reasonably foreseeable mitigation measures that would minimize any unavoidable significant adverse environmental impacts of the reasonably foreseeable methods of compliance. (Cal. Code Regs., tit. 23, § 3777, subds. (b)(3),(b)(4)(D).)

The SED includes mitigation according to these regulations; however, in many cases, the identified mitigation measures are within the responsibility and jurisdiction of public agencies other than the State Water Board. In these cases, the impact determination in the SED is conservatively characterized as significant and unavoidable because the State Water Board, as the CEQA lead agency, cannot be certain that the other parties will (1) undertake the exact action that the State Water Board is describing, and (2) implement the proposed mitigation to reduce potentially significant environmental effects. In other words, "significant and unavoidable" means that the State Water Board could not be certain that the proposed mitigation will be implemented and ultimately succeed in mitigating an impact to a less-than-significant level because the mitigation is reliant on the action of third party. For example, because the State Water Board would not be responsible for or have discretionary authority to approve the construction of any new or modified facilities or infrastructure identified in Chapter 13, *Service Providers* (also evaluated in Chapter 16), it is not feasible for the State Water Board to impose the possible mitigation measures discussed in Chapter

13 (fully listed in Table 16-38) onto local agencies (or domestic well users, which are largely unregulated and under no state requirements to monitor, test, or treat their water).

The State Water Board also does not have the authority to impose certain mitigation measures because some are beyond its regulatory authority (e.g., mitigation measures for noise impacts). Public agencies responsible for approving the project-specific new or modified facilities can and should impose the applicable mitigation measures identified in Table 16-38. Similarly, in Chapter 11, *Agricultural Resources*, the State Water Board identifies certain types of irrigation efficiency measures or other practices (e.g., conservation easements) that local irrigation districts and landowners could implement to reduce significant impacts on Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. However, given the uncertainty of the extent to which these mitigation measures would be implemented, and because they may not fully mitigate impacts, it is determined impacts would be significant and unavoidable.

Another example discussed in the SED of a situation in which it is currently infeasible for the State Water Board to mitigate is in its ability to use its SGMA authority to reduce groundwater impacts. As explained in the SED, Chapter 9, *Groundwater Resources*, local agencies are vested with the mandatory duty to achieve sustainable groundwater management and can and should exercise their full authority, both under SGMA and their police powers, to address groundwater depletion and undertake the mitigation measures identified in Chapter 9. The SGMA deadlines for state intervention by the State Water Board are still prospective; therefore, State Water Board mitigation under SGMA is infeasible at this time. As such, the State Water Board conservatively determined that impacts would be significant and unavoidable in Chapter 9 with respect to groundwater resources.

Some commenters asserted impacts need to be mitigated rather than be reduced through adaptive implementation methods. The State Water Board did not incorporate adaptive implementation as mitigation measures in the SED. Adaptive implementation is a part of the program of implementation and is part of the plan amendments. The State Water Board evaluated each LSJR alternative in the SED with and without adaptive implementation so that the public and decision-makers could be informed of the impacts associated with the different methods of adaptive implementation described in Appendix K, *Revised Water Quality Control Plan*.

Multiple commenters asserted that modeling parameters used to represent reservoir operation in the WSE model is a mitigation that should not be included in the modeling analysis. The numeric constraints used for minimum reservoir carryover storage in the WSE model are reasonable because there is a requirement in the program of implementation, Appendix K, Revised Water Quality Control Plan, for "minimum reservoir carryover storage targets or other requirements to help ensure that implementation of the flow objectives will not have significant adverse temperature or other impacts on fish and wildlife." It is necessary to include numeric constraints, such as minimum reservoir carryover storage targets, in water balance modeling to reasonably represent reservoir operations and water allocation to meet LSJR flow objectives and water supply demand. Reasonable assumptions were made for the minimum carryover storage guidelines used in the WSE model because carryover storage requirements are not yet established. Please see Master Response 3.2 for more information regarding the hydrologic modeling analysis, process to determine operational parameters in the WSE model, characterization of LSJR alternatives in the WSE model, and hydrologic modeling analyses presented by commenters.

Some commenters asserted that the State Water Board did not appropriately consider, incorporate, or implement non-flow measures as mitigation measures. Commenters asserted that implementing

non-flow measures would "mitigate impacts" related to the "flow requirement". As described in Master Response 2.1, Amendments to the Water Quality Control Plan, and Master Response 5.2, Incorporation of Non-Flow Measures, non-flow measures are included in the plan amendments as recommendations. The State Water Board recognizes non-flow measures have an important complementary role to play along with flow to protect fish and wildlife beneficial uses and should be part of the overall effort to comprehensively address Delta and tributary aquatic ecosystem needs as a whole. Commenters are raising non-flow measures as a means to minimize surface water supply reductions and their secondary effects on the environment. Reduced surface water supplies to a party is not, in and of itself, a physical environmental impact requiring mitigation, as described above. Even if it were, the effectiveness of non-flow measures, including predator suppression and habitat restoration, in reducing the need for flows and by how much has not been scientifically established. Also, as discussed in Master Response 5.2, there are legal limitations for the State Water Board to impose non-flow measures now. Non-flow actions also take time to develop, receive necessary approvals and funding, and implement. As set forth in the *Executive Summary*, the Bay-Delta is in ecological crisis. Timely action is needed. Given all the foregoing, non-flow measures as a mitigation measure to minimize surface water supply reductions and their effects is not feasible. The State Water Board satisfied its duties under CEQA by describing feasible mitigation measures—not infeasible ones—that could minimize significant environmental impacts. (Cal. Code Regs., tit. 14, § 15126.4, subd. (a)(1).)

Environmental Resources

As described in the overview of this master response, multiple commenters raised general comments or concerns regarding environmental resources but did not do the following.

- Cite a specific section in the document on which they were commenting.
- Provide specific criticism of the environmental analysis or methodologies used.
- Cite specific evidence for their comment.

General responses to the general comments received regarding environmental resources are provided in the following sections. Multiple comments received on these various topics did not specify or elaborate why the plan amendments would have certain negative or significant and unavoidable impacts or provide evidence regarding those impacts or potential mitigation measures to reduce impacts. The following subheadings are intended to provide a roadmap to commenters interested in these various resource topics.

Summary of Resource Impacts

The SED evaluated impacts on resources in the plan area (i.e., downstream of the rim dams on the three eastside tributaries and the southern Delta) and in the extended plan area (i.e., upstream of the rim dams to the end of the watersheds). In some instances, impacts in the plan area were different from those in the extended plan area. The *Executive Summary* and Chapter 18, *Summary of Impacts and Comparison of Alternatives*, present information showing differences between the plan area and extended plan area for each of the LSJR alternatives evaluated and between different watersheds within the plan area (Tables 18-1, 18-2, 18-3). There are differences between the significance determinations in the plan area and extended plan area. For example, LSJR Alternative 3 would result in significant and unavoidable impacts on groundwater resources, agricultural

resources, service providers, and energy and greenhouse gases. LSJR Alternative 3, with adaptive implementation, would also result in significant and unavoidable impacts on recreational resources. In the extended plan area, LSJR Alternative 3, with or without adaptive implementation, could also result in significant and unavoidable impacts on aquatic biological resources, terrestrial biological resources, recreational resources and aesthetics, and energy and greenhouse gases. Unless otherwise noted, the discussions of resources below are for the plan area.

Aquatic Biological Resources

This section addresses common general comments that raised concerns, without providing support, regarding impacts on aquatic species. Multiple commenters stated that the plan amendments would not result in benefits, or offer substantial enough benefits, to salmon, which multiple commenters said are considered a keystone species in the Bay-Delta ecosystem and an indicator species of the health of the local environment. Chapter 7, *Aquatic Biological Resources*, provides a detailed analysis of the potential impacts on aquatic resources. Chapter 19, *Analyses of Benefits to Native Fish Populations from Increased Flow between February 1 and June 30*, provides an analysis of the benefits to native fish populations from increased flows from February 1 through June 30. Additional clarifying discussion regarding SalSim, unimpaired flow versus functional flows, the February–June time period, temperature, predation, and flow needs related to salmonids is provided in Master Response 3.1, *Fish Protection*.

Multiple commenters raised concerns, without providing support, associated with predatory fish on the LSJR and the three eastside tributaries and asserted that predatory fishes are the primary cause of declining anadromous fish populations in this area. Some commenters asserted that the updates to Bay-Delta Plan to improve flow conditions in the February–June time period will not help to address the declining fish populations and that more needs to be done to eliminate nonnative predatory fish in the river system. Information about the extent to which predatory fish pose a threat to anadromous fish in the SJR system is discussed in Chapter 7 and Appendix C, *Technical Report on the Scientific Basis for Alternative San Joaquin River Flow and Southern Delta Salinity Objectives*. However, the body of evidence shown in Chapter 7, Chapter 19, and Appendix C provides sufficient reason to conclude that predatory fish are not the primary stressor affecting anadromous fish populations and that restoring more natural temperature and flow regimes will help to better support the various life history adaptations of native fish and other native aquatic organisms and may reduce predation from nonnatives. As stated in Chapter 7, a number of studies in Central Valley streams have shown that higher, more variable flows that mimic the natural flow regime to which native fish communities are adapted can effectively limit the success of nonnative fish species, including a number of warmwater species that are predators of juvenile salmonids. Chapter 16, *Evaluation of Other Indirect and Additional Actions*, also includes a list of non-flow measures, and potential impacts of those measures, that may help reduce the impacts of predatory fish on native species. These non-flow measures are included in the SED because these are actions that entities could undertake to inform the body of scientific information potentially used to make adaptive implementation decisions under the plan amendments. Additional information regarding flow requirements for fish is provided in Master Response 3.1, *Fish Protection*.

Commenters varied in their assessment and opinion of the status of fish populations. Some suggested that existing dams are beneficial for salmon migrating upstream, while others asserted that the construction of the rim dams has a direct relationship to the decline in salmon numbers. Chapter 5, *Surface Water and Hydrology*, discusses rim dam operations, and Chapter 7, *Aquatic*

Biological Resources, discusses how dams affect fish migration. Some commenters said that more salmon spawned this year than there was spawning habitat to support them, while multiple commenters, some of whom are sports fisherman, expressed their concern about the decline in the number of spawning Chinook salmon and steelhead. Some of these commenters suggested that what they see as unsustainable Central Valley farming has expanded in recent years, especially the planting of permanent crops (e.g., tree nuts). Commenters said that this big agriculture made record profits while fish, urban users, and smaller agricultural users had suffered the effects of drastically reduced water availability. Chapter 7 and Master Response 3.1, *Fish Protection*, presents historical information about fish populations and address how flows affect fish. Chapter 9, *Groundwater Resources*; Master Response 3.5, *Agricultural Resources* and Master Response 8.1, *Local Agricultural Economic Effects and the SWAP Model*; and the *Agricultural Resources* section in this master response addresses the relationship between water supply and agriculture. See Chapter 13, *Service Providers*, and Master Response 3.6, *Service Providers*, for discussion of effects on urban water users. Baseline includes previously permitted water diversions and the operation of reservoirs. See Master Response 2.5, *Baseline and No Project*, which discusses how baseline conditions, to which the effects of the plan amendments are being compared, were established.

Some people commented that increased flows in the past have caused drawdown in the major reservoirs such that water was too warm for reservoir fish to survive. Impacts AQUA-4, AQUA-10, and AQUA-11 in Chapter 7 address how water temperature affects fish. The less-than-significant impacts of changes in water temperatures on fish in the three eastside tributaries and major reservoirs were evaluated in the SED using the San Joaquin River Basin-Wide Water Temperature Model developed by Resource Management Associates for CALFED using the U.S. Army Corps of Engineers (USACE) HEC-5Q simulation model. See Appendix F.1, *Hydrologic and Water Quality Modeling*, for a full discussion of this model and its application. Also, see Appendix K, *Revised Water Quality Control Plan*, for information on what requirements would be employed during implementation of the plan amendments to avoid significant adverse temperature impacts on fish and wildlife.

Some commenters expressed concern that fish downstream of dams have not been adequately protected pursuant to Fish and Game Code 5937. Section 5937 provides in pertinent part: "The owner of any dam shall allow sufficient water at all times to pass through a fishway, or in the absence of a fishway, allow sufficient water to pass over, around or through the dam, to keep in good condition any fish that may be planted or exist below the dam." (Fish and G. Code, § 5937.) As discussed above, the plan amendments to reasonably protect fish and wildlife beneficial uses are consistent with the State Water Board's public trust obligations to protect public trust resources such as fisheries. As explained in Master Response 3.1, *Fish Protection*, while dams and diversions in the SJR Basin have caused a substantial overall reduction of flow, the higher and more variable flows under the LSJR alternatives are anticipated to improve conditions for fish and other ecosystem attributes.

Some commenters also suggested that hatcheries be used instead of increased flows to protect salmon populations. Hatchery fish would not meet the goals of the plan amendments (see *Description and Objectives of the Plan Amendments* in this master response). In addition, Chapter 7, *Aquatic Biological Resources*, addresses how hatchery fish can negatively affect wild salmon populations. For a discussion of non-flow actions, see *Commenter Suggested Plans and Proposals* in this master response.

Terrestrial Biological Resources

Some commenters, without providing support, were concerned there would not be sufficient flows to keep the Delta estuary healthy for migratory birds that travel along the Pacific Flyway. Some, however, said that more water storage (versus more flow) is important for migratory birds because the birds need flooded farmlands for adequate food and space to forage. Others favored more water storage to keep the terrestrial food chain thriving by keeping irrigated farmland protected for small mammals at the base of the food chain. Chapter 8, *Terrestrial Biological Resources*, addresses how the plan amendments would affect wildlife habitat for birds and mammals and the regulations that would apply to protect these resources.

Groundwater Resources

Multiple commenters asserted, without providing support, that the SED's groundwater analysis is flawed. Multiple commenters claimed the plan amendments would have negative impacts on groundwater supplies for agricultural uses. They said that if the plan amendments resulted in a potential reduction of surface water, farmers would choose to pump more groundwater, thereby exacerbating subsidence problems and conflicting with SGMA. Multiple commenters asserted that if farmers choose to pump more groundwater, this would also have a negative effect on groundwater (quality and availability) for potable use, especially for communities that rely wholly on domestic wells.

Commenters also asserted that the SED does not provide mitigation for groundwater impacts disclosed in the SED. Impacts on groundwater are analyzed and disclosed in Chapter 9, *Groundwater Resources*. Impact GW-1 describes the potential for reduced surface water supplies to affect groundwater to those areas that receive surface water supplies from the three eastside tributaries. The SED concludes that this impact is likely to be significant and unavoidable under LSJR Alternative 3, with adaptive implementation, and offers mitigation such as the following to reduce this impact.

- Identify the basin's sustainable yield and implement enforceable groundwater management measures (for maximum pumping or minimum water levels) so that reductions in groundwater pumping would result if certain thresholds are met.
- Establish water conservation measures, such as increased efficiency for municipal and industrial uses or conversion of irrigated land to crops that require less water, such that reductions in groundwater pumping would result.
- Establish a conjunctive water management program that would divert surface water during non-irrigation months (e.g., October–April) during wet years into unlined canals and designated fields to recharge the groundwater basin.

Some commenters said increasing flow releases from reservoirs would be unsustainable because lowering water levels in the reservoirs would result in more dependency on groundwater pumping, which would cause overdraft and subsidence; be unsustainable; and, for some communities, be unattainable due to geographic location, affordability, or permitting difficulties. Some were concerned that an increased reliance on groundwater would make it challenging to meet SGMA. Others were concerned about how increased flow releases and reduced surface water supplies to agriculture would affect groundwater recharge and, by extension, the availability of irrigation and drinking water supplies.

Chapter 9, Section 9.4.3, *Impacts and Mitigation Measures*, provides a full analysis of these potential impacts and proposed mitigation measures. In addition, Chapter 13*, Service Providers*, Section 13.4.3, *Impacts and Mitigation Measures*, discloses potential impacts on municipal water suppliers and domestic wells, discusses potential degradation of groundwater quality as it might affect service providers, and proposes mitigation measures for these potential impacts. For additional details regarding groundwater and service providers, refer to Master Response 2.7, *Disadvantaged Communities,* and Master Response 3.6, *Service Providers*. Information regarding impacts on agricultural lands are discussed in Chapter 11, *Agricultural Resources*, and Master Response 3.5, *Agricultural Resources*. See the *Sustainable Groundwater Management Act* section in this master response for information on groundwater pumping effects and SGMA compliance. For additional details regarding groundwater resources and the groundwater analysis, refer to Master Response 3.4, *Groundwater and the Sustainable Groundwater Management Act.*

Commenters have raised further concerns that the impacts of reduced groundwater recharge will extend beyond the districts that receive surface water supplies into adjacent communities that rely solely on groundwater for their water supply. Multiple commenters were concerned that reduced surface water, which would require further groundwater usage would, in turn, lead to difficulty meeting the requirements of SGMA without requiring fallowing of farmland and damaging the local economy. The State Water Board recognizes the severe problems associated with groundwater overdraft and recharge in the Central Valley and SGMA is intended to address overdraft. For more information regarding the relationship between the plan amendments and SGMA, see the discussion under *Sustainable Groundwater Management Act* in this master response and refer to Master Response 3.4, *Groundwater and the Sustainable Groundwater Management Act*.

Some commenters suggested alternate ways to slow and direct the flow of runoff water that does not flow down the tributaries to aid in groundwater recharge. Chapter 9, *Groundwater Resources*, analyzes reduced groundwater recharge from surface water percolation and discusses those potential groundwater supply and groundwater recharge effects under current regulatory conditions. For more discussion of surface water runoff management, please refer to Appendix B, *State Water Board's Environmental Checklist, Hydrology and Water Quality* Section. The plan amendments address flow in the LSJR and the eastside tributaries and the major reservoirs along these waterways.

The SED addresses other actions that other entities can take to address the effects of the plan amendments on groundwater and other resources in Chapter 16, *Evaluation of Other Indirect and Additional Actions*.

Agricultural Resources

Multiple commenters made general comments, without providing support, that the plan amendments would have negative effects on agricultural resources. Some of these commenters worried about loss of water rights, conversion of lands to non-agricultural uses, and water management, while others asked for further data to substantiate the analysis.

Some commenters expressed concern that the plan amendments would mean a loss of water rights for those with agricultural lands that are being permanently conserved to prevent conversion to non-agricultural uses. The analysis in Chapter 11, *Agricultural Resources* (Impact AG-3) describes how the plan amendments would not conflict with existing zoning for agricultural uses or Williamson Act contracts. For additional discussion of how the plan amendments would affect water

rights, please see *Water Rights* under *State Water Board Authorities* in this master response or refer to Master Response 1.2, *Water Quality Control Planning Process*. Chapter 11, Section 11.4.2, *Methods and Approach*, and Impact AG-1, discuss the use of the SWAP model to analyze potential conversion of Designated Farmland to non-agricultural uses. SWAP reflects overall trends in observed grower behavior in response to changing conditions, which is why the SWAP model was selected to evaluate agricultural resource effects. Available water and land in a specific area can be modified, and the SWAP model can estimate grower responses including changes in cropping patterns. SWAP results were used to inform the agricultural resources analysis in Impact AG-1 by illustrating how cropping patterns might shift and change in response to such market-driven factors and conservatively assuming that a crop reduction in some years would result in a conversion of Designated Farmland to a non-agricultural uses. See Master Response 3.5, *Agricultural Resources*, and Master Response 8.1, *Local Agricultural Economic Effects and the SWAP Model*, for more information about SWAP and its use in analyzing both agricultural resource impacts and agricultural economic effects.

Commenters had varying opinions on agricultural watering practices as they related to the plan amendments and the role that farmers and the State Water Board should play in water management for agriculture. Some farmers commented that they are good stewards of their own agricultural lands and have undertaken extensive water conservation efforts and other sustainable practices, while other commenters suggested that some farmers are irresponsibly planting almonds and other permanent tree crops that are water intensive and primarily exported overseas. These commenters said that farmers should use more sustainable practices and replace water-intensive crops with others that require less water. Some said farmers should be compensated to fallow their land or be given rebates for implementing more efficient watering methods in order to meet water restrictions. Related comments suggested the State Water Board review agricultural growing regulations in terms of what crops should be allowed to be grown, what irrigation methods should be used, and limit the amount of water allowed, especially during times of drought. However, the plan amendments are limited to the flow and water quality requirements needed to protect beneficial uses. See Chapter 11, Section 11.4.3, *Impacts and Mitigation Measures,* and Master Response 3.5, *Agricultural Resources,* regarding demand management strategies and irrigation efficiencies. For information on what actions fall under the jurisdiction of the State Water Board, see *State Water Board Authorities* in this master response.

Some commenters had concerns over the agricultural data that was used in the SED or wanted the use of different agricultural data (e.g., distributed amongst user categories, crop type ratios and groundwater recharge numbers). Chapter 11 addresses farm size in Table 11-2 and crop types and irrigation methods throughout the analysis, including Tables 11-5, 11-6, and 11-7. In addition, all sources of data used are cited and come from publicly available and agency-generated sources. Groundwater recharge is discussed in Chapter 9, *Groundwater Resources* and Appendix G, *Agricultural Economic Effects of the Lower San Joaquin River Flow Alternatives: Methodology and Modeling Results.* See Master Response 3.5, *Agricultural Resources,* regarding demand management strategies and irrigation efficiencies and a discussion of agricultural data used for the analyses in Chapter 11, Appendix G, and Chapter 20, *Economic Analyses*.

Energy and Greenhouse Gases

Some commenters made general comments, without providing support, that the plan amendments would have negative impacts on energy and greenhouse gases. A complete analysis and disclosure of potential impacts on hydropower is provided in Chapter 14, *Energy and Greenhouse Gases*, Appendix

F.1, *Hydrologic and Water Quality Modeling*, and Appendix J, *Hydropower and Electric Grid Analysis of Lower San Joaquin River Flow Alternatives*. Please also see Master Response 3.7, *Greenhouse Gas Emissions and Analysis*, for a discussion of the approach and method used to evaluate greenhouse gases in the SED.

Hydropower Production

Some commenters were concerned that higher flows would lower reservoir levels such that electricity generation would be affected. However, as discussed in detail in Chapter 14 reservoir elevation and hydropower production would not be substantially modified under the plan amendments; therefore, there would be no adverse effects on California's electric grid. For further analysis and disclosure of potential impacts on hydropower, see Appendix F.1 and Appendix J. Master Response 3.2, *Surface Water Analyses and Modeling,* provides additional detail regarding hydropower use in California, hydrology and potential changes to hydropower, peaking operations, and potential increases in spring hydropower.

Climate Change

Some commenters expressed support for the plan amendments, citing climate change as a main motivator to preserve river flows in the eastside tributaries and Delta. Specifically, commenters were supportive of the State Water Board's accounting for changing conditions; some were concerned about keeping high levels of flow to prevent the incursion of saltwater into freshwater supplies due to sea level rise, and others felt that simply continuing to build infrastructure (e.g., dams/reservoirs) was not the right approach because it is reasonable to assume historical water patterns may be changing.

Some commenters also expressed concern that the SED did not sufficiently model climate change as it related to changing conditions for surface runoff and snow pack, while others suggested that climate change is inevitable and, therefore, trying to protect fish is not possible or worthwhile. Chapter 14 addresses climate change as it relates to the plan amendments and the State Water Board's responsibility to protect fish and wildlife beneficial uses. The analysis in Chapter 14 determined that climate change would not significantly affect the LSJR alternatives because adaptive implementation would allow agencies to respond to changing circumstances with respect to flow and water quality that might arise due to climate change. Furthermore, the required review and update of water quality control plans, accounted for in the program of implementation, continually accounts for changing conditions related to water quality and water planning such as climate change. The hydrology impacts associated with reduced water supply and reliability as a result of climate change were based on the *California Water Plan Update 2013*, Chapter 3, California Water Today; Volume 2 regional reports for San Joaquin River Hydrologic Region and Sacramento-San Joaquin Delta, and Chapter 22, Ecosystem Restoration (CNRA and DWR 2013). The assessment is also consistent with information contained in the Sacramento and San Joaquin Basins Climate Impact Assessment (USBR 2014, 2016). Master Response 3.2, *Surface Water Analyses and Modeling,* provides additional information regarding hydrology and climate change, including hydrologic variability and the consideration of climate change in the SED.

Some commenters said the SED should have considered weather patterns (El Niño and La Niña) in water storage and releases. The WSE modeling used for the SED analysis uses the hydrologic conditions for 1922–2003, a period of time that includes multiple El Niño and La Niña years. More information about the model methodology can be found in Chapter 5, *Surface Hydrology and Water*

Quality, and Appendix F.1, *Hydrologic and Water Quality Modeling*. The scientific basis for the WSE model is described in Appendix C, *Technical Report on the Scientific Basis for Alternative San Joaquin River Flow and Southern Delta Salinity Objectives*.

Recreation and Aesthetics

Multiple commenters made general comments, without providing support, that the plan amendments would have negative impacts on recreational resources and aesthetics. A complete analysis and disclosure of significant impacts on recreational resources is provided in Chapter 10, *Recreational Resources and Aesthetics*.

Boating and Fishing

Some commenters said that the plan amendments would have negative effects on boating in the three tributaries, reservoirs, and southern Delta and worsen fishing conditions on the rivers and reservoirs due to lower water levels. For example, some commenters were concerned about the inaccessibility of boat ramps and docks in the reservoirs, the distance from the on-land recreational area, the inability to keep houseboats in the water due to low water levels, difficulty in engaging in water sports due to submerged objects (e.g., trees) being close to the surface of the water, and inability to boat in sloughs due to silting. In addition, some commenters were concerned that the plan amendments would exacerbate the poor quality of fishing in the reservoirs that is currently due to warm water temperatures or would exacerbate the growth of invasive species such as water hyacinth that would impede boating by choking waterways.

As discussed in detail in Chapter 10, the plan amendments would not negatively affect the existing recreational facilities (e.g., boat ramps) and associated recreational opportunities at the major reservoirs and Tulloch Reservoir as seasonal average water elevations would stay the same as existing conditions and, in some cases, increase. Therefore, all boat ramps and other facilities would remain available to recreationists. Further, because water elevations would stay the same as existing conditions, the plan amendments would not increase water temperatures in the reservoirs; in some cases, water temperatures could even improve for reservoir fisheries due to higher water elevations.

With regard to Lake Tulloch specifically, Chapter 10 explains that water surface levels in Tulloch Reservoir are maintained through coordinated water releases from the New Melones Dam upstream and the Tulloch Dam downstream. Although the LSJR alternatives could alter the quantity of water flowing into Tulloch Reservoir, equivalent quantities of water would be released through Tulloch Dam. Therefore, while there would be different monthly flows through Tulloch Reservoir under LSJR Alternatives 2, 3, and 4, the surface elevations of the reservoir would not change.

For more details and analysis on reservoir elevations and associated impacts, see Chapter 5, *Surface Hydrology and Water Quality*; Appendix F.1, *Hydrologic and Water Quality Modeling*; Master Response 3.1, *Fish Protection*; and Master Response 3.2, *Surface Water Analyses and Modeling*. For more discussion on fisheries and water quality, see *Aquatic Biological Resources* in this master response, as well as Master Response 3.1, *Fish Protection*. In addition, Chapter 16, *Evaluation of Other Indirect and Additional Actions,* addresses invasive aquatic vegetation control measures that entities affected by the plan amendments can take to prevent the introduction and spread of invasive aquatic species, including a cost evaluation and both general and resource-specific environmental evaluation (see Section 16.3.10, *Invasive Aquatic Vegetation Control*). Also see

Harmful Algal Blooms under *Surface Water/Hydrology and Water Quality* in this master response, which discusses how the plan amendments are not expected to make conditions more conducive to harmful algal bloom (HAB) formation.

Visual Experience

Other commenters who recreate at the reservoirs in the plan area expressed general dissatisfaction with the visual experience of the low water levels. The State Water Board acknowledges that those participating in recreational activities in and around the rivers and reservoirs are likely to highly value the natural environment, appreciate the visual experience, and be sensitive to changes in visual character and quality. The analysis in Chapter 10 identifies that with the plan amendments, reservoir elevations would be such that there would be no substantial change to existing visual character or quality; under certain conditions, elevations could even increase, thereby potentially improving the existing views in the plan area.

Recreation and Beneficial Uses

Some commenters expressed the sentiment that recreation is a beneficial use for citizens of California and emphasized the importance of balancing recreation with other beneficial uses. As recreational users of the tributary rivers, some commenters emphasized the inherent value of the natural environment (including fish), as well as the value of these natural areas as a respite from urban areas and as a resource to share with their children. As stated in Chapter 10, water recreation is a designated beneficial use (State Water Board 1998) (also see Table 5-2 in Chapter 5, *Surface Hydrology and Water Quality*, which summarizes the designated beneficial uses for waterbodies in the Bay-Delta and the SJR Basin). In considering whether to adopt the proposed plan amendments to protect fish and wildlife beneficial uses, the State Water Board is required to consider other past, present, and future beneficial uses, such as recreation. (Wat. Code, § 13241.) In addition, recreation is a public trust use that the Water Board must consider. For further discussion regarding beneficial uses, see *Consideration of Beneficial Use* in this master response and Master Response 1.2, *Water Quality Control Planning Process*.

Surface Water/Hydrology and Water Quality

This section addresses common general comments made, without supporting evidence, that the plan amendments would have negative impacts on surface water availability and water quality constituents (e.g., salinity, temperature, turbidity, algae). A complete analysis and disclosure of potential impacts on surface water hydrology is provided in Chapter 5, *Surface Hydrology and Water Quality*; Chapter 23, *Antidegradation Analysis*; Appendix F.1, *Hydrologic and Water Quality Modeling*; and Appendix F.2, *Evaluation of Historical Flow and Salinity Measurements of the Lower San Joaquin River and Southern Delta*. Impacts related to sediment erosion, transport, and flooding are addressed in Chapter 6, *Flooding, Sediment and Erosion*. A complete analysis related to surface water quality, including water temperature, sedimentation, and pollutant concentrations, as it relates to biological resources is presented in Chapter 7, *Aquatic Biological Resources*. Information describing surface water/hydrology and water quality modeling is presented in Master Response 3.2, *Surface Water Analyses and Modeling*. Additional clarifying information regarding potential water quality impacts can be found in Master Response 3.3, *Southern Delta Water Quality,* and below regarding certain constituents.

Water Quality Analysis

This section addresses common general comments raised regarding the water quality standards for drinking water and for agriculture. Some general comments suggested that the SED should have included more constituents, such as pesticides, methylmercury, and HABs, and that the sedimentation analysis was not sufficient.

As described in Chapter 5, Impact WQ-3, changing the baseline monthly flows could change the dilution of any pollutants (e.g., 303(d) pollutants listed in Table 5-4 and DO) that enter the LSJR or its tributaries or the southern Delta as a point source or non-point source. The source loading of 303(d) pollutants would either remain constant or be caused by stormwater runoff or agricultural drainage, and would be independent of the reservoir releases occurring under baseline conditions and the LSJR alternatives. Therefore, the change in concentration would be the inverse of the change in flow. In other words, it is reasonable to assume the concentration of a 303(d) pollutants would decrease with an increase in flow. Changes in flow in the Merced River associated with the LSJR alternatives would change the dilution of pollutants in the Merced River and would change flows and dilution in the LSJR downstream of the Merced River. The changes in the LSJR downstream of the Merced River would be smaller than in the Merced River because the LSJR baseline flows are greater than the flows in the Merced River. Changes in the Tuolumne River flow would change the dilution and concentrations of pollutants in the Tuolumne River, with smaller changes in the LSJR downstream of the Tuolumne. Changes in the Stanislaus River flows would change the dilution of pollutants in the Stanislaus River and in the LSJR downstream of the Stanislaus (e.g., at Vernalis). Changes in flow at Vernalis can change water quality through many parts of the southern Delta. In general, increases in flow at Vernalis would improve water quality in the southern Delta by diluting pollutant concentrations with the addition of relatively clean water from the three eastside tributaries.

In general, the LSJR alternatives would cause flows to increase, which would reduce pollutant concentrations and improve any chronic water quality problems. However, it is possible that in some years, some months would experience flow reductions. Because water quality is generally poorest at low flows, changes in the cumulative flow distribution at the low end of the distribution are most likely to affect water quality. For this reason, the potential effect of changes in flow on changes in water quality were evaluated primarily by looking at changes in the 10th percentile, but changes in median flows were also considered in Chapter 5, Impact WQ-3. As shown in Chapter 5, these flow reductions would be unlikely to be detrimental because they would be of short duration. Furthermore, flows could not be reduced below levels required by other agencies or through other processes. Because baseline median flows were moderately high, it is reasonable to assume that these decreases would not cause water quality problems as there would still be sufficient flow in the river to reduce concentrations of pollutants (flows would still be much higher than baseline summer median flows).

Methylmercury

As described in Chapter 5, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has identified the following surface water bodies in the plan area as impaired for mercury: Lake McClure; New Don Pedro Reservoir; New Melones Reservoir; Tulloch Reservoir; Woodward Reservoir; the lower Stanislaus, Tuolumne, and Merced Rivers; LSJR (Merced River to Tuolumne; Tuolumne River to Stanislaus River; and Stanislaus River to Delta boundary); as well as the southern Delta. Much of the existing mercury contamination in these and other Central Valley

surface waters occurs in sediments in the riverbeds, floodplains, and the Delta (Alpers 2008). Mercury is a naturally occurring element, and a legacy contaminant. In the plan area, historical mining of gold (extraction) with mercury in the Sierra Nevada contaminated surface water and sediment on a regional scale (Alpers 2008).

Methylmercury (MeHg) is primarily the product of methylation of mercury in aquatic environments by bacteria; mercury can also be methylated in the absence of bacteria (abiotically), but this means of methylmercury production in the environment is of nominal importance (Ullrich et al. 2001). Methylation of mercury by bacteria is generally favored under anoxic (oxygen-depleted) conditions within sediment. Wetting and drying cycles, as occurs in seasonally inundated floodplains, for example, can also contribute to the methylation of mercury (Alpers 2008). Methylmercury, once formed, degrades (undergoes demethylation to mercury) and/or bioaccumulates in the food chain. Fish accumulate mercury primarily through dietary exposure, as do piscivorous wildlife and humans through fish consumption. Although all forms of mercury are considered toxic, methylmercury is the most toxic and is a neurotoxin, immunotoxin, and cardiovascular toxin (Hong et al. 2012).

Total mercury concentrations and loads in affected rivers tend to increase during high flows due to higher sediment concentrations (Roth et al. 2001). As discussed in Chapter 7, *Aquatic Biological Resources*, changes in the frequency, duration, and magnitude of increased suspended sediment and turbidity levels would be minor and within the range of historical levels on the three eastside tributaries and the LSJR. Thus, it is not expected that there would be a substantial increase in mercury resuspension or transport within the plan area as a result of implementing LSJR Alternatives 2, 3, or 4. To the extent that implementation of these alternatives would result in increased floodplain inundation in the plan area (as discussed in Chapter 7), there could potentially be an increase in methylmercury formation in inundated areas. However, if or whether this would occur, to what extent (i.e., magnitude), and whether there would be a substantial increase in human exposure to methylmercury would be dependent on multiple variables including: location of inundation/existing presence of mercury in soils, magnitude of inundation, frequency of wetting/drying cycles, exposure of fish, and human consumption of exposed fish. Thus, given these variables, it is too speculative to say whether increased flows in the eastside tributaries and the LSJR would result in increased exposure of the public to methylmercury.

Harmful Algal Blooms

Several commenters raised general concerns regarding changes in water temperatures, flow, salinity, and water residence time in the Delta resulting in more HABs in the plan area, particularly the southern Delta. Freshwater HABs are most commonly caused by cyanobacteria, which are a type of photosynthetic bacteria. Some species of cyanobacteria produce toxins (cyanotoxins), which can affect the nervous system, liver, skin, stomach, or intestines. Common cyanotoxins known to cause illness in humans and animals include microcystins, anatoxins, and saxitoxins. Exposure to cyanotoxins in freshwater can occur during recreational activities (e.g., swimming, boating), or by breathing in aerosolized toxins. Cyanobacteria in freshwater can be found in lakes, ponds, rivers, and reservoirs. (CDC 2016).

Generally, blooms of harmful algae, such as *Microcystis*, which is the most common bloom-forming HAB, are dependent on water temperatures greater than approximately 66°F, low flow conditions, and low turbidity (USEPA 2016a; Lehman et al. 2013). *Microcystis*, for example, was first observed in the Delta in 1999, and since then blooms have occurred annually at varying levels throughout the Delta; abundance of *Microcystis* and the toxin, microcystin, have been greatest in August and

September of dry years, which were characterized by low streamflow and low turbidity, and elevated water temperature and nutrient concentrations (Lehman et al. 2013). Whereas water temperatures exceeding 66°F are generally considered the primary driver of bloom formation, streamflow may be the most important factor for maintaining HABs, at least for *Microcystis*, (Lehman et al. 2013; Mioni et al. 2012). Most HAB-forming and toxin-producing cyanobacteria are freshwater species; however, studies have shown that freshwater cyanobacteria have a relatively wide range of salinity tolerance (Berg and Sutula 2015). Although some cyanobacteria are salt tolerant, the salinity and the electrical conductivity (EC) of a water body is not a primary driver of the formation or distribution of HAB blooms (USEPA 2013).

In addition to areas in the Delta, HABs have been reported in multiple lakes and reservoirs throughout the Central Valley, including Lake Oroville, and San Luis Reservoir and O'Neil Forebay (USEPA 2016b; Central Valley Water Board 2016). Low water levels at reservoirs, such as those that occurred due to the recent prolonged drought, result in higher water temperatures, particularly in the summer months, which helps drive algal bloom formation. Implementation of the LSJR alternatives would potentially result in changes in end-of-September reservoir storage at New Melones Reservoir, New Don Pedro Reservoir, and Lake McClure, as discussed in Chapter 7, *Aquatic Biological Resources*, and Chapter 10, *Recreational Resources and Aesthetics.* Under the LSJR alternatives, with the exception of New Don Pedro Reservoir under LSJR Alternatives 3 and 4 only, average summer storage levels in the rim dam reservoirs would generally be similar to or higher than baseline levels. There would be an approximate 6 percent decrease in average storage levels at New Don Pedro Reservoir under LSJR Alternatives 3 and 4. It is unknown whether this would make conditions at the reservoir more conducive to HAB formation relative to baseline. However, it is reasonable to assume that it would not make conditions more conducive to HAB formation given (1) 6 percent is not a substantial decrease in storage, (2) there are large seasonal and annual fluctuations in reservoir storage under baseline conditions (and thus water quality conditions), and (3) there have not been any reported HAB events in New Don Pedro Reservoir, including during the 2012–2015 drought[13] when, for example, in 2014, storage was at 57 percent of average (DWR 2015).

The plan amendments would not create environmental conditions that are more conducive to HAB formation and maintenance relative to baseline conditions in the Delta. As discussed in Chapter 5, Section 5.4.3, the baseline water quality with respect to temperature of the southern Delta would be maintained under either SDWQ Alternative 2 or SDWQ Alternative 3 because these alternatives do not have the ability to change temperature in a river since they set a water quality objective for salinity only. As discussed in Chapter 5, Section 5.4.3, inflow to the Delta would generally increase under LSJR Alternatives 2, 3, and 4 due to increased flow in the LSJR. Furthermore, as described in Chapter 7, *Aquatic Biological Resources*, Section 7.4.3, temperatures in the eastside tributaries are not expected to increase, particularly in the summer and fall, and therefore inflow temperatures into the Delta would be expected to be at or lower that baseline condition. In addition, although the SDWQ objectives would be changed to a year-round value of 1.0 dS/m from a running average of mean daily EC of 0.7 dS/m April–August and 1.0 dS/m September–March, changing the water quality objectives would not affect water quality in the southern Delta relative to baseline. The

[13] A search of the California Harmful Algal Blooms web portal (http://www.mywaterquality.ca.gov/habs/), data provided by voluntary reports from the public and maintained by the California Water Quality Monitoring Council, did not identify any HAB events at any of the major reservoirs for the period of November 2015 to September 2016.

historical range of salinity is expected to remain unchanged under the SDWQ alternatives. As such, the plan amendments would not result in conditions that are conducive to the increase and maintenance of HABs (e.g., warmer water temperatures, lower flows, or elevated nutrient concentrations). In addition, increased flows at Vernalis due to implementation of LSJR Alternatives 2, 3 or 4 would likely result in hydrodynamic conditions that are less conducive (relative to baseline) to maintaining HABs in the majority of the years.

Drought Analysis

This section addresses common general comments that suggested that more predictable storage is needed before exporting Delta water elsewhere in the state for urban growth and corporate farm expansion because the drought is not over. Some commenters claimed that drought is manmade because of the way water is allocated (e.g., exports and flow levels). The State Water Board does not have authority to build additional water infrastructure, and additional storage would not meet the objectives of the plan amendments or relieve drought. Drought is not a product of water storage or allocation but is a natural phenomenon defined as follows in Chapter 21, *Drought Evaluation*: "A drought year or drought period is defined as one or more years with less-than-normal full diversions for water supply, reflecting a dry year or dry year period that is severe enough to cause a water supply deficit of a specified magnitude (e.g., <80 percent of full diversions)." The SED evaluates California's most recent drought period (2004–2015). As of April 7, 2017, following unprecedented water conservation and plentiful winter rain and snow, Governor Edmund G. Brown Jr. ended the drought state of emergency in most of California, while maintaining water reporting requirements and prohibitions on wasteful practices (State of California 2017).

Periods of sequential dry years (droughts) were included in the WSE modeling that informed the SED analysis. The modeling period covered an 82-year period (1922–2003), which included multiple drought years. Drought is, therefore, captured in the SED analysis and is specifically discussed in Chapter 21, *Drought Evaluation*. Chapter 21 provides evidence that dry-year sequences can be generally described as 50 percent of the average runoff, for 2 years, or 4 years, or even 6 years (Figures 21-1 to 21-3). See Master Response 3.2, *Surface Water Analyses and Modeling,* for related information, such as the accuracy of modeling assumptions, reservoir re-regulation, and water supply reliability.

See Master Response 2.1*, Amendments to the Water Quality Control Plan*, regarding emergency provisions and modifications to the plan amendments. Also see Master Response 2.3, *Presentation of Data and Results in SED and Responses to Comments*, regarding the cumulative distributions presented in the impact analysis and the use of cumulative distributions to identify drier years. Refer to Master Response 3.5, *Agricultural Resources*, regarding the criteria used to evaluate impacts on agricultural resources and a discussion of dry year management as it relates to different crops. See Master Response 8.1, *Local Agricultural Economic Effects and the SWAP Model*, regarding agricultural economic effects.

Service Providers

This section addresses common general comments made, without supporting evidence, that the plan amendments would have negative impacts on service providers. A complete analysis and disclosure of potential impacts on service providers is provided in Chapter 13, *Service Providers*. More information and analysis regarding the environmental impacts associated with the construction and/or operation of water treatment facilities or water supply infrastructure or other actions that

may be taken by service providers in response to implementation of the plan amendments are discussed in Chapter 16, *Evaluation of Other Indirect and Additional Actions*.

Some commenters from Sierra foothill communities expressed concern about needing to drastically cut water usage at their homes and businesses as a result of increased flow releases from the reservoirs. These commenters stated that for their domestic use, including drinking water, they rely almost exclusively on surface water from these reservoirs that they have developed through investment of local dollars and that groundwater is not an option for their communities. The SED discusses surface water supplies in Chapters 13 and 16. Chapter 16 describes the actions that affected entities may take to develop alternative water supply sources needed to replace surface water that may no longer be available due to implementation of the plan amendments and their associated environmental effects. The actions evaluated include the following.

- Transfer/sale of surface water
- Substitution of surface water with groundwater
- Aquifer storage and recovery
- Recycled water sources for water supply
- In-Delta diversions
- Water supply desalinization
- New surface water supplies

Other commenters had general concerns about how reservoir drawdowns would affect their drinking water supplies and felt that differences in levels between the various reservoirs are socio-economically motivated. As described in Chapter 5, *Surface Hydrology and Water Quality*, reservoir levels are not a function of economics but rather of geography, flow, and diversions. For example, compared to Lake Tulloch and New Don Pedro Reservoir, New Melones Reservoir is larger in relation to its watershed size, in addition to its feeder tributary, the Stanislaus River, having substantial instream flow requirements and diversions; therefore, New Melones Reservoir often has lower water levels than the other reservoirs.

Some commenters were concerned about public health as a result of water shortages. In Appendix K, *Revised Water Quality Control Plan*, the State Water Board states that it will "take actions as necessary to ensure that implementation of the LSJR flow objectives does not impact supplies of water for minimum health and safety needs, particularly during drought periods." For more discussion of water supply for public health and safety and the Human Right to Water, please see Master Response 2.1, *Amendments to the Water Quality Control Plan*, Master Response 2.7, *Disadvantaged Communities*, and Master Response 3.6, *Service Providers*.

Cumulative Impacts

Multiple commenters suggested the cumulative analysis was inadequate or incomplete, but failed to specify deficiencies or projects, plans, or programs that should be included in the cumulative impact analysis.

The certified regulatory program and CEQA both require examining cumulative impacts. As defined in section 15355 of the State CEQA Guidelines, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other

projects causing related impacts. (Cal. Code Regs., tit. 14, § 15355, subd. (b).) The discussion of cumulative impacts should reflect the severity of the impacts and their likelihood of occurrence. The state lead agencies need not provide a discussion of the cumulative impacts at the same level of detail as provided for the impacts attributable to the project alone (Cal. Code Regs., tit. 14, Section 15130, subd. (b)). Furthermore, the discussion should be guided by the standards of practicality and reasonableness (Section 15130(b)).

The overall approach to the cumulative impact analysis is primarily contained in Chapter 17, *Cumulative Impacts, Growth-Inducing Effects, and Irreversible Commitment of Resources,* but also in *Chapter 16, Evaluation of Other Indirect and Additional Actions,* Section 16.7, *Cumulative Impacts.* The State Water Board prepared a cumulative impact analysis that followed the State CEQA Guidelines and the certified regulatory program requirements to evaluate the potential significant cumulative effects that could result from the plan amendments and other programs, plans, or projects. Cumulative impacts were appropriately analyzed considering the large geography and the necessary programmatic level of the resource analyses. For more information regarding the cumulative impact analysis, see Master Response 6.1, *Cumulative*.

Economic Effects

As described in Chapter 20, *Economic Analyses*, the need for economic analysis associated with State Water Board actions is required by two sections of the California Water Code. Water Code section 13141 states:

> . . . prior to implementation of any agricultural water quality control program, an estimate of the total cost of such a program, together with an identification of potential sources of financing, shall be indicated in any regional water quality control plan.

Water Code section 13241 states that "economic considerations" shall be considered in establishing water quality objectives. In practice, compliance with these statutory provisions typically involves quantifying the costs to affected parties (e.g., farmers and water districts), and assessing potential impacts on local and regional economies affected by changes in economic activity. Evaluation of other potential economic effects, such as water quality benefits, typically is conducted more qualitatively. Chapter 20, *Economic Analyses*, considers economic effects on the LSJR and tributaries related to agriculture and municipal and industrial water supplies, as well as economic effects on the southern Delta related to the potential costs of compliance with salinity and water quality objectives in the southern Delta. In general, two primary types of economic analyses were performed in Chapter 20: economic efficiency analysis and regional economic effects assessment (see Master Response 8.0, *Economic Analyses Framework and Assessment Tools*, for more information regarding these general types of analyses). An economic efficiency analysis focuses on attempting to determine the monetary value of changes in resource conditions (both costs and benefits), as measured by consumer and producers willingness to pay for these changes. Although efforts were made in Chapter 20 to consistently evaluate effects across different affected resources in, data limitations particular to each resource-specific analysis preclude achieving a level of consistency that would allow for summing costs and benefits. As a consequence, the estimates of costs and benefits for different resources presented in Chapter 20 should only be considered in a comparative way for a particular resource-specific analysis. Data limitations are inherent in any economic analysis, thus economists must select tools accordingly. In other words, in many cases, commenters comparing costs and benefits are making incorrect comparisons and are not accounting for the true costs or

benefits that would potentially be achieved given known and unknown data limitations and constraints.

This section identifies general comments received regarding potential economic effects on different sectors of the economy, including agriculture, commercial and recreational fisheries, tourism and recreation, service providers and ratepayers, disadvantaged communities as ratepayers, and hydropower. This section identifies and summarizes the location and analyses of potential economic effects and conclusions of the SED and provides the location of clarifying economic information in other master responses.

Agriculture

This section addresses common general, unsupported concerns regarding the potential agricultural economic effects of the plan amendments. Multiple commenters noted that California is a primary food provider in this country and that it is a central part of California's state, regional, and local economy that provides jobs and supports related industries that would suffer as a result of the plan amendments. Some of these commenters claimed that the agricultural economy would collapse as a result of the plan amendments and, in turn, require Californians and Americans to import, pay more, and/or eat food that is not fresh or that is grown under comparatively fewer safety regulations. Some commenters, such as dairy farmers, expressed concern that less water would exacerbate existing economic issues, such as product prices that are below production costs. Commenters concerned about economic impacts said that the plan amendments would change people's general way of life and opportunities for future generations (e.g., Future Farmers of America, multi-generational farming families). Some commenters generally stated that food, jobs, and the agricultural base of the state should have priority over fish. Multiple commenters made general comments that approving the plan amendments would result in a high loss of jobs or higher rate of unemployment; would increase food costs; and would result in general harm to the local and regional agriculture industry. Multiple commenters also claimed that irrigation districts would need to increase rates charged to agricultural users as a result of the plan amendments, thus having potential ratepayer effects that were not evaluated in the SED.

Some commenters stated that the local or regional agricultural costs were calculated or described inaccurately and some commenters suggested that the economic impact would be much greater than reported in the SED (e.g., Table G.5-5, *Baseline Statistics for Total Economic Output Related to Agricultural Production in the Irrigation Districts and the Change in those Statistics for each of the LSJR Alternatives*). Additionally, some commenters incorrectly assigned certain costs or benefits to different economic sectors without providing the calculations or other substantive information for which the State Water Board could evaluate and prepare specific responses. For example some commenters attempted to calculate the cost of protecting individual fish based on a gross oversimplification and misapplication of SalSim modeling results presented in Chapter 19, *Analyses of Benefits to Native Fish Populations from Increased Flow Between February 1 and June 30*, and costs to various economic sectors identified in Chapter 20, *Economic Analyses*.

The SED identifies and discloses potential economic effects on agricultural resources and the agricultural economy in Chapter 11, *Agricultural Resources*; Chapter 20, Section 20.3.2, *Agricultural Production and Related Effects on Economic and Local Fiscal Conditions*; and Appendix G, *Agricultural Economic Effects of the Lower San Joaquin River Flow Alternatives: Methodology and Modeling Results*. The requirement to consider economic effects is found in the Porter-Cologne Water Quality Control Act. CEQA does not require that an agency analyze potential economic impacts or propose

mitigation for potential economic impacts. Additional clarifying information regarding agricultural economic effects that supports content and information contained in the SED is also provided in the following master responses.

- Master Response 8.0, *Economic Analyses Framework and Assessment Tools,* addresses economic analyses and the assumptions and content associated with the methods, tools, and data used in the economic analyses.
- Master Response 3.5, *Agricultural Resources*, addresses the agricultural-related topics of baseline acreages, potential conversion of Designated Farmland to non-agricultural uses, dairies and ability of feed substitution, deficit irrigation, particularly of permanent crops and agricultural demand management and irrigation efficiency.
- Master Response 8.1, *Local Agricultural Economic Effects and the SWAP Model,* addresses the economic-related topics of local economic conditions in the plan area, the scope of agricultural economic analysis, SWAP model assumptions and data, SWAP model capabilities, deficit irrigation of permanent crops within SWAP model, water supply reliability and agriculture, a description of the revised SWAP model run and the results, acres and crop distributions, and other costs related to crop distribution.
- Master Response 8.2, *Regional Agricultural Economic Effects,* addresses the economic-related topics of the scope of the regional economic analysis and the use of multipliers, revised results of the regional economic analysis, effects on employment, effects on dairy and livestock industries, effects on processor industry, and commenters' regional economic analyses including assumptions commenters used to generate their regional economic analyses.
- Master Response 8.4, *Non-Agricultural Economic Considerations,* addresses the economic-related topics of potential effects on economic considerations not related to agriculture, including ecosystem services, municipal considerations, growth and development considerations, hydropower, and recreation.

Fisheries

This section addresses common general comments expressing concern about the livelihood of fishermen and expressed support for recreational and commercial fisheries as important sectors of the local, regional, and state economy. Commenters also expressed worry about flow in the eastside tributaries and the effects of flow on the fishing industry. Some commenters generally stated that the fishing industry has suffered greatly, and some said that the fishing industry should have priority over the agricultural economy. As discussed in Chapter 20, *Economic Analyses*, Section, 20.3.5, *Effects on Fisheries and Associated Regional Economies*, recent fishery closures have put some boat owners and commercial salmon fishermen out of business, causing related local economic hardships. The potential benefits of the plan amendments on aquatic resources are detailed in Chapter 19, *Analyses of Benefits to Native Fish Populations from Increased Flow Between February 1 and June 30*, and Chapter 3 of Appendix C, *Technical Report on the Scientific Basis of Alternative San Joaquin River Flow and Southern Delta Salinity Objectives*. Chapter 20 discusses how these benefits would, in turn, affect commercial fishing, recreational fishing, and related economic factors. Additional clarifying information regarding recreational and commercial fishing industries, which supports content and information contained in the SED, is also provided in the following master responses.

- Master Response 8.0, *Economic Analyses Framework and Assessment Tools,* addresses economic analyses and the assumptions and content associated with the methods, tools, and data used in the economic analyses.
- Master Response 8.4, *Non-Agricultural Economic Considerations,* addresses the economic-related topics of potential effects on ecosystem services, values, and fisheries.

Other commenters made unsupported statements that the economic analyses did not consider a broad enough geographic area, suggesting that the SED should have taken into account economic impacts of flow as it relates to the fishing industry, including pre-SWP flows. Chapter 20 analyzes the fishing industry within the plan area and beyond the plan area (e.g., Pacific Ocean). Because information on potential effects on native fish species is limited, a case study approach that focuses on Chinook salmon, a keystone fish species expected to benefit substantially from the plan amendments, is instructively used to examine potential economic effects associated with aquatic habitat improvements. Historical population and harvest information concerning Chinook salmon were used to provide some insight into potential monetary values associated with improving salmon habitat in the three eastside tributaries. See Master Response 8.0 for more information regarding the different geographies and the types of tools used to analyze economics in the SED including those related to fisheries.

Some commenters claimed recreational fisheries (e.g., trout) on the three eastside tributaries would be harmed as a result of the plan amendments because, they claimed, higher water temperatures would affect trout farms. However, as discussed in Chapter 7, *Aquatic Biological Resources,* and Chapter 19, *Analyses of Benefits to Native Fish Populations from Increased Flow Between February 1 and June 30,* temperatures are generally expected to decrease in the tributaries under some of the LSJR alternatives evaluated in the SED and, as discussed in Appendix K*, Revised Water Quality Control Plan*, the program of implementation states that the State Water Board will include minimum reservoir storage or other requirements to help ensure that providing flows to meet the flow objectives will not have significant adverse temperature effects on fisheries within the rivers.

Some commenters recommended limits on fisheries or further catch restrictions to maintain, restore, or otherwise protect the fishing industry. Fisheries restrictions are established by the following agencies based on their authorities to protect and restore natural resources or species that have been designated as endangered or threatened under the state or federal endangered species acts: the California Fish and Game Commission, NOAA Fisheries, NMFS, USFWS, and the Pacific Fisheries Management Commission. While the State Water Board has the authority to establish, approve, and implement water quality objectives to reasonably protect designated beneficial uses of receiving waters of the state, including fish and wildlife beneficial uses, it does not have the authority to establish restrictions or limits on the recreational or commercial fishing industry.

Recreation and Tourism

This section addresses common general comments suggesting that there is generally an increased interest in and need for recreational opportunities. These commenters voiced the concern that perceived reduced recreational opportunities would lead to negative effects on California's rural economies and local residents that heavily rely upon recreation- and tourism-based income (e.g., boating, fishing, swimming, hiking, cycling, wildlife viewing). As described in Chapter 10, *Recreational Resources and Aesthetics*, changing flow regimes and reservoir-storage levels may potentially affect the timing, duration, and quality of recreational opportunities. Therefore,

implementation of the plan amendments may affect recreational activities through adoption of new and updated water management practices that could alter reservoir-storage levels and downstream releases. However, as discussed in Chapter 20, *Economic Analyses*, Section 20.3.6, *Effects on Recreational Opportunities, Activity, and the Regional Economy*, the plan amendments would be expected to result in minor increases or decreases in recreational opportunities and activities in the three eastside tributaries. Low-range flows would likely occur less frequently under the LSJR alternatives, while high-range flows would likely occur more frequently. In turn, there may be slight shifts in the types of recreational activities performed, depending on historical use of each river. As flows shift higher, more people may participate in boating rather than wading, but overall recreational opportunities should remain more or less unchanged. Consequently, benefits to local residents and potential effects on visitor spending in the region associated with recreational activity on the tributaries would be relatively unchanged on the rivers. As for effects on reservoir-based recreational activities, because access to recreational facilities would not change significantly under the plan amendments, the impacts on recreational opportunities at the reservoirs would likely be small. Consequently, benefits to local residents and effects on visitor spending in the region associated with reservoir-based recreational activity would be relatively unchanged. As discussed in Chapter 20, Section 20.3.6, overall, the plan amendments would likely have only minor effects on recreational activity and spending at the eastside tributaries and their associated rim reservoirs. Potential regional economic effects would, therefore, be minimal.

Some commenters said that economic concerns (e.g., job and tax revenue losses as a result of lower flows) influenced the plan amendments flow requirements such that the plan amendments would weaken the Bay-Delta Plan. However, as stated in the SED, the plan amendments would actually result in an increase in current flow requirements (a bolstering of the strengthening of the Bay-Delta Plan's protections through higher flows) as the purpose of the plan amendments is to establish new flow objectives on the LSJR and its three eastside tributaries to protect fish and wildlife beneficial uses. Details of the flow requirements and their purpose are provided in Chapter 3, *Alternatives Description*, and the language of the amended Bay-Delta Plan is provided in Appendix K, *Revised Water Quality Control Plan.*

Please refer to Chapter 10, *Recreational Resources and Aesthetics*, Section 10.2.3, *Extended Plan Area* and Master Response 8.4, *Non-Agricultural Economic Considerations*, regarding recreation in the extended plan area.

Service Providers and Ratepayers

Multiple commenters expressed concern about rates increasing in their municipal or urban service area as a result of the plan amendments and said that a continuation of increasing rates is not acceptable. Commenters also said there were economic inefficiencies in water pricing between urban users and agricultural users, resulting in effects such as high rates for urban users, low rates for agricultural users, and potential inefficiencies in the actual use of water. Chapter 20, *Economic Analyses*, Section 20.3.3, *Effects on Municipal and Industrial Water Supplies and Affected Regional Economies*, uses case studies of five irrigation districts and information during the recent drought to describe the potential types of ratepayer effects that could result in the plan area from the plan amendments. In addition, this section applies information found in Appendix L, *City and County of San Francisco Analyses,* combined with reasonably foreseeable methods of compliance to analyze potential ratepayer effects in the City and County of San Francisco service area. Finally, Section 20.4, *Southern Delta*, and 20.4.2, *Effects on Ratepayers and the Regional Economy*, discusses potential

effects on ratepayers that could result from the different reasonably foreseeable methods of compliance related to the salinity objectives in the southern Delta. Additional clarifying information, which supports content and information contained in the SED, regarding service provider, municipal, or ratepayer related economic effects, is also provided in the following master responses.

- Master Response 8.0, *Economic Analyses Framework and Assessment Tools,* addresses economic analyses and the assumptions and content associated with the methods, tools, and data used in the economic analyses.
- Master Response 8.4, *Non-Agricultural Economic Considerations,* addresses the economic-related topics of municipal costs including stranded capital assets, ratepayer effects, and potential effects on growth and economic development in the plan area; effects on hydropower generation and revenue in the plan area; recreational effects in the plan area and extended plan area effects.

Master Response 8.5, *Assessment of Potential Effects on the San Francisco Bay Area Regional Water System*, addresses public comments raised, primarily by CCSF, the Bay Area Water Supply and Conservation Agency (BAWSCA), and individual BAWSCA member agencies regarding the scope and accuracy of the substitute environmental document's (SED) analysis of the potential water supply reductions to the SFPUC Regional Water System (RWS) service area that could result from implementing the plan amendments presented in the SED and the types of actions that SFPUC could take to meet water supply demands within the RWS service area. The discussion addresses uncertainty in analyses, key differences between the State Water Board and SFPUC analytical approaches, and economic considerations of a water supply planning approach to address effects of potential water supply reductions resulting from the plan amendments. The discussion also addresses the economic-related topics of a water-rationing only approach and effects on the Bay Area and municipal costs, including ratepayer effects, and potential effects on growth and economic development.

Disadvantaged Communities

Multiple commenters said, without providing support, that Chapter 5, *Surface Hydrology and Water Quality*, and Chapter 9, *Groundwater Resources*, do not address or discuss disadvantaged communities (DACs). Comments suggested that specific or some schools would not have sufficient drinking water or water for sanitation. Other commenters suggested, without providing support, that reduced water supplies would collapse rural agricultural economies which would result in a variety of detrimental economic and social impacts related such as unemployment and higher food costs.

These types of comments suggest that commenters are attempting ascertain impacts at a far greater level of detail and scale of analysis than was conducted in the SED. As discussed earlier in this master response, the SED evaluates potentially significant environmental impacts at a programmatic level. Further detailed analysis would be conducted in subsequent environmental reviews to evaluate project level impacts. Chapters 5 and 9 are related to the potentially significant physical environmental impacts on surface hydrology, water quality, and groundwater resources. Chapter 22, *Integrated Discussion of Potential Municipal and Domestic Water Supply Management Options,* provides a summary of information from Chapters 5, 9, and 13 and discusses potential effects, including groundwater quality and quantity, on DACs. In addition, Chapter 13, *Service Providers*, discusses potentially significant physical environmental impacts on small municipal service

providers, some of which provide service to DACs (identified in Chapter 22). For more detailed information regarding DACs, please see Master Response 2.7, *Disadvantaged Communities.* Please also see, Master Response 8.0, *Economic Analyses Framework and Assessment Tools*, describing the approach to considering economics within the SED, Master Response 8.1, *Local Agricultural Economic Effects and the SWAP Model,* providing clarifying information regarding potential agricultural economic effects, and Master Response 8.4, *Non-Agricultural Economic Considerations*, which discusses ratepayer effects.

Hydropower

Multiple commenters asserted the potential changes in timing of water release under the plan amendments would significantly reduce hydropower, thus reducing the ability to generate affordable power that is considered renewable. Specifically, these commenters are concerned there will not be enough power generated to satisfy peak summer demands. Chapter 20, *Economic Analyses*, Section 20.3.4, *Effects on Hydropower Generation Revenues, and the Regional Economy*, and Appendix J*, Hydropower and Electric Grid Analysis of the Lower San Joaquin River Flow Alternatives*, analyzed the potential change and economic effects on hydropower at the three rim dams and throughout the hydropower service area. These analyses used median peak generating capacity during July and August to determine changes and potential economic effects. Additional clarifying information regarding hydropower related economic effects that supports content and information contained in the SED is also provided in the following master responses.

- Master Response 3.2, *Surface Water Analyses and Modeling*.
- Master Response 8.0, *Economic Analyses Framework and Assessment Tools,* addresses economic analyses and the assumptions and content associated with the methods, tools, and data used in the economic analyses.
- Master Response 8.4, *Non-Agricultural Economic Considerations*, addresses the economic-related topics of hydropower generation and revenue.
- Master Response 8.5, *Assessment of Potential Effects on the San Francisco Bay Area Regional Water System*, addresses economic considerations related to hydropower with respect to SFPUC.

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