



DELTA STEWARDSHIP COUNCIL

A California State Agency

DRAFT
RECOMMENDATIONS REPORT
Five-Year Review of the Delta Plan
August 2019

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Appendix A, Stakeholder Assessment Summary

Abbreviations and Acronyms

BCDC	San Francisco Bay Conservation and Development Commission
CalBRACE	California Building Resilience Against Climate Effects
CALFED	California Bay-Delta Program
CAP	Continuing Authorities Program
Council	Delta Stewardship Council
CVP	Central Valley Project
CZMA	Coastal Zone Management Act
DAC	Disadvantaged Communities
Delta Reform Act	Sacramento-San Joaquin Delta Reform Act of 2009
Delta	Sacramento-San Joaquin Delta
DLIS	Delta Levees Investment Strategy
DOI	U.S. Department of the Interior
DPIIC	Delta Plan Interagency Implementation Committee
DWR	California Department of Water Resources
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EJ	Environmental Justice
ESA	Endangered Species Act
GAO	Government Accountability Office
HPI	Healthy Places Index
IAMIT	Interagency Adaptive Management Integration Team
LPP	Local Protection Program
LTMS	Long-Term Management Strategy
LTO	Long-Term Operation

Marsh Plan	Suisun Marsh Protection Plan
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
Reclamation	U.S. Department of the Interior, Bureau of Reclamation
ROI	Regional Opportunity Index
SLR	sea level rise
State	State of California
State Water Board	State Water Resources Control Board
SWP	State Water Project
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

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Chapter 1. Introduction

While there are many agencies involved in both the near and long-term management of the Delta, the Sacramento-San Joaquin Delta Reform Act of 2009 (Delta Reform Act) established the Delta Stewardship Council (Council) to create a comprehensive, long-term, legally enforceable plan to guide how multiple federal, state, and local agencies manage the Delta's water and environmental resources. The 2009 legislation directed the Council to oversee implementation of this plan through coordination and oversight of state and local agencies proposing to fund, carry out, and approve Delta-related activities. It also granted the Council regulatory and appellate authority over certain actions that take place in whole or in part in the Delta and Suisun Marsh, referred to as "covered actions."

Since 2010, the Council has developed, amended, and begun implementing the Delta Plan, addressing multiple complex challenges in the process. Progress has been made, but much remains to be done. The Delta Plan was developed to achieve the state's coequal goals of a reliable statewide water supply and a protected, restored Delta ecosystem in a manner that preserves the values of the Delta as a place, and it includes 14 regulatory policies and 95 recommendations. Collectively, these policies and recommendations address current and predicted challenges related to the Delta's ecology, flood management, land use, water quality, and water supply reliability. The Delta Plan's policies and recommendations are based on best available science and depend on cooperation and coordination among federal, state, and local agencies.

The Delta Reform Act states that "[t]he Council shall review the Delta Plan at least once every five years and may revise it as the Council deems appropriate..." (Water Code section 85300, subd.(c)). To meet this requirement, the Council initiated a Five-Year Review of the Delta Plan in 2018.

The purpose of the Delta Plan Five-Year Review is to consider the Delta Plan's core elements in light of six years of experience, and to reflect on the successes and challenges of implementing the Delta Plan. By considering the Plan and implementation progress, the Council will be better positioned to develop a roadmap for potential future changes and improvements to Delta Plan content and implementation strategies. This report summarizes the accomplishments of the Council through implementation of the Delta Plan, presents findings from the Delta Plan Five-Year Review process, and recommends priority actions for the next five years to strengthen the Plan and its implementation.

This Five-Year Review represents an important component of the Delta Plan's three-phase continuous and deliberative adaptive management framework: *Plan, Do, and Evaluate and Respond* (Figure 1-1). Because of the level of uncertainty and rapid change, the long-range management of the Delta must have a framework and flexible decision-making process for ongoing knowledge acquisition, monitoring, and evaluation. This adaptive management approach "ensures that the Delta Plan is updated as often

as necessary to incorporate new information or to modify policies and recommendations to ensure achievement of the coequal goals.”¹

Consistent with the third step in the adaptive management process, *Evaluate and Respond*, the Delta Plan has been amended five times to date, to adjust to new information and focus areas, with a sixth amendment currently under development (Figure 1-2).

The Five-Year Review represents a continuation of the third step in the adaptive management process and marks the beginning of a new cycle of *Planning* and *Doing*.

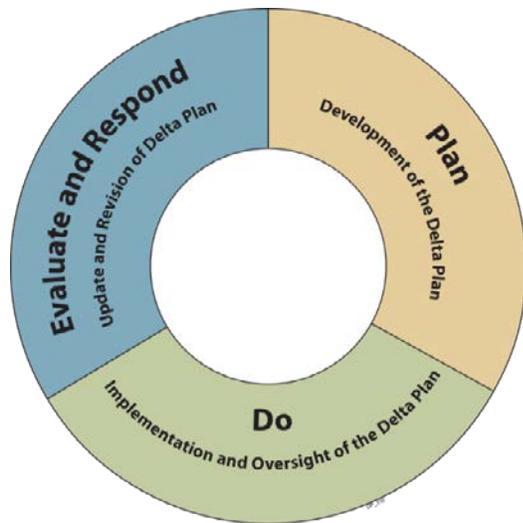


Figure 1-1. Delta Plan Three-phase Phase Adaptive Management Framework

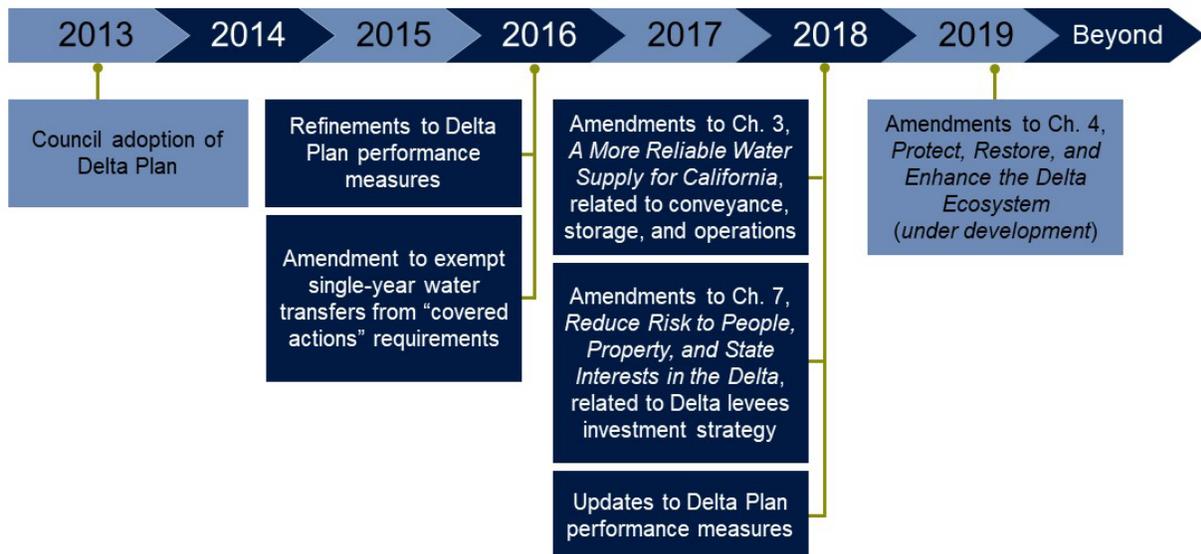


Figure 1-2. Delta Plan Amendments Since Adoption

In order to complete this Five-Year Review, Council staff comprehensively reviewed the Delta Plan, evaluated the status of its implementation activities, and gathered agency and stakeholder evaluations of the Delta Plan (Figure 1-3). The Council conducted the following specific activities between December 2018 and February 2019:

- **Comprehensive Review of the Delta Plan, Staff Interviews, and Workshops:** Council staff reviewed individual Delta Plan chapters, as well as Delta Plan implementation progress and emerging issues.
- **Covered Actions Review:** Council staff analyzed the covered actions that have been filed to date, identifying key insights and areas for improvement in the overall regulatory and early consultation process.
- **Performance Measures Review:** Council staff updated and evaluated the status and progress of performance measures by assessing self-reported survey results from responsible agencies, directly contacting those responsible for implementation, and conducting outside research.
- **External Evaluation of the Plan:** Council staff conducted an external evaluation of the Delta Plan and its implementation by holding 31 individual and focus group interviews with the agencies and stakeholders that engaged with implementation activities. An online survey with similar questions was distributed to more than 5,000 Council listserv subscribers, with 124 responses collected (see Appendix A, Stakeholder Assessment Summary).
- **Delta Plan Interagency Implementation Committee Surveys and Interviews:** Members of the Delta Plan Interagency Implementation Committee (DPIIC) were asked to provide general feedback on the Delta Plan, DPIIC's role in implementing the Delta Plan to date, and how DPIIC could be better utilized in Delta Plan implementation and coordination.
- **Sister Agency Chapter Reviews:** Council staff requested targeted reviews from the Sacramento-San Joaquin Delta Conservancy and Delta Protection Commission on specific chapters of the Delta Plan.

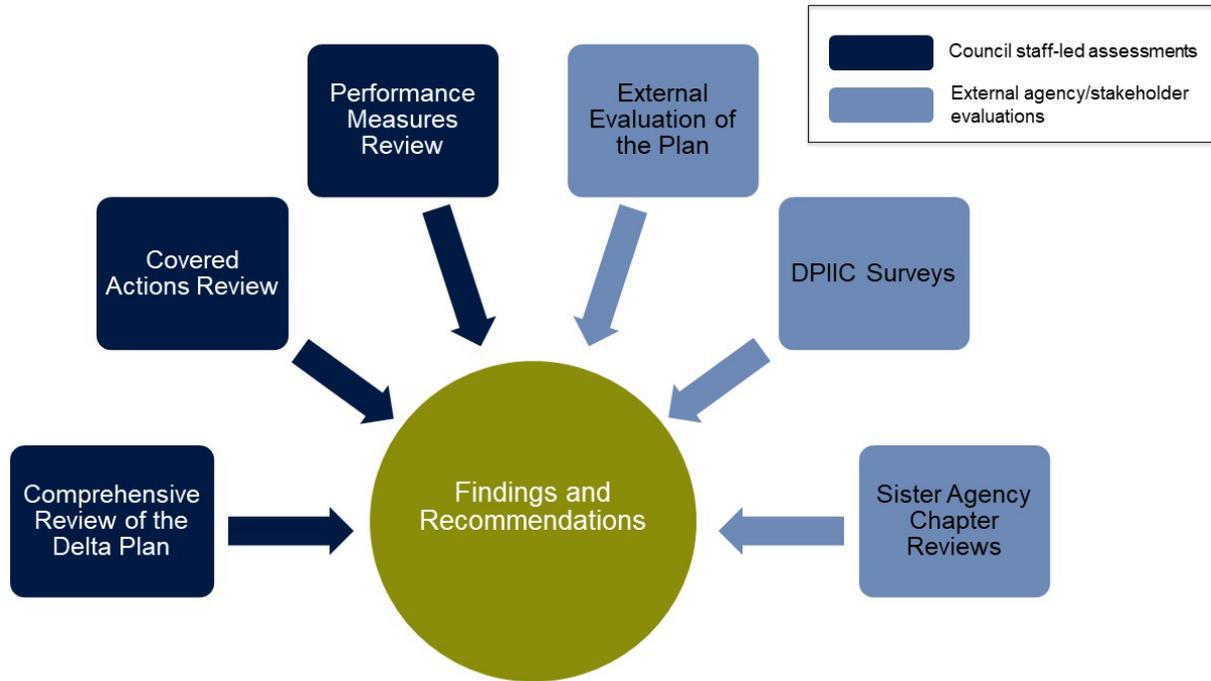


Figure 1-3. Five-Year Review of Delta Plan Activities

Chapter 2. Accomplishments

Laying the Foundation for Successful Implementation of the Delta Plan

In the six years since the adoption of the Delta Plan, the Council has invested significant resources toward creating a sound framework for implementing this landmark management plan, including:

- Implementing a new regulatory authority in the Delta through covered actions
- Amending and updating the Delta Plan in response to commitments made by the Council and to changing circumstances and conditions in the Delta
- Coordinating implementation of the Delta Plan across federal and state agencies by creating and overseeing a Delta Plan Interagency Implementation Committee (DPIIC)
- Supporting the Delta Plan through best available science for long-term Delta management through guiding documents and strategic investments
- Advancing funding in the Delta by advocating for, and coordinating with, agencies to improve, alignment of available funding with the objectives of the Delta Plan

These accomplishments set the stage for future progress toward implementing the Delta Plan and achieving the coequal goals, reinforcing the leadership role of the Council in charting the course ahead.

Implementing a New Regulatory Authority in the Delta Through Covered Actions

The Council's formal covered action consistency review process provides an avenue for the Council and public to review and comment on the consistency of proposed state and local projects with the Delta Plan's regulations. This self-certification process is a critical tool for successful Plan implementation.

To assist agencies with projects that may qualify as covered actions, the Council employs an early consultation process as required by the Delta Reform Act (Water Code section 85225.5). Through this process, Council staff meet with project proponents to discuss relevant Delta Plan policies and to answer questions about consistency certification requirements.

During the first six years of implementing the Delta Plan, the Council applied its regulatory authority through the review of 20 certifications of consistency and 10 appeals pertaining to two projects. Additionally, the Council has provided more than 100

formal comment letters intended to ensure that proponents of projects are aware of the Delta Plan's requirements and how these may apply to their projects.

The Council's covered actions process strengthens protections for the Delta and its resources, by encouraging project consistency with Delta Plan policies. It increases coordination of activities across federal, state, and local agencies and provides a critical public forum for stakeholders and the public to share ideas and concerns. As a result, this process maximizes the benefits of projects in the Delta and strengthens the overall implementation of the Delta Plan.

Amending and Updating the Delta Plan

In response to changing circumstances, and in accordance with commitments made in the original 2013 Delta Plan, the Council adopted five amendments from 2013-2018 (see Figure 1-2).

- **Performance Measures:** The Delta Plan's performance measures are measurable targets for the Council to evaluate progress and effectiveness of Delta Plan implementation. When first adopted, the Delta Plan contained preliminary performance measures developed to monitor implementation of its policies and recommendations. The Delta Plan identified the need for the Council to continue to work with scientific, agency, and stakeholder experts to further refine its performance measures. The Council subsequently conducted a rigorous public process and adopted new and refined performance measures in 2016. The updated performance measures are broad and diverse indicators that define measurable success, assess whether specific actions are producing expected results, promote transparency, and support Council action, decision-making, and adaptive management.
- **Single-Year Water Transfers:** Water transfers across the Delta can be an important tool for improving water supply reliability, especially in drought years when some water rights' holders may choose to sell a portion of their water supply to areas of the state that are harder hit or are willing to place a greater value on that water. The Council conducted an environmental review and adopted a regulatory amendment that exempts single-year water transfers from regulation under the Delta Plan, simplifying the implementation of these short-term transfers.
- **Conveyance, Storage, and Operations:** This amendment includes a series of recommendations that fulfill the Council's statutory requirement to promote options for water conveyance, storage, and operations of both (Water Code section 85304). The amendment recommends that the design and implementation of new or improved conveyance infrastructure in the Delta minimize disruptions to transportation and business activities in the Delta, that they complement the Delta landscape, and that they are implemented in cooperation with affected communities, local governments, the Delta Protection Commission, and Delta stakeholders. While not promoting any specific projects, this amendment also recommended the following project types:

- New or improved conveyance or diversion facilities in the Delta
 - Improving or modifying the existing conveyance facilities
 - Implementing new and/or expanded surface water and groundwater storage
 - Improving water operations monitoring, data management, and data transparency
 - Operating the system using adaptive management
- **Output and Outcome Performance Measures:** In addition to its 123 administrative measures, the Delta Plan's performance measures include 38 output and outcome measures. The measures were refined based on stakeholder and independent scientific reviews, and they aim to translate programmatic objectives into measurable indicators of progress. They are a vital part of the Council's adaptive management approach and provide decision-useful information on the status and trends toward the coequal goals.
 - **Delta Levees Investment Strategy (DLIS):** The DLIS is a multiyear project to update the Delta Plan's 2013 interim priorities for flood risk reduction and in guiding the prioritization of state investments in the Delta (more than \$700 million since the 1970s) that reduce flood risk and better integrate Delta levees with other Delta actions and statewide flood control as requested by the legislature. The DLIS was developed with substantial input from the California Department of Water Resources (DWR), the Central Valley Flood Protection Board, and local and regional Delta stakeholders.

In response to the state's pivot from a habitat conservation plan known as the Bay-Delta Conservation Plan, the Council has worked diligently to begin updating the policies and recommendations in Delta Plan Chapter 4, *Protect, Restore, and Enhance the Delta Ecosystem*. Currently under development by the Council, this amendment considers past and future effects of climate change and sea level rise, incorporates lessons learned about adaptive management of the Delta ecosystem, identifies best practices for restoration projects, and addresses institutional changes to improve implementation so that species can begin to benefit from these projects as soon as possible.

Coordinating Implementation of the Delta Plan

While the Council is the lead agency tasked with overseeing the overall implementation of the Delta Plan, achieving the coequal goals by implementing the Delta Plan is not a lone venture, but rather a shared undertaking with common goals and shared statewide beneficial outcomes.

One of the primary avenues to coordinate activities to advance the coequal goals is through DPIIC. Envisioned in the Delta Reform Act (Water Code section 85204) and overseen by the Council, DPIIC is a group of leaders from 18 federal and state agencies that have been determined by the Council as vital to successful implementation of the

Delta Plan. Each implementing member agency is represented by the highest level of authority to formally speak on behalf of the agency at a policy and management level.

DPIIC's greatest strength is its ability to drive Delta Plan implementation strategies and actions across agencies, and to shift agency organization and priorities accordingly. Its accomplishments include providing critical support for the science enterprise and a common vision in the Delta—coined as “One Delta, One Science”—that promotes an open Delta science community working together to build a shared body of knowledge.

In 2016, DPIIC, with the U.S. Geological Survey, hosted a two-day Science Enterprise Workshop with scientists, science-policy experts, and stakeholders to identify the institutional, geographic, and policy boundaries that exist in the Delta and to brainstorm solutions to improve the way we approach and fund science. The workshop laid the groundwork for DPIIC to coordinate and align science funding, organization, and governance in the Delta and the San Francisco Bay; this work continues. These pieces are all critical to effectively coordinating Delta Plan implementation actions.

DPIIC establishes connections and dialogue between the San Francisco Bay and the Delta on science, funding, and multiagency advancement of ecosystem restoration projects. DPIIC represents a shift in Delta agency collaboration in the right direction. As leaders of their respective agencies, DPIIC members have paved an important path for continued interagency coordination and championed the pivotal, long-term role of best available science to fill knowledge gaps and to inform management decisions in the Delta. While much remains to be done, DPIIC's collaborative framework provides a forum to leverage the authority and expertise of the DPIIC agencies, resolve issues, and make progress on Delta Plan implementation actions.

Supporting the Delta Plan Through Best Available Science

As required by the Delta Reform Act, the Delta Plan is rooted in best available science, defined as science developed through a process that meets the criteria of relevance, inclusiveness, objectivity, transparency and openness, timeliness, and peer review. Bolstered by its Delta Science Program, the Council is a champion for an open Delta science community and an advocate for the use of best available science on covered actions and other management decisions that impact the Delta.

Over the last six years, the Delta Science Program has worked with agencies, academic institutions, and other related stakeholder groups to create a three-part planning, implementation, and reporting strategy that embodies an open, collaborative “One Delta, One Science” community of scientists, policymakers, and decision-makers. This strategy includes:

- **The Delta Science Plan:** This document includes shared objectives for Delta science that provide a living framework for guiding, organizing, and integrating science in the Delta. The Delta Science Plan was updated in 2018 (published in 2019) to reflect best available science and align with the current policies and recommendations in the Delta Plan.

- **The Science Action Agenda:** Based on the Delta Science Plan, this document prioritizes near-term actions (2017-2021) and identifies priorities for research, monitoring, data management, modeling, synthesis, communication, and building science capacity to engage in these activities.
- **The State of Bay-Delta Science:** A synthesis, updated periodically (most recently in 2016), of the current scientific knowledge affecting the Delta. The next update is scheduled for early 2021.

In addition to these three foundational documents, the Delta Science Program works to strengthen science and policy connections, coordinate and promote science synthesis, manage and reduce conflict, support effective adaptive management, and advance the overall understanding of the Delta. These efforts are reflected in the 20 science peer reviews, 23 synthesis workshops and symposia, and 80 brown-bag seminars facilitated by the Delta Science Program from 2013-2018.

The Delta Science Program further supports policy and decision-making in the Delta by coordinating independent science peer review. This includes coordination of a Long-term Operations Biological Opinions (LOBO) biennial science review for the National ONOAA's, National Marine Fisheries Service, the U.S. Fish and Wildlife Service, and the U.S. Bureau of Reclamation (Reclamation). Regulatory agencies use the LOBO science review to: develop lessons learned; incorporate new science; and make appropriate, scientifically justified adjustments to the implementation of the Reasonable and Prudent Alternative actions as well as to inform future water operations.

The Delta Science Program's work also supports the Delta Plan's call to bring together decision-makers, scientists, stakeholders, and the public to discuss current and future science and management issues in the Delta. Further, Delta Science Program activities are an important mechanism for scientists to communicate findings and forecasts to policymakers and resource managers who rely on best available science to make informed decisions for the region. All of these improvements in scientific knowledge of Delta conditions, response mechanisms, and opportunities are used to adaptively manage the Delta Plan through development of Delta Plan amendments, review of covered actions, and implementation of Delta Plan recommendations.

Delta Independent Science Board

Reviewing the effectiveness of the actions taken by the Delta science enterprise is the Delta Independent Science Board, a standing board of nationally and internationally prominent scientists with the expertise to evaluate the broad range of scientific programs that support adaptive management of the Delta. Through its science and program reviews, the Delta Independent Science Board provides oversight of scientific research, monitoring, and assessment programs in the Delta and advises the Council in its activities and Delta Plan content and implementation (Water Code section 85280[a][1]).

From 2013-2018, the Delta Independent Science Board completed six programmatic reviews on ecosystem restoration, fish and flows, Delta levees, adaptive management, Delta as a place, and water quality to help inform state and federal activities, the Delta

Science Plan, the Delta Plan, and other Council initiatives. Each review considered climate change impacts, connections upstream and to the Bay, modeling and forecasting capabilities, state of science integration, uncertainty, and science and social system linkages. A selection of these reviews and their outcomes include the following:

- **A 2016 levee hazard review** brought together infrastructure and resource managers to explore natural threats to levees as well as the economic, environmental, and public-safety consequences of levee failures in the Delta. The review was also used as a resource to amend Delta Plan Chapter 7, *Reduce Risk to People, Property, and State Interests in the Delta*.
- **A 2016 adaptive management review** and subsequent journal article have been a key resource in exploring the water supply reliability adaptive management framework. The review also led to the formation of the Interagency Adaptive Management Integration Team and its subsequent white paper on developing a Delta habitat restoration adaptive management framework.
- **A 2017 review of the Delta as a place** identified the lack of social science research in the Delta and in part led to the creation of a Delta Social Science Task Force, which was charged with developing a strategic plan to strengthen and integrate social sciences into the science, management, and policy landscape of the Delta.

Advancing Funding in the Delta

As a relatively new state agency, the Council invested a considerable amount of time during the first six years of implementing the Delta Plan to ensure that funding for activities in the Delta and its watershed align with the objectives of the Delta Plan, the Delta Science Plan, and the Science Action Agenda.

Approved by California voters in 2014, the Water Quality, Supply, and Infrastructure Improvement Act (Proposition 1), is one of the largest sources of funding for water infrastructure, science, and planning statewide. Proposition 1 authorized \$7.5 billion in general obligation bonds to fund ecosystem and watershed protection and restoration; water supply infrastructure projects, including surface and groundwater storage; and drinking water protection. Many of these activities will affect the Delta directly or indirectly.

The Council has influenced the allocation of Proposition 1 funds to further the coequal goals by collaborating with state and federal agencies, including DWR, the California Department of Fish and Wildlife (CDFW), the State Water Resources Control Board, Reclamation, and others. This collaboration includes identifying and aligning funding priorities across agencies with the Delta Reform Act, Delta Plan regulations, and Delta Plan objectives.

The Council also offers technical assistance in developing grant application guidelines and in reviewing proposals. As a result of the continued cooperation between the Council and CDFW, CDFW grant guidelines now include a requirement that new projects declare whether or not they are likely to be a covered action under the Delta

Plan. CDFW guidelines also require implementation funding proposals to describe how the proposed project is consistent with the Delta Plan and offer an estimated timeline for completing the Council's certification of consistency with the Delta Plan. This demonstrates improved interagency coordination and increases the likelihood for alignment of Delta projects across multiple agencies and stakeholders with Delta Plan objectives.

The culmination of the first five years of this effort was a 2018 joint funding solicitation by the Council, CDFW, and Reclamation for new Delta science studies, demonstrating leadership roles in building capacity for the "One Delta, One Science" framework. The effort marked the first large, multiagency, competitive Delta science research solicitation in close to a decade, attracting 62 proposals requesting \$43 million in funding. The solicitation specifically prioritized action areas from the Council's Science Action Agenda, as well as science topics from CDFW's Delta Water Quality and Ecosystem Restoration Grant Program. The Council, CDFW, and Reclamation ultimately awarded nearly \$17 million to fund 26 critical scientific studies in the Delta and Suisun Marsh over three years.

While the Council's influence on funding in the Delta is an important accomplishment for a relatively new state agency, the Council recognizes the highly variable nature of funding in the Delta and ongoing barriers to coordinate and secure long-term funding. The Council is committed to continued collaboration to overcome institutional barriers, to align federal, state, and local resources, and to prioritize long-term, reliable funding to advance the coequal goals and to meet the objectives of the Delta Plan.

While far from an exhaustive list of the complete work and accomplishments of the Council, DPIIC, and the Delta Independent Science Board, this summary reflects the success of initial efforts to implement the Delta Plan in the six years since it was adopted. More importantly, these milestones represent a solid framework to build on for future Delta Plan implementation. The forward-looking efforts of these organizations underscore the commitment of both the Council and the broader Delta community to continue collaboration using the best available science. This commitment is crucial to meet the challenge of managing the ever-changing Delta landscape.

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Chapter 3. General Findings and Recommendations

Summary of Findings and Recommendations:

The Delta Plan, in its current, as-amended form, is effectively guiding the actions of local and state agencies working in the Delta. The Delta Plan does not require immediate significant changes to ensure successful implementation or to support the achievement of the coequal goals. Rather, the Council will focus on implementation activities over the next five years. Providing a stable and consistent plan, and regulatory framework will support the sustained implementation of activities needed to achieve the coequal goals.

Long before the Council was created, there were conflicting demands among agencies and stakeholders on how to manage natural resources. Clarity was needed on how best to make decisions related to activities in the Delta. When the Council was established in 2009, it set a new legal and governance framework for the Delta's future, specifically stating, for the first time, how the state should approach resolving the inherent conflicts in managing resources through the coequal goals of restoring the ecosystem and creating a more reliable water supply for California.²

The Five-Year Review provides an opportunity to reflect on the successes and challenges since the creation of the Council and of Delta Plan implementation.

It has prompted productive conversations that will lead to increased success of the Council's endeavors, and improved outcomes for the Delta and those who rely on it.

There is ample reason for optimism. The Delta Plan, only six years old, is having a positive impact and furthering the state's coequal goals for the Delta. Innovation in practices and evidence of improved governance and coordination across local, state, and federal agencies offers hope. Implementation of the Delta Plan has steadily increased:

- The Council and other state agencies have implemented more than 40 percent of the administrative actions called for in the original Delta Plan.
- Amendments to the Delta Plan have strengthened its core elements and regulatory framework to further the coequal goals.
- Since adoption, 20 covered actions have been certified as consistent with the Plan—more than 70 percent of these have certified in the past two years.
- The appeals process for certifications of consistency has been tested twice. Ten appeals of covered action certifications have been filed on two different projects.

- The Council has actively engaged with project proponents in many early consultation efforts and reviews of certifications of consistency.
- The DPIIC, envisioned in the Delta Reform Act, is functioning well as a state-federal coordinating body and can be built upon to advance Delta Plan implementation.
- The Council has updated and is actively tracking administrative performance measures (administrative responses to the Delta Plan) and output/outcome performance measures (policy outputs, and quantitative and physical outcomes of Plan implementation).

These successes demonstrate progress, improved coordination, and the potential that the physical outcomes envisioned in the Delta Plan can be realized through focused implementation.

General Findings

The Delta Plan is effective as a legally enforceable management plan for the Delta. While its accelerating implementation shows progress toward achieving the coequal goals, many challenges remain.

The following sections describe general findings from the Five-Year Review and next steps to address remaining challenges.

Adaptive Management of the Delta Plan

Part of the Delta Plan's strength is its adaptable nature, which occurs through the amendment process. When necessary, the Council can amend the Delta Plan to respond to new information, changing conditions, or other factors. During the first six years of Delta Plan implementation, several amendments were necessary to complete the Plan and respond to the changing administrative priorities. Since adoption, the Plan has been amended five times, as described in Chapter 2 of this report and shown in Figure 1-2. The Council is currently considering amendments to Chapter 4, *Protect, Restore, and Enhance the Delta Ecosystem*.ⁱ

These amendments were either necessary to complete the Plan or prompted by the Brown Administration's decision to pivot away from the comprehensive conveyance and ecosystem restoration plan known as the Bay-Delta Conservation Plan (BDCP). The BDCP was originally intended by the Legislature to become part of the Delta Plan.

While amending the Delta Plan was necessary in specific circumstances, the Council recognizes that regulatory certainty is important, and providing a consistent set of regulatory policies and recommendations moving forward will facilitate improved

ⁱ Because the Council is considering potential amendments to Delta Plan Chapter 4, *Protect, Restore, and Enhance the Delta Ecosystem*, as part of a separate activity, Chapter 4 was generally omitted from the Five-Year Review.

understanding of the Plan and its requirements, thereby increasing implementation and resulting in better outcomes for the Delta.

Role of Regulatory Policies and Process

The Delta Plan regulatory policies remain important, and Delta stakeholders acknowledged these policies are effective for managing activities in the Delta. The Council has made significant progress in support for policy implementation through agency coordination, early consultations, and appeals, but acknowledges that continued communication with all stakeholders on covered actions are necessary for improved Delta Plan implementation.

Through Council outreach to project proponents, there is heightened awareness and knowledge of the Council's jurisdiction and authority, and the covered action process. This, along with the Council's early consultation efforts have led to changes in projects to be consistent with the Delta Plan and better project outcomes, with an improved understanding of the Council's regulations. Additionally, improved tools and resources developed by the Council have resulted in increased covered action filings.

New and Evolving Challenges

Some new challenges and initiatives, identified since adoption of the Delta Plan in 2013, could be considered for inclusion in future amendments. These include planning topics and emerging issues that have become increasingly important to the State, decision-makers, and Californians due to our current understanding of science, the societal importance of the issue, or both. Emergence of new and evolving challenges is expected for long-term plans and does not pose a significant barrier to continued implementation of the Delta Plan.

Consistent with the Delta Plan's adaptive management framework, the Council has initiated, or plans on initiating, studies and activities to develop additional information related to the following key planning topics: environmental justice and disadvantaged communities, climate change risks, federal coordination and participation, and the Delta as an evolving place, as described in more detail in Chapter 5, *Protect and Enhance the Unique Cultural, Recreational, Natural Resource, and Agricultural Values of the California Delta as an Evolving Place*. The Council's investigations in these areas, including engagement with stakeholders, will inform future Council deliberations on how to best respond to these challenges.

Other Findings

The Council has identified a number of out-of-date references, facts, and figures, while conducting a detailed assessment of the Plan. In addition, several administrative performance measures are out of alignment with current Delta Plan recommendations (due to amendments) or are out of alignment with current management priorities and frameworks (due to shifts in priority or the law). Although updating these elements are a consideration over time in keeping the Delta Plan relevant, they do not rise to the level of impeding implementation or require immediate amendment. As such, the Council

intends to leverage future significant amendment processes, completed for other policy-related purposes, to update out-of-date information.

Next Steps to Address Remaining Challenges

Notwithstanding all the progress that has been made in the last six years, the Delta remains in critical condition. Challenges with Delta water supply reliability, presence of new invasive species, and the high risk of levee failures remain. Six years is not long enough to realize substantial physical improvements in a complex system. The Council and stakeholders acknowledge that it will take time and focused effort to improve physical conditions in the Delta, even though governance changes reflect a positive trajectory in Delta Plan implementation. To this end, the Delta Plan, in its current, as-amended form, is effectively guiding the actions of local and state agencies working in the Delta, and the next five years are best spent focusing on implementing activities to achieve the coequal goals.

Subsequent sections of this report provide specific findings and recommendations for implementation activities that will guide Council resources over the next five years, and they identify key planning topics and emerging issues that warrant additional attention.

Chapter 4. Specific Findings and Recommendations

Strengthening Delta Plan Implementation

Recommendations to Strengthen Plan Implementation:

Covered Actions

Outreach and Early Consultation

Administrative Procedures

Adaptive Management

Best Available Science

Performance Measures

Delta Plan Recommendations Implementation

Tracking Output/Outcome Performance Measures

Staff Development

Staff Development and Technological Advancement.

To strengthen Delta Plan implementation means focusing Council resources on advancing existing Delta Plan policies and recommendations rather than continually amending the Delta Plan.

Delta Plan policies are regulatory requirements that apply to covered actions. They are implemented through the certification of consistency and appeals processes.

Delta Plan recommendations are primarily implemented by the Council and other state agencies. Compliance with Delta Plan recommendations is not a requirement for certification of consistency with the Delta Plan. Implementing the recommendations require Council leadership and collaborative effort to engage and leverage the authorities vested in other agencies. Recommendations in the Delta Plan generally involve administrative actions to catalyze change, including: updating plans, establishing advisory groups, developing guidance, and adopting requirements.

Performance measures are the metrics used to gauge whether Delta Plan objectives are met, including Delta Plan recommendations (see Water Code section 85308[b]).

Based on experience, stakeholder feedback, analysis of the Delta Plan, and subsequent implementation actions, the Council has identified seven specific findings regarding ongoing Plan implementation: four findings relate to covered actions, two findings relate to Delta Plan performance measures, and one finding relates to staff development.

The following sections summarize the Council’s findings and present recommendations for strengthening Plan implementation.

Covered Actions

The Council has regulatory and appellate authority over certain actions that take place, in whole or in part, in the Delta and Suisun Marsh, referred to as covered actions” (Water Code section 85057.5). State and local agencies are required to demonstrate consistency with the applicable regulatory policies in the Delta Plan when carrying out, approving, or funding a covered action.

Since the original Delta Plan regulations took effect in 2013, 20 certifications of consistency have been submitted to the Council, 70 percent of which were filed since January 2017 (see Figure 4-1 and Table 4-1). Of the 20 certifications, two were appealed: California WaterFix (Delta conveyance in July 2018) and the Smith Canal Gate Project (flood protection project in November 2018). The project proponent for California WaterFix withdrew its certification of consistency prior to the Council reaching a determination on the appeals. The Smith Canal Gate Project appeal was denied by the Council in February 2019.

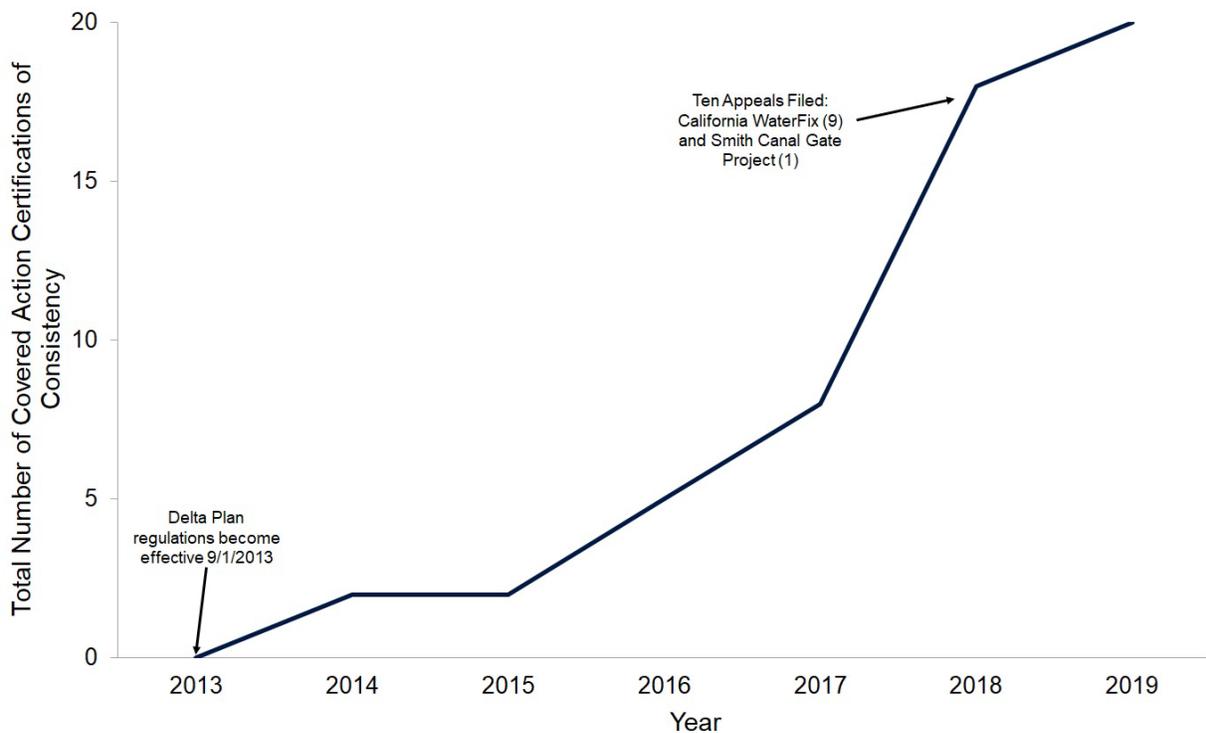


Figure 4-1. Cumulative Covered Actions Certifications of Consistency with the Delta Plan Submitted to the Delta Stewardship Council Since Inception

Table 4-1. Covered Actions Overview

Project Name	Proponent	Status	Filing Date
Sherman Island Whale's Mouth Wetland Restoration Project	DWR-EcoRestore	Certified	08/06/2014
Dutch Slough Tidal Marsh Restoration Project	DWR-EcoRestore	Certified	12/15/2014
Tule Red Tidal Restoration Project	SFWCA, DWR-EcoRestore	Certified	05/05/2016
Southport Sacramento River Early Implementation Project	WSAFCA, DWR-EcoRestore	Certified	10/05/2016
Yolo Bypass Corridors for Flood Escape on the Yolo Bypass Wildlife Area	Yolo County RCD	Certified	12/13/2016
Decker Island Fish Restoration Program	DWR-EcoRestore	Certified	11/06/2017
Bacon Island Reclamation District No. 2028 Levee Rehabilitation	RD 2028	Certified	11/17/2017
The Rio Vista Estuarine Research Station	DWR	Certified	12/19/2017
Yolo Flyway Farms Restoration Project	DWR-EcoRestore	Certified	01/02/2018
The Yolo Bypass Wildlife Area Habitat and Drainage Improvement Project	CDFW	Certified	01/10/2018
Aquatic Invasive Plant Control Program	State Parks/DBW	Certified	02/02/2018
Rush Ranch Lower Spring Branch Creek and Suisun Hill Hollow Tidal Connections Project	Solano County	Certified	07/20/2018
California WaterFix	DWR	Appealed/ Withdrawn	07/27/2018
Grizzly Slough Floodplain Restoration Project and McCormack Williamson Tract Restoration Project (North Delta Project)	DWR-EcoRestore	Certified	10/26/2018
Smith Canal Gate Project	SJAFCA	Appealed/ Denied	11/02/2018
South Sacramento Habitat Conservation Plan	Sacramento County	Certified	11/14/2018
Yolo Habitat Conservation Plan /Natural Community Conservation Plan	Yolo Habitat Conservancy	Certified	11/20/2018
Envision Stockton 2040 General Plan Update	City of Stockton	Certified	12/19/2018
Winter Island Tidal Habitat Restoration Project	DWR-EcoRestore	Certified	02/17/2019
Northwest Levee Improvement Project and Stone Road Seepage Reduction Project	Bethel Island Municipal Improvement District	Certified	05/19/2019

Note:

Table current as of June 2019. Agency acronyms are defined in the Abbreviations and Acronym section of this document.

Most covered actions submitted to the Council to date are for multibenefit projects that relate to ecosystem restoration and/or flood risk reduction. Nearly all projects implicate the following Delta Plan policies: applying Delta Plan mitigation measures (GP 1[b][2]), using best available science (GP 1[b][3]), implementing adaptive management (GP 1[b][4]), avoiding introducing and improving habitat for invasive nonnative species (ER P5), and respecting local land use when siting water or flood facilities or restoring habitats (DP P2).

Sections below summarize specific findings for strengthening Delta Plan implementation through the covered action process.

Outreach and Early Consultation

Recommendations:

- *Be proactive in outreach and communication with project proponents in early consultation.*
 - *Expand the use of Council meetings and reports to communicate upcoming and ongoing early consultations and certifications of consistency.*
-

The Delta Reform Act authorizes the Council to engage in early consultation with state and local public agencies that are project proponents of prospective covered actions. (Water Code section 85225.5).

As covered action certification is a relatively new process, it has taken time for state and local agency proponents of projects to understand. The Council's self-certification process for covered actions allows project proponents greater discretion than many regulatory programs. Self-certification presents challenges for both the Council and project proponents, as described below. However, self-certification can also help establish a collaborative and cooperative relationships during early consultation, where Council staff are often able to help project proponents understand Delta Plan requirements more clearly, allowing them to adjust the project to fit these requirements. In the first few years after adoption of the Delta Plan, several project proponents deferred consultation with the Council until very late in the project development process; sometimes coordinating as late as the permitting phase when substantive changes necessary for consistency were costly and difficult to implement. Proponents of some early projects misunderstood consistency requirements, and a few projects proceeded to implementation without certifying consistency with the Delta Plan.

Over the last six years, the Council has invested significant time and effort into outreach and early consultation with project proponents. Council staff has and will continue to directly assist project proponents by reviewing their draft certifications and making appropriate recommendations. As awareness of the Council's role has grown, project proponents have increasingly made adjustments to their planning processes to accommodate early consultation and certifying consistency. The Council is now regularly notified regarding the preparation of most relevant environmental documents. These environmental documents increasingly include a description of the Delta Plan and its regulatory policies. When such descriptions are absent, proponents are

generally willing to incorporate them later in the process. Larger agencies that regularly approve, fund, and implement projects in the Delta now increasingly request early consultation without prompting. These indicators suggest that project proponents have grown to better understand the Council's role in providing assistance to project proponents in complying with the Delta Plan. There is, however, work to do in coordinating with the agencies that do not regularly approve, fund, or implement projects in the Delta.

Some of the tools and resources the Council has developed that have contributed to this progress include a discretionary checklist that agencies may use to facilitate the covered action process, certification forms and related materials. There is also now online registration, as well as certification and appeals submittal forms. Council staff periodically review and update these resources as needed. Currently, Council staff are upgrading the online certification and appeals submittal web portal to incorporate lessons learned from past experience. The Council's recent efforts are yielding significant returns, as evidenced by improved and increased early consultations with project proponents, and a corresponding increase in covered action filings the Council receives each year.

The Council's experience with outreach and early consultation is leading to better project outcomes in the Delta, including greater transparency and communication among stakeholders. The Council has learned that early consultation works best when it begins before the project is designed and continues throughout project development. Staff will also continue to improve communication with Councilmembers and the public to keep them informed about potential covered actions and appeals, project difficulties, and successes.

The Council has identified the following priority actions to strengthen Delta Plan implementation through outreach and early consultation support for covered actions:

- Develop a process and reporting procedures for "active projects list," identifying significant projects proceeding through the covered action process. Include information to inform the public and Council members about ongoing Delta-related projects and Council staff's engagement with them.
- Invest in development of relationships with local governments to build understanding of covered action requirements and how the Delta Plan can help guide local planning activities.
- Develop a GIS-based web map to advise project proponents if their project may be implicated by one of the Delta Plan's eight spatial policies (ER P2, ER P3, ER P4, DP P1, RR P1, RR P2, RR P3, RR P4).

Procedural Adjustments

Recommendations:

- *Review the administrative procedures for appeals to identify what, if any, procedural changes may be warranted based on covered actions and appeals to date.*
 - *Implement procedural adjustments, if any, to address warranted changes.*
-

In contrast to the ways that some governmental plans are implemented, the Council does *not* exercise direct review and approval authority over covered actions to determine their consistency with the regulatory policies in the Delta Plan. Instead, state or local agencies self-certify Delta Plan consistency, and the Council serves as an appellate body for those determinations if any person challenges them. Appeals focus on the specific policies and issues that are challenged. The Council is required to apply the substantial evidence standard when reviewing appeals (Water Code section 85225.25).

The Delta Reform Act sets the specific timelines and requirements for the consistency certification appeals process, and the Council adopted administrative procedures for how the Council conducts the appeals process. The Council adopted Administrative Procedures Governing Appeals per Water Code section 85225.30 in 2010. With the experience of the consistency certifications and appeals filed to date, the existing procedures warrant review to identify potential improvements and incorporate lessons learned over the past six years.

The Council has identified the following priority action to strengthen Delta Plan implementation through procedural adjustments:

- Review administrative procedures for appeals to identify potential amendments

Adaptive Management

Recommendations:

- *Enhance outreach on adaptive management.*
 - *Focus early consultation on project-specific needs.*
 - *Work with other agencies to develop tools and information recommended in the Delta Conservation Adaptive Management Action Strategy.*
-

The Delta Reform Act states that the Delta Plan shall “include a science-based, transparent, and formal adaptive management strategy for ongoing ecosystem restoration and water management decisions” (Water Code section 85308). Delta Plan regulations require ecosystem restoration and water management covered actions to include provisions for continued implementation of adaptive management. Adaptive management is project-specific and tailored to the purpose and objectives of a project. Project proponents and other stakeholders have generally been supportive of adaptive management, but they have expressed frustration with applying the Delta Plan’s general

adaptive management framework on a project-specific basis. To mitigate these challenges, the Delta Science Program offers focused adaptive management consultation.

Stakeholders also expressed concern that other agencies have regulatory processes that require adaptive management plans that they perceived to have different requirements from the Council's adaptive management framework. This concern is amplified when project budgets have limited resources for adaptive management planning. To address these concerns, the Council's Delta Science Program has been working with other agencies that implement, fund, and have regulatory authority over projects to facilitate coordinated interagency support for adaptive management planning. Strategic actions to improve coordination, provide technical assistance, and fill knowledge gaps were developed with the Interagency Adaptive Management Integration Team (IAMIT), and recently published in the Council's Delta Conservation Adaptive Management Action Strategy.

There are limited stakeholder perspectives on the application of adaptive management for water management projects possibly because only one water management covered action has submitted a certification of consistency to date, which was ultimately withdrawn. Considering this lack of data, no specific strategies are currently recommended to increase support for adaptive management planning for water management covered actions. The Council will engage with agencies proposing water management covered actions to help develop and support adaptive management efforts consistent with the Delta Plan, and it will re-evaluate these efforts as additional projects come forward.

The Council identified the following priority actions to strengthen Delta Plan implementation through improved adaptive management:

- Enhance outreach on adaptive management through comment letters, direct project engagement and through venues such as the IAMIT, the Suisun Marsh Plan Adaptive Management Advisory Team, and the Council's Adaptive Management Forums.
- Focus early consultation on project-specific needs by offering step-by-step support and providing proponents with example adaptive management plans from similar projects to assist project proponents in developing their own plans.
- Work with the IAMIT to develop tools and information recommended in the Delta Conservation Adaptive Management Action Strategy, to support adaptive management efforts of individual restoration projects and integration of efforts across the system. Project proponents could use these tools and information to develop their own adaptive management plans. Examples include:
 - Providing access to existing conceptual models and support for development of new models to fill gaps for common project types lacking support.
 - Coordinating with other Delta regulatory bodies to assist project proponents when developing adaptive management plans.

Best Available Science

Recommendations:

- Enhance outreach to project proponents in order to provide support in early consultation for best available science considerations.
 - Identify priority topics for research to include in future Science Action Agendas.
-

The Delta Plan must include subgoals and strategies that “make use of the best available science” to restore the Delta to a healthy ecosystem (Water Code section 85302). Determining what constitutes the best available science is a process that requires gathering scientific information from multiple sources and assessing it across many variables. Delta Plan regulations require all covered actions to document the use of best available science using six criteria: relevance, inclusiveness, objectivity, transparency and openness, timeliness, and peer review.

Results from stakeholder interviews indicate that the definition and intended use of best available science is not always clearly understood, and that more support is needed through early consultation regarding how to apply and document the use of best available science. The challenge of defining best available science, particularly as it relates to timeliness, has been highlighted during appeals processes. Communicating with the public about best available science could also be improved to clarify how criteria are used to help gauge the quality and applicability of scientific studies to a specific project.

Delta Plan policy G P1(b)(3) requires project proponents to use best available science when it is “relevant to the purpose and nature of the project” and requires that the analysis of other Delta Plan policies rely on best available science (23 CCR section 5002). With regard to the two certifications of consistency that have been appealed, appellants raised climate change, hydrodynamic modeling, and water quality as best available science areas of concern.

The Council identified the following priority actions to strengthen Delta Plan implementation through improved use of best available science:

- Enhance outreach on best available science through support via comment letters, direct project engagement, and development of support resources through interagency coordination venues such as the IAMIT, Suisun Marsh Plan Adaptive Management Advisory Team, and the Council’s Adaptive Management Forum.
- Focus early consultation on project-specific best available science needs, with emphasis on thorough explanations of the policy’s six criteria, and ways to document the use of best available science.
- Develop scientific tools, venues, synthesis products, and publications through Science Action Agenda priorities. These resources would then be available to

project proponents when developing their certifications of consistency. (However, project proponents would not be required to use these resources.)

Performance Measures

Performance measures translate programmatic goals and objectives into measurable indicators of progress towards achieving Delta Plan objectives. They are a vital part of the Council's adaptive management approach to the Delta and provide decision-relevant information for Delta stakeholders (see Water Code sections 85211, 85302 and 85308).

The Council developed and refined performance measures over multiple years with the help of state, federal, and local agencies, scientists, stakeholders, and the public.

There are three types of performance measures included in the Delta Plan:

- **Administrative performance measures** describe decisions made by policy makers and managers to finalize plans or approve resources (funds, personnel, projects) for implementation of a program or a group of related programs. The administrative measures are near-term and consist of actions identified in Delta Plan policies and recommendations by the Council, and other state, local, and federal agencies.
- **Output performance measures** evaluate the factors that may be influencing outcomes and include on-the-ground implementation of management actions, such as acres of habitat restored or acre-feet of water released, as well as natural phenomena outside of management control (such as a flood, earthquake, or ocean conditions).
- **Outcome performance measures** evaluate responses to management actions or natural phenomena. Outcome performance measures describe the effects and impacts of management actions upon the system that is being managed, such as restoration of suitable habitat conditions or enhanced ecological functions. Outcome measures are, often, the hardest to measure and assess, yet they are most relevant to the goals and objectives of the Delta Plan. This can include, for example, presence of target species in constructed habitats or increased abundance of native populations.

Development of informative and meaningful performance measures is a challenging task that has been an ongoing effort of Delta Plan implementation. In February 2016, the Delta Plan was amended to include refined performance measures, which were again amended in April 2018. Also, in April 2018, the Delta Plan was amended to revise Chapter 3, *A More Reliable Water Supply for California*, to include new recommendations for conveyance, storage, and operations, and to revise Chapter 7, *Reduce Risk to People, Property, and State Interests in the Delta*, to include new guidance for state investments in Delta levees. Hence, amending the Delta Plan with new or revised policies and recommendations necessitates review of (and potential revisions to) performance measures.

The Council designs performance measures to track important trends and to address whether specific actions are producing expected results. Assessments of the Delta Plan's performance measures contribute to information and knowledge about the status of the Delta ecosystem and reliability of statewide water supply. As a result, Delta Plan implementing agencies, stakeholders, and the public can evaluate management actions in both quantitative and qualitative terms and obtain a better understanding of how actions affect the achievement of the coequal goals. Thus, the more stable the performance measures, the more valuable data they provide over the long term.

The Council's website reports on status and trends of performance metrics through a pair of web-based dashboards accessible at: <http://viewperformance.deltacouncil.ca.gov>. The administrative performance measures dashboard tracks and displays progress of administrative actions recommended by the Delta Plan. This tool highlights the agencies involved and offers the ability to review the status of each administrative performance measure. Users can interact with the tool to view, sort, and filter administrative actions by responsible agency and implementation status. The output-outcome performance measures dashboard allows access to performance metrics, baselines, and targets for each of the output and outcome performance measures. The Council maintains and updates the dashboards as new data become available.

A companion resource to the web-based performance dashboard is a printed guidebook providing an overview of performance expectations and metrics for measures adopted in 2018. This document was published in order to communicate the performance measures in a more easily understandable and accessible form for the broader public.

Delta Plan Recommendations and Administrative Performance Measures

Recommendations:

- *Develop specific strategies and approaches for outreach, engagement, and collaboration with implementing agencies.*
- *Building on existing tracking and monitoring system to improve performance measures tracking.*
- *Establish a process to manage future legislative and administrative changes that affect Delta Plan recommendations and administrative performance measures.*

The Council uses the administrative performance measures dashboard as a tool to track and display progress of administrative actions recommended by the Delta Plan. The Council populates the dashboard primarily from data of implementing agencies, and other outreach efforts.

As part of the Five-Year Review process, and building on the existing information in the administrative performance measures dashboard, the Council reviewed the status of each administrative performance measure and Delta Plan recommendation and analyzed the progress made to date to implement each. Based on these assessments, the Council has identified 145 administrative actions called for in the Delta Plan. The status of these 145 administrative actions (as of June 2019) is described below and summarized in Figure 4-2.ⁱⁱ



Figure 4-2. Administrative Performance Measure Status

- About 45 percent are complete, ongoing, or on schedule to be completed. For example, WQ R08-06 (The State Water Resources Control Board and Regional Water Quality Control Board's complete Total Maximum Daily Loads and Basin Plan amendments for methyl mercury) has been completed.

ⁱⁱ The 145 administrative actions consist of the 118 administrative performance measures contained in the 2013 Delta Plan as adopted, and four additional measures adopted in 2016, as well as two new administrative measures adopted in 2018 and 21 new recommendations contained in the amendments to chapters 3 and 7, adopted in 2018, that describe necessary administrative actions but that do not yet have associated performance measures.

- About 19 percent are behind schedule or show limited progress toward implementation. For example, WR R01-01 (Implement water efficiency and water management planning laws) shows limited progress towards implementation.
- Another 16 percent are new and need additional time to show progress. For example, WR R12k (Promote water operations monitoring data management, and data transparency—see Delta Plan for additional detail).
- Around 18 percent are out of alignment with current regulations, state administration priorities, or have inconsistencies between amended Delta Plan recommendations and associated administrative performance measures that have not been amended. For example, a few of these are out of alignment because they have been superseded by recent legislation, such as the Sustainable Groundwater Management Act of 2014.

As demonstrated by the percentages above, efforts by the Council and other agencies to implement Delta Plan recommendations and achieve administrative performance measures have been successful in part but remain incomplete; more can be done to improve and accelerate implementation of the recommendations.

Insights from surveys and outreach to DPIIC agencies indicate that implementing agencies, in some cases, are not fully aware of the Delta Plan recommendations that address them. In other cases, responsible agencies have not made implementing the Delta Plan recommendations a priority. Since the Delta Plan was adopted, the Council has focused its attention and resources on development and outreach related to covered actions, Delta Plan amendments, and other coordination activities. With many of these activities completed, the Council has increased capacity to emphasize the importance of Delta Plan recommendations.

It would be difficult for the Council to focus on all of the incomplete administrative actions at once, and not all administrative actions should be weighted equally when it comes to their role in furthering the coequal goals. In addition, implementation of Delta Plan recommendations requires action by partner agencies. It is important to note that the Council does not have authority to compel other state or local agencies to undertake activities to implement Delta Plan recommendations. The Council has found that cooperation and the sustained effort needed to implement Delta Plan recommendations is most effective when partner agencies are, in pursuit of their own priorities, working on Delta Plan-related efforts. It is therefore important for the Council to consider the timing of its focus and resources on activities that partner agencies are actively engaged in that relate to Delta Plan recommendations when prioritizing our efforts.

For example, DWR is updating its Urban and Agricultural Water Management Plan guidance in 2019–2020, providing an active process that directly relates to multiple Delta Plan recommendations, and would also advance the state’s statutory policy of reducing California’s reliance on the Delta through improved regional self-reliance (Water Code section 85021). Thus, 2019–2020 provides an important opportunity to engage DWR on Delta Plan recommendations that are specifically related to Urban Water Management Planning, such as:

- WR R01-01: Identify the number of urban and agricultural water suppliers that certify they have adopted and are implementing supply planning, conservation, and efficiency measures required by State law by 2015, meeting the standards and deadlines established by code.
- WR R02-01: DWR adopts and implements a requirement for State Water Project contracts and transfer agreements that requires implementation of State water efficiency, water management laws, goals, and regulations, including compliance with Water Code section 85021.
- WR R04-01: Identify percentage of urban and agricultural water suppliers that receive water from the Delta watershed that have incorporated an expanded Water Supply Reliability Element into their urban water management plan and agricultural water management plan by December 31, 2015. This performance measure tracks the number of water suppliers statewide that have provided the information necessary for WR P1 compliance in their water management plans.

The Council has identified the following specific actions to improve Delta Plan recommendation and administrative performance measure implementation:

- In Council work plans, identify Delta Plan core strategies for focused action based on the activities being undertaken by partner agencies in the upcoming year, Council priorities, and other opportunities for increased emphasis and activity.
 - Develop topic-specific strategies and approaches for outreach, engagement, and collaboration.
 - Link DPIIC agenda items to priority recommendations and administrative performance measures.
 - Develop regular updates for DPIIC members regarding the administrative performance measures, where progress could be accelerated, and where increased coordination can promote implementation of Delta Plan recommendations.
- Build on the existing tracking and monitoring system used to maintain the Administrative Performance Measures Dashboard to improve its utility.
 - Solicit regular progress updates from implementing agencies through established points of contact.
 - Distribute a structured electronic questionnaire, to allow for fast and convenient responses from administrative agencies.
 - Conduct in-person meetings with lead-agency points of contact to follow up on responses to questionnaires, where appropriate.
 - Enhance reporting features of the Administrative Performance Measures Dashboard to display richer details and links to Delta Plan outputs and outcomes.

- Revise and update Delta Plan recommendations and administrative performance measures to ensure alignment with the Delta Plan.

Output and Outcome Performance Measures

Recommendations:

- *Monitor and track output/outcome performance measures to enable these measures to provide enough data to inform conclusions about the trajectory of Delta Plan performance.*
 - *Communicate with partner agencies and the public about priority Delta Plan recommendations and progress toward accomplishing them, to raise awareness.*
-

The output and outcome performance measures enable the Council to integrate science and monitoring results into policy and adaptive management decisions, and to evaluate progress towards the coequal goals. These performance measures also provide an important tool for informing stakeholders about progress on Delta Plan implementation and conditions in the Delta. In April 2018, the Council adopted a revised set of output and outcome performance measures for the Delta Plan. Following the adoption, the Council launched a new web-based dashboard that enables tracking of progress towards the performance targets.

The dashboard provides interactive visualizations with graphs, maps, and tables, and aids in understanding and interpreting performance metrics. The tool is intended to provide access to updated performance data and to become a repository of related information—from scientific studies to on-the-ground efforts—and emerging management, executive, and legislative issues.

While the dashboard provides current information, measuring performance requires time to obtain the volume and quality of data needed to reach a scientifically sound understanding of trends and outcomes. As the Council gathers and assesses additional performance data, and as performance measure target dates approach, the dashboard and the Council's Annual Report will provide a view of status changes, trajectories, and emerging trends. Assessments of the output and outcome performance measures will support science-based actions in the Delta and contribute to Delta Plan updates and other Delta and estuary activities such as the San Francisco Bay Estuary Partnership's State of the Estuary Report.

In addition to monitoring and tracking, the Council is currently engaged in public outreach activities related to the output and outcome measures dashboard. Demonstrations and workshops with stakeholders and partner agencies provide information about the output and outcome performance measures as well as a space to solicit feedback on the presentation of information.

Since the output and outcome performance measures were recently updated, no additional changes to the measures are recommended at this time. However, the Council has identified the following specific actions to improve output and outcome performance measure implementation:

- Communicate output/outcome performance measure information and implications to stakeholders.
 - Continue outreach and education through working groups, conferences, direct interagency engagement, and public engagement.
 - Improve linkages between the reporting tool and the administrative performance measures to illustrate how these two types of performance measures reinforce each other and connect conditions on the ground to agency actions.
- Continuously improve the value of the reporting tool through timely content updates and connecting users to more resources.
 - Update the output-outcome performance measures reporting tool to include new performance measures introduced as a part of the proposed amendment to Chapter 4, *Protect, Restore, and Enhance the Delta Ecosystem*, of the Delta Plan, once adopted.

Staff Development and Technological Advancement

Recommendations:

- *Focus resources and efforts on the development of staff capacity, expertise, and IT infrastructure improvements.*
- *Deploy new analytical tools to support management and policy decisions, with specific focus on synthesis, visualization and communication, performance measures tracking, and covered action analyses.*

The Delta Reform Act directs the Council to create a Delta Plan that incorporates all of the following attributes (Water Code section 85308):

- “Be based on the best available scientific information.”
- “Include quantified or otherwise measurable targets associated with achieving the objectives.”
- “Where appropriate, utilize monitoring, data collection, and analysis of actions sufficient to determine progress toward meeting the quantified targets.”
- “Where appropriate, recommend integration of scientific and monitoring results into ongoing Delta water management.”
- “Include a science-based, transparent, and formal adaptive management strategy for ongoing ecosystem restoration and water management decisions.”

Analysis of past development and implementation of the Delta Plan indicates an increasing need for expertise in data-driven analyses and tools to connect critical information to decision makers.

The Council engages in many processes—such as developing new policies and Delta Plan amendments, analyzing performance measures, and coordinating scientific reviews—that improve and incorporate scientific information related to the agency’s mission. This effort involves building and maintaining technical capacity and knowledge across a broad range of topics including the Delta ecosystem, statewide water supply, regional culture and economics, and Delta hydrology and physical dynamics, as well as developing and deploying communications tools that convey technical information to stakeholders, decision makers, and the public. Understanding and using appropriate analytical tools and processes to connect best available science and data to decision support has been important in implementation of the Delta Plan.

Since the Delta Plan was adopted, the Council has conducted technical analyses and communicated complex information to inform policy and adaptive management decisions. This includes development of the Delta Plan itself, early consultation tools and resources for covered action consistency certifications, the Delta Science Plan, State of Bay-Delta Science publications, output/outcome performance measures dashboard, the Delta Levees Investment Strategy decision support tool, and more. These activities have led to some of the most important information used for Delta Plan development, implementation, and tracking. Additional resources will be required to continue to perform these types of analyses, and to develop and deploy the next generation of tools.

The need for data-driven decision-making is likely to accelerate in the future. This will require development of appropriate staff capacity to process, analyze, and communicate findings and recommendations to the Council. Ongoing efforts, including the proposed Delta Plan Ecosystem chapter amendment and the Climate Change Vulnerability Assessment and Adaptation Strategy, highlight the types of skills and tools that are needed now and will increasingly be needed in the future.

The Council identified the following priority actions to strengthen Delta Plan implementation through staff development and technological advancement:

- Develop an information technology infrastructure, hardware, and software update plan to meet technological development and deployment needs, and to plan for migration to cloud-based computing.
- Develop internal capacity to deploy analytical, visualization, and technical communication tools. Potential next steps include:
 - Targeted technical training to advance Council projects that include performance of statistical analyses, modeling, and data management; use of open platforms for collaborative project development and synthesis; use of visualization and communication tools; and use of decision-support processes like structured decision-making.
 - Leverage existing models to support forecasting of conditions or outcomes from management actions, and to provide decision-support tools. The Council already facilitates an Integrated Modeling Steering Committee, providing an existing platform for this activity.

- Increase collaboration with scientists at partner agencies to foster learning and development of resources and expertise in technical areas.
- Hire and retain staff with appropriate technical experience and knowledge of the Delta.
- Improve technical capacity that supports the Council and implementation of the Delta Plan, including data-driven policy analysis and development.
- Continue to invest in resources to support covered actions and to improve user experience, accessibility, and utility for project proponents.
 - Improve and support web-based certification and appeal portals.
 - Develop a web map of spatial Delta Plan regulatory policies.
 - Improve online tracking and reporting for covered actions.

Key Planning Topics and Emerging Issues

The Council needs to continually evaluate key planning topics and emerging issues that are of importance to the state, policy makers, and Californians. The original Delta Plan anticipated some of these issues, but not all of them. Therefore, the depth of treatment or policy responses in the current Plan may not be fully aligned with the current understanding of science, the societal importance of these issues, or both. Subsequent amendments to the Delta Plan need to balance between providing a long-term, stable framework while still anticipating key policy issues that may arise. The Council can also address best available science, state and federal policy and priorities, and economic drivers that may also direct shifts in the importance of each issue outside of the Delta Plan through synthesis, policy white papers, or other forums.

Based on analysis of the Delta Plan, stakeholder feedback, and recent scientific findings, four planning topics and emerging issues were identified as having a specific need for more information and analysis to inform potential future actions: (1) environmental justice and disadvantaged communities; (2) robust treatment of climate change risks to the Delta; (3) federal coordination and participation; and (4) various aspects of Delta as an evolving place. The Council has already begun to develop additional information related to each of these issues to support future policy decisions or implementation activities, but additional work is needed prior to deciding on an appropriate policy response.

Environmental Justice and Disadvantaged Communities

Background

Environmental Justice (EJ) refers to communities disproportionately impacted by the environmental impacts of planning and project decisions. Disadvantaged communities (DAC) refer to communities with significant poverty or other adverse economic factors. These communities are also often (but not always) underserved by basic services

associated with adequate standards of living, including access to reliable and clean water, safe and sanitary housing, food security, and transportation.

The Delta region is home to multiple disadvantaged communities and environmental justice is an area of concern for many activities in the Delta; in addition, water exported from the Delta is an important source of drinking and irrigation water for disadvantaged communities throughout the state. Since adoption of the Delta Plan in 2013, the state legislature has passed several environmental justice and disadvantaged community laws, and both the Brown and Newsom Administrations have identified these issues as key areas of concern.

The Delta Plan contains consideration of, and references to, environmental justice issues and disadvantaged communities. However, through the five-year review process, the Council identified additional aspects worthy of further investigation.

Environmental Justice

Environmental justice in California law is defined as “the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies” (Government Code section 65040.12[e]). The California Attorney General’s office clarified that “fairness in this context means that the benefits of a healthy environment should be available to everyone, and the burdens of pollution should not be focused on sensitive populations or on communities that already are experiencing its adverse effects.”³

Chapter 3, *A More Reliable Water Supply for California*, of the Delta Plan recognizes California’s Human Right to Water statute (Water Code section 106.3) which declares that “every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes” and that relevant agencies need to take this into consideration “when revising, adopting, or establishing policies, regulations, and grant criteria.”

In 2015, California became the first state to mandate that all state agencies consider the effects of climate change in planning and investment decisions when Governor Jerry Brown issued Executive Order B-30-15. This order states that because “climate change will disproportionately affect the state’s most vulnerable citizens,” all “State agencies’ planning and investments shall...protect the state’s more vulnerable populations.”

Government Code section 65302 requires local governments to “identify objectives and policies that prioritize improvements and programs that address the needs of disadvantaged communities” in their general plans. County and city general plans need to include “a safety element for the protection of the community from unreasonable risks associated with the effects of various geologic hazards, flooding, wildland and urban fires, and climate adaptation and resilience strategies.”

In response to these legislative measures, the State Water Resources Control Board (State Water Board) and Regional Water Quality Control Boards have established an Environmental Justice Program to integrate environmental justice in the decisions, regulations, and policies of these agencies.

Within the Delta, and in areas reliant on water supplies exported from the Delta, low-income communities and communities of color experience a disproportionate burden of health problems. These inequitable impacts are often caused by decades-long, pervasive socioeconomic conditions that are perpetuated by systems of unbalanced resource distribution. Over time, several factors, including climate change, are expected to exacerbate these disproportionate impacts.

Disadvantaged Communities

Disadvantaged communities are (1) “areas disproportionately affected by environmental pollution and other hazards that can lead to negative public health effects, exposure, or environmental degradation,” or (2) “areas with concentrations of people that are of low income, high unemployment, low levels of homeownership, high rent burden, sensitive populations, or low levels of educational attainment” (Health and Safety Code section 39711). These low-income areas typically have “an annual median household income that is less than 80 percent of the statewide annual median household income” (Water Code section 79505.5).

A variety of tools and methodologies can be used to characterize disadvantaged and vulnerable populations. Several such tools indicate that many in-Delta communities are disadvantaged in some aspect. A commonly used environmental health screening tool, CalEnviroScreen, indicates that much of the Delta is disproportionately burdened by, and vulnerable to, multiple sources of pollution. Other tools provide assessments of other metrics of environmental and social vulnerability, and include:

- The *Climate Change and Health Vulnerability Indicators for California*, part of California Building Resilience Against Climate Effects (CalBRACE),⁴ a California Department of Public Health project, measures resilience from a health perspective.
- The *Urban Heat Island Index for California*⁵ (a CalEPA tool) focuses on vulnerability to extreme heat caused by urban development.
- The *Healthy Places Index (HPI)*⁶ and *Regional Opportunity Index (ROI)*⁷ both focus on the social half of environmental justice community identification.
- All of these tools identify populations and areas within the Delta that fall below statewide average conditions for each metric.

In addition to providing drinking water for communities throughout the state, Delta water exports provide an important source of water for agricultural communities in the San Joaquin Valley and central coast, and thus directly impacting the economy, tax base, and employment opportunities throughout these areas.

As discussed above, there are many tools, metrics, and methodologies for identifying environmental and social disadvantage. A challenge for the Council in addressing environmental justice and involvement of disadvantaged communities, in planning efforts in the Delta and in Delta Plan implementation, is identifying which tools and indicators of community vulnerability would be the most relevant to, or effective for, achieving the Council’s goals.

Additionally, existing indicators can be used to produce high-level measures of the environmental vulnerability of underserved communities throughout California, but continued data collection (and at smaller geographic scales) will allow these indicators to be used more effectively to better serve the needs of the Council in the future.

State Funding Initiatives Related to Environmental Justice and Disadvantaged Communities

The State has acknowledged the historical underinvestment in disadvantaged communities and explicitly directed funds to help meet the water supply and water quality needs of these areas. All recent water-related bond initiatives have included provisions to ensure that significant portions of grant funding be allocated to disadvantaged communities, economically distressed areas, or underrepresented communities. In addition, Health and Safety Code sections 39713 and 39715 amendments allocate a set amount of the proceeds from the cap-and-trade program to projects that provide benefit to and/or are located in disadvantaged communities. The passage of these propositions highlights the emergence of environmental justice and engagement with disadvantaged communities as statewide public priorities.

Findings

Recognizing the importance of environmental justice and involvement of disadvantaged communities in planning efforts in the Delta and in Delta Plan implementation, the Council has taken recent steps to address these topics in the Delta Plan, and engagement with these communities has increased.

Recent amendments to the Delta Plan comprise recommendations that, among other things, address improvements to conveyance, system storage, and the operations of both that can support sustainable water management throughout the State. This support benefits disadvantaged communities, and helps ensure the right to safe, clean, affordable, and accessible water for human consumption and domestic use. Specific recommendations in the Delta Plan that address the State's human right to water policy, that are consistent with California Water Code section 106.3, include:

- **WR R12b.** Evaluate, Design, and Implement New or Improved Conveyance or Diversion Facilities in the Delta
- **WR R12f.** Implement New or Expanded Groundwater Storage
- **WR R12h.** Operate Delta Water Management
- **WR R12j(2)(e).** Operate New or Improved Conveyance and Diversion Facilities Outside of the Delta

Other chapters of the Delta Plan relate to environmental justice and disadvantaged communities' issues and may warrant future expansion of scope and policy responses, including:

- Delta Plan Chapter 5, *Protect and Enhance the Unique Cultural, Recreational, Natural Resource, and Agricultural Values of the California Delta as an Evolving Place*, calls for "cooperat[ing] with local and regional planning agencies to provide timely advice about sustainable community strategies and other local and

regional plans for consistency with the Delta Plan...Through this coordination, decisions about locating and planning new urban development in the Secondary Zone can be coordinated to meet local communities' housing and other needs." Delta Plan recommendation **DP R3** says to "plan for the vitality and preservation of legacy communities," **DP R5** encourages "adequate infrastructure to meet needs of development with...local plans," and **DP R12** calls for recreation development to "minimize adverse impacts to nonrecreational landowners." However, aside from Delta Plan recommendation **DP R3** (which only accounts for 2 percent of the Delta's total population), none of these recommendations include community welfare as a factor in performance measurement. There is also no specific mention of disadvantaged communities.

- Delta Plan Chapter 6, *Improve Water Quality to Protect Human Health and the Environment*, explicitly recognizes small and disadvantaged communities as an "additional area of...concern related to water quality" since "ensuring a safe drinking water supply can have a disproportionate cost" for these populations. The water supply in these areas is often disproportionately impacted by nitrate and other groundwater pollutants. Delta Plan recommendations **WQ R1** through **WQ R3** are linked to in-Delta water quality but do not provide any specific protections to, or consideration of, vulnerable populations that may be disproportionately dependent on Delta water quality.

Stakeholders recently provided feedback suggesting that an issue related to environmental justice and disadvantaged communities is a lack of representation in the Council's decision-making process. While these local stakeholders are interested in Delta planning, they expressed frustration about the extent of formal representation of Delta communities within the Delta's statutory decision bodies. They find the composition of the Council and the DPIIC inadequate to address their concerns, and that elected officials outside of the Delta often overlook their concerns in favor of other interests. In addition, the broad spatial distribution of the Delta and its communities means that representatives may have differing concerns depending on their location within the region, making it difficult for an individual or group to fully represent the region's diverse concerns and needs. While the covered action appeals process affords stakeholders opportunities for engagement and disclosure, local landowners, tribes, and community members suggested more coordination between them and the Council on Delta Plan implementation efforts.

Other concerns voiced by stakeholders include the technical nature of the Delta Plan and the format of Council meetings. Those interviewed understand that some of the technical nature of the Plan is necessary and that certain jargon or technical language needs to be used. These community members also suggested that the traditional Council meeting formats and forums for interaction with Council at the meetings were not conducive to fully capturing concerns or understanding complex issues, and that the implications of Delta planning and policy decisions made by the Council were not fully understood by the public.

The Council is currently developing a public participation plan that will address how environmental justice and disadvantaged communities can be better integrated into

Council's decision-making processes. By utilizing the indicators discussed above, the Council would be able to accurately identify disadvantaged communities for the participation plan—allowing for more effective engagement and feedback.

There is considerable scope and uncertainty as to what the appropriate level of coverage and potential policy responses the Delta Plan could offer on these issues. The recommended issue paper would summarize best available science and identify policy options for the Council to consider.

Robust Treatment of Climate Change Risks to the Delta

Since the Delta Plan was adopted in 2013, our understanding of climate change as one of the defining challenges of the twenty-first century has progressed. Critical changes to temperatures and precipitation are occurring in California and will continue to transform the Delta and its watershed. While the Delta Plan recognizes climate change as a global stressor, the effects to the Delta ecosystem are discussed generally and with limited focus on management strategies to address climate vulnerabilities.

Background

The consensus of a large body of scientific work clearly indicates that Earth's climate is changing and will continue to change at an increasingly rapid pace.⁸ Global warming—the observed and continuing increase in atmospheric and ocean temperatures—is expected to continue, although the exact rate of climatic change remains difficult to predict.⁹ These changes will affect the Delta and Suisun Marsh ecosystem and subsequently, the Delta Reform Act's mandate to protect, restore, and enhance these areas while achieving the coequal goals.

In the Delta and Suisun Marsh, global warming creates four primary stressors with the ability to impact the watershed: increasing air temperatures, sea level rise (SLR), increased frequency of extreme weather events (e.g., floods, droughts), and changing precipitation and runoff patterns.¹⁰ The Delta will experience climate change effects both from gradual changes, due to key stressors, and from extreme events—such as floods and droughts—that are likely to become more frequent.¹¹

As the climate warms, increasing air temperatures cause thermal expansion of the oceans and melting of land-based glaciers, ultimately leading to accelerating rates of sea level rise.¹² In the Delta, sea level rise will impact the following: Delta flows (e.g., increased tidal water levels), native Delta habitat, and water quality (e.g., increased salinity intrusion). Future sea level rise and extreme weather events will also increase the frequency of high-water events in the Delta, making levees more vulnerable to overtopping and failure.¹³

Delta hydrology—the movement, distribution, and quality of water as it circulates through the environment—will change partly due to more precipitation falling as rain and snow melting earlier in the season. These changes will alter the flow regime of the Delta watershed. Dry season flows are expected to become harder to maintain and summer and fall salinity levels in the Delta are expected to increase. This altered flow regime (in addition to sea level rise, storm surge, and tidal fluctuations) will cause variations in

water level that will determine what parts of the Delta are inundated, as well as how frequently, when, and for how long. This variability in inundation has important implications for the people who live and work in the Delta, as well as tidal marsh and other habitats important to native Delta species.¹⁴

Climate change is expected to affect water quality in the Delta and Suisun Marsh primarily by increasing salinity intrusion and water temperatures, making it harder to restore a healthy Delta ecosystem, and by exacerbating existing challenges such as invasive (i.e., nonnative) species. An increase in salinity will impact the range distributions of native species while also posing problems for agricultural and municipal and industrial water users.¹⁵ Changing hydrological patterns may increase the prevalence of some pollutants (e.g., disinfection byproducts) and increase water temperature conditions in the Delta, leading to increased harmful algal blooms and/or resulting in water supply/treatment problems.¹⁶ Altered precipitation and runoff patterns are likely to limit the degree to which reservoir management can be used to improve these conditions and mitigate their impacts.

Human-caused impacts have reduced the resiliency of the Delta, making the system vulnerable to stressors due to its diminished condition. These activities have impaired the condition of the Delta ecosystems (e.g., wetland, riparian) by reducing habitat extent, introducing new stressors (e.g., nonnative species, toxins) and putting limits on how the landscape and ecosystems can behave in response to future variability. Disconnected energy flows across elevational, latitudinal, and horizontal gradients, and the reduction or removal of ecological interfaces will continue to impact how the Delta responds to climate change in the future.

Findings

The Delta Reform Act specifies consideration of “the future impact of climate change and sea level rise” (Water Code section 85066) and identifies a restoration timeline horizon of the year 2100 (Water Code section 85302). More generally, executive Order B-30-15 (2015) requires state agencies to consider the “future impacts of climate change and sea level rise” and to incorporate these considerations into planning and investment decisions.

Recent stakeholder engagement has further illustrated a rising concern for climate change and its projected impacts on economic, social, and environmental resources in the Delta. Specifically, sea level rise, weather extremes, and native habitat and species decline were issues raised throughout the engagement process for this review.

The Delta Plan acknowledges the need to consider changing climate conditions and sea level rise, but additional steps should be taken to safeguard achievement of the coequal goals for the Delta in the context of a changing climate. The following Delta Plan recommendations include those adopted by the Council in 2013 and additional recommendations adopted by the Council in 2019 to improve conveyance, system storage, and the operations of both, and to support actions to address an uncertain climate future:

- **WR R4.** Expanded Water Supply Reliability Element

- **WR R12b(1)(c).** Evaluate, Design, and Implement New or Improved Conveyance or Diversion Facilities in the Delta
- **WR R12b(2)(a).** Evaluate, Design, and Implement New or Improved Conveyance or Diversion Facilities in the Delta
- **WR R12d(1)(b).** Promote Options for New or Expanded Water Storage
- **WR R12d(2).** Promote Options for New or Expanded Water Storage
- **WR R12e(1)(a).** Design, Construct, and Implement New or Expanded Surface Water Storage
- **DP R6.** Plan for State Highways
- **RR R11.** Designate Additional Floodways

Furthermore, efforts are underway to better integrate climate change science into Delta Plan Chapter 4, *Protect, Restore, and Enhance the Delta Ecosystem*. Council staff authored three recent science synthesis papers on climate change, Delta ecosystem stressors, and Delta ecosystem management and restoration to support the Council's efforts to amend this chapter. The Council has noted that while it is difficult to quantify long-term ecosystem changes in response to climate change, planning efforts should attempt to highlight how climate change may exacerbate current stressors or create new vulnerabilities to ecosystem restoration.¹⁷ Delta Plan policies and recommendations in Chapter 4, *Protect, Restore, and Enhance the Delta Ecosystem*, are being reviewed and revised with a focus on achieving successful restoration under predicted future conditions, consistent with updated state climate change guidance.

The Council has also initiated a three-year effort to complete a climate change vulnerability assessment and adaptation strategy for the Delta and Suisun Marsh, working closely with other state, federal, and local agencies. This work will help identify and characterize vulnerable assets and services in the Delta; sensitivity, exposure, and adaptive capacity of human, animal, and plant populations; and gaps and linkages in local and regional climate change planning efforts. The Council has assembled a technical advisory committee and will be soliciting stakeholder feedback to assess the climate change vulnerability assessment, adaptation strategies, and resiliency goals. This work will provide additional downscaled climate science information and adaptation strategies specific to the Delta to support state and local planning. Following completion of this assessment, the Council will evaluate the potential for amendments to the Delta Plan to better address climate change risks to the Delta.

Federal Coordination and Participation

Based on a review of Delta Plan progress and stakeholder feedback, the Council identified federal coordination and participation as a key planning topic to address for supporting improved Delta Plan implementation efforts.

Background

The Delta Reform Act states that “The council shall develop and implement a strategy to appropriately engage participation of the federal agencies with responsibilities in the Delta. This strategy shall include engaging these federal agencies to develop the Delta Plan consistent with the federal Coastal Zone Management Act of 1972 (16 U.S.C. Sec. 1451 et seq.), the federal Clean Water Act (33 U.S.C. Sec. 1251 et seq.), and Section 8 of the federal Reclamation Act of 1902” (Water Code section 85082). Further, the Act goes on to state that “If the council adopts a Delta Plan pursuant to the federal Coastal Zone Management Act of 1972 (16 U.S.C. Sec. 1451 et seq.), the council shall submit the Delta Plan for approval to the United States Secretary of Commerce pursuant to that act, or to any other federal official assigned responsibility for the Delta pursuant to a federal statute enacted after January 1, 2010 (Water Code section 85300, subd.[d]).”

Affirming federal participation in management activities in the Delta, the coequal goals for the Delta were included in the federal Energy and Water Development Appropriations Act of 2012 (Title II of the Consolidated Appropriations Act of 2012 PL 112-074):

The Federal policy for addressing California’s water supply and environmental issues related to the Bay-Delta shall be consistent with State law, including the coequal goals of providing a more reliable water supply for the State of California and protecting, restoring, and enhancing the Delta ecosystem... Nothing herein modifies existing requirements of Federal law. (Section 205)

Many initiatives, programs, and plans developed and implemented over the past 50 years address federal-state collaboration and cooperation on activities related to water management and improved habitat conditions within the Delta. Some recent examples include the California Bay-Delta Program (CALFED), established in 1995; and the *Interim Federal Action Plan for the California Bay-Delta*, developed in 2009 by U.S. Department of the Interior (DOI), Department of Commerce, Department of Agriculture (USDA), Department of the Army, U.S. Environmental Protection Agency (USEPA), and the Council on Environmental Quality. The Interim Action Plan states that its “most important aspect... is the Federal Government’s reaffirmation of its partnership with the State of California and local authorities” (2009).

A 2018 report by the Government Accountability Office (GAO), *San Francisco Bay-Delta Watershed: Wide Range of Restoration Efforts Need Updated Federal Reporting and Coordination Roles*, examined, among other things, the extent to which federal and nonfederal entities coordinate watershed restoration efforts. The report concluded that “[t]he complex nature of the restoration efforts in the San Francisco Bay-Delta watershed demands a high level of coordination across many entities and competing interests. The results of federal and nonfederal entities working together can be seen in

parts of the watershed, such as the Bay...In other parts of the watershed, particularly the Delta, coordination has wavered.”

Sections below provide background on current federal agency coordination and collaboration on Delta Plan implementation activities and describe potential increased federal coordination and participation opportunities.

Delta Plan Interagency Implementation Committee

As previously discussed, the Council established DPIIC shortly after adoption of the Delta Plan in 2013. Federal agencies on DPIIC include: NOAA Fisheries; the Army Corps of Engineers (USACE); EPA; the Department of the Interior, Bureau of Reclamation (Reclamation), Fish and Wildlife Service (USFWS), and Geological Survey (USGS).

Federal agency DPIIC members have previously requested that DPIIC meetings provide a clearer message as to what the state agencies need from the federal government. In addition, there are several other similar state-federal partnerships across the country where representatives serve on task-forces together. Studying the successes of these other partnerships could provide a model for how to get the most out of federal engagement in the Delta, particularly on funding that affects Delta projects.

Federal Engagement, Partnerships, and Programs

The Council actively engages with federal agencies on implementation of program, projects, and plans that benefit the Delta and the Council’s activities to further achieve the coequal goals. Council staff engage with federal agencies through a long-list of working groups, technical advisory committees, and forums that assist with science support and adaptive management of federal projects. Staff also engage with federal agencies through the early consultation process on infrastructure and restoration projects and programs where there are joint state-federal project proponents (e.g., Coordinated Long-Term Operation of the CVP and SWP and Related Facilities, Yolo Bypass Salmonid Habitat Restoration and Fish Passage, California WaterFix, and Los Vaqueros Reservoir Expansion Project).

The Council’s activities are supported and implemented through several key partnerships with federal agencies, including, but not limited to the following:

- **National Estuary Program and San Francisco Estuary Partnership:** The National Estuary Program, administered by the EPA plays an important role in the management of natural resources nationwide. The Council has been an active participant in development and implementation of the management plan for the San Francisco-Bay Delta National Estuary Program since 2013. The San Francisco Estuary Partnership develops and maintains the Estuary Blueprint Comprehensive Conservation and Management Plan (CCMP) and convenes an implementation committee that includes many of the same members as DPIIC. Over the past several years, the Council has been emphasizing and strengthening our Bay-Delta connections through more engagement in the CCMP Implementation Committee meetings. The Estuary Blueprint lays out an

action plan to manage the estuary, and many Council priorities are included in the plan. In addition, the Council is co-publishing a State of the Estuary report in Fall 2019 that includes Delta Plan performance measures, and the Council is a major partner in the biennial State of the Estuary conference. This engagement is an important part of the federal engagement process for the Council.

- **Memorandum of Understanding with USGS for Delta Lead Scientist**
Position: The USGS and the Council have a long history of partnership to support our role as an honest broker of science in the Delta. Pre-dating the Council, the USGS sponsored the Delta Lead Scientist position under CalFed, and the CALFED and the CALFED science program. The Council has a memorandum of understanding with USGS that outlines the roles and responsibilities of each agency, and it defines the roles that the Delta Lead Scientist plays in supporting the mission of the Delta Science Program and in supporting adaptive management of the Delta Plan. This role, and the independence maintained by the partnership, are critical to implementing the Delta Plan, and to providing independent oversight and science advice to the Council.
- **Engagement with US Bureau of Reclamation:** The Council has been working closely with Reclamation to support their need for credible, legitimate, and relevant science to support decision making. There are several venues for this work: through reimbursable contracts to support peer review and independent review of aspects of the Long-Term Operations of the Central Valley Project; through directed studies, like the recent Structured Decision Making pilot study, supporting adaptive management; and through the recent competitive solicitation that included \$2 million in federal funding for critical science investigations. The partnership and close coordination with Reclamation provides opportunities for adaptive management of the Delta Plan recommendations, as well as important forums for discussion of science needed to support decision making.
- **Opportunities for Engagement:** In addition, Council staff work closely with federal agencies to understand how their work could assist with implementation of future Delta Plan activities. For example, the USACE conducted a Delta Islands and Levees Feasibility Study in 2014. The Study evaluated federal interest, under multiple authorities, in flood risk management and ecosystem restoration within the Delta. A fundamental assumption of the study was that the conservation measures identified by the BDCP would be implemented, and therefore did not require evaluation or consideration. The decision by California not to pursue the BDCP leaves an opportunity to re-engage with the USACE to more comprehensively study the problems and opportunities with respect to ecosystem restoration and to re-evaluate federal interest in these activities. In 2018, USACE and nonfederal partner DWR authorized implementation of the study recommendations, and they began work on several projects that benefit economic development and restoration in the Delta.

Coastal Zone Management Act

The current regulatory provisions of the Delta Plan, including the consistency review and appeals process, apply to covered actions of state and local agencies. However, as stated above, the Delta Reform Act requires the Council to develop and implement a strategy to appropriately engage participation of the federal agencies with responsibilities in the Delta (Water Code section 85082). The Delta Reform Act goes on to state that if the Council adopts a Delta Plan pursuant to the federal Coastal Zone Management Act of 1972 (CZMA) (16 U.S.C. Sec. 1451 et seq.), the Council shall submit the Delta Plan for approval to the United States Secretary of Commerce pursuant to that act, or to any other federal official assigned responsibility for the Delta pursuant to a federal statute enacted after January 1, 2010 (Water Code section 85300).

The CZMA, administered by NOAA's Coastal Programs Division, is responsible for advancing national coastal management objectives and maintaining and strengthening state and territorial coastal management capabilities. The goal of the CZMA is to address national coastal issues and to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone."¹⁸ The National Coastal Zone Management Program encourages eligible states to implement management plans that will balance the competing demands of coastal resource use, economic development, and conservation.

Section 307 of the CZMA (16 U.S.C section 1456), called the "federal consistency" provision, gives states a voice in federal agency decision-making activities that may impact a state's coastal uses or resources. The federal consistency provision allows state agencies to manage coastal activities and resources and to facilitate coordination with federal agencies.

The federal consistency provision requires that "[e]ach Federal agency activity within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone shall be carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved State management programs"—although the opportunity for Presidential exemption exists (section 307[1][A] and 307 [1][B]). It outlines that "[e]ach Federal agency carrying out an activity subject to [(1)(A)] shall provide a consistency determination to the relevant State agency...at the earliest practicable time, but in no case later than 90 days before final approval of the Federal activity unless both the Federal agency and the State agency agree to a different schedule" (section 307[1][C]).

Pursuant to section 307, a federal agency will provide a state with a consistency determination for any activity affecting coastal uses or resources; and a lead state agency—typically the same agency implementing the management program—will perform a federal consistency review. Under this authority, if the Delta Plan were approved as a federal coastal management program under the CZMA, the Council would be authorized to review activities of federal agencies affecting the Delta, including activities directly conducted by federal agencies and activities permitted or licensed by these agencies, for consistency with the Delta Plan.

In 1978, California joined the Coastal Zone Management Program. California's Coastal Zone Management Program is administered by three state agencies:

- The [California Coastal Commission](#) manages development along the California coast except San Francisco Bay, where the
- [San Francisco Bay Conservation and Development Commission](#) (BCDC) oversees development.
- The [California Coastal Conservancy](#) purchases, protects, restores, and enhances coastal resources, and provides access to the shore.

Within the area addressed by the Delta Plan, the Suisun Marsh is already covered by the California Coastal Zone and is protected by BCDC—the federally designated state coastal management agency for the San Francisco Bay segment of the California Coastal Zone. The federal CZMA empowers BCDC to ensure that federal projects and activities are consistent with BCDC's regulations and policies. The Suisun Marsh Protection Plan (Marsh Plan), administered by BCDC, protects a primary management area comprised of tidal marsh, managed wetlands, adjacent grasslands, and waterways; while the Local Protection Program (LPP) protects a secondary management area comprised of significant upland buffer lands. BCDC is currently initiating an update to the Marsh Plan, and recently approved Solano County's update to its LPP.

Since adoption of the Delta Plan, the Council has met with federal agency representatives, BCDC, and the California Coastal Commission to discuss the possibility of expanding California's Coastal Zone Management Program to the Delta by submitting the Delta Plan to the Secretary of Commerce for approval under the CZMA. This complex effort warrants further investigation and analysis.

Findings

The Delta Plan currently addresses federal coordination and participation through many recommendations, including the following:

- **WR R12a.** Promote Options for New and Improved Infrastructure Related to Water Conveyance
- **WR R12b.** Evaluate, Design, and Implement New or Improved Conveyance or Diversion Facilities in the Delta
- **WR R12c.** Improve or Modify Through-Delta Conveyance
- **WR R12d.** Promote Options for New or Expanded Water Storage
- **WR R12e.** Design, Construct, and Implement New or Expanded Surface Water Storage
- **WR R12g.** Promote Options for Operations of Storage and Conveyance Facilities
- **WR R12h.** Operate Delta Water Management Facilities Using Adaptive Management Principles

- **WR R12j.** Operate New or Improved Conveyance and Diversion Facilities Outside of the Delta
- **ER R4.** Exempt Delta Levees from the USACE's Vegetation Policy
- **RR R1.** Implement Emergency Preparedness and Response
- **RR P4.** Floodplain Protection
- **RR R10.** Continue Delta Dredging Studies
- **RR R12.** Renew Federal Assistance for Post-Disaster Response

Although these Delta Plan recommendations, and their associated administrative performance measures, provide mechanisms for federal agency coordination and participation, there are still additional opportunities to improve collaboration for Delta Plan implementation.

One mechanism identified is through more directed engagement of DPIIC. Based on recent interviews with DPIIC agency representatives, the addition of working meetings driven by action items and outcomes could focus DPIIC attention on actions related to Delta Plan implementation, including those activities led by federal agencies. Additionally, DPIIC provides an existing forum in which state and federal agencies are identifying barriers to Delta Plan project implementation. Restoration projects provide a specific area of potential cooperation to improve Delta Plan implementation. Known barriers to implementing ecosystem restoration projects include restrictions on the amount and use of restoration funding, complex and time-intensive permitting requirements, and a lack of authority and funding to support long-term ownership and management of restoration projects. Addressing these challenges requires institutional commitment to a single, consolidated restoration forum with agency support and discretion to align strategies. The existing charter and federal engagement of DPIIC provides a framework for this type of forum, focused on implementing restoration projects.

Also, the extent and complexity of some of the programs, projects, and plans led by federal agencies that relate to Delta Plan implementation requires continued Council staff coordination with federal agency staff. The continued staff-to-staff coordination will be important for building relationships between the Council and federal agencies, and for fostering a better understanding of, and voluntary alignment with, the Delta Plan by federal agencies. Strategic partnerships amongst agencies, including continued investment in fostering these relationships on an ongoing basis, will be important to help accelerate progress toward protecting, restoring, and enhancing the Delta ecosystem.

In order to investigate fully the potential strategies for engaging federal agencies, the Council recommends developing an issue paper that outlines opportunities to improve federal participation. This will include documenting the steps necessary to submit the Delta Plan to the Secretary of Commerce for inclusion in California's Coastal Zone Management Program under the CZMA, greater use of DPIIC, staff-to-staff engagement, and other potential strategies. The Council would explore trade-offs and

synergies between these strategies for improving federal participation in Delta Plan implementation.

Delta as an Evolving Place

The Delta Plan provides a framework for how best to protect and enhance the characteristics and values of the Delta as a unique and evolving place (Delta as Place). Since the Plan's adoption in 2013, the Council and stakeholders have suggested that this concept be better integrated throughout the Plan, and that it identifies several key topics that could be considered for future amendments or other actions.

Background

The Delta Reform Act tasked the Council with carrying out the coequal goals (providing a more reliable water supply for California, and protecting, restoring, and enhancing the Delta ecosystem) “in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place.”

As an evolving place, the Delta will need to adapt to changing social, economic, and environmental conditions in an uncertain future—whether due to climate change (e.g., sea level rise, extreme weather events), growing populations, or shifting commodity markets. While change is inevitable, some of these changes can be accommodated through policies and recommendations that help preserve and enhance the unique characteristics and values that distinguish the Delta from other places.

Delta Plan Chapter 5, *Protect and Enhance the Unique Cultural, Recreational, Natural Resource, and Agricultural Values of the California Delta as an Evolving Place*, describes a future “...where the Delta's unique qualities are recognized and honored. Agriculture will continue to thrive on the Delta's rural lands; and its cities, ports, and rural villages will be desirable places to live, work, and do business. Visitors to the region will enjoy recreation on and in its waterways, marshes, resorts, parks, and historic legacy communities. The Delta's land uses and development will be resilient, protecting the rural character of the area, reducing risks to people and property, adjusting to changing conditions, and promoting the ability to recover readily from distress. The Delta's economic vitality will provide resources to respond to change and to support the families and businesses that make the Delta home. The vision of the Delta as an evolving place also acknowledges the role of Delta residents in shaping the future of the region through active and effective participation in Delta planning and management.”

To further this vision, in 2017, the Delta Protection Commission spearheaded the Delta as Place Interagency Working Group to facilitate implementation of policies and recommendations identified in the Delta Plan and to advance Delta values. The Council participates in this working group, which focuses on “coordinating activities in agricultural sustainability, culture, economic development, energy and transportation infrastructure, recreation, and subsidence reversal/carbon markets across federal, State, and local agencies.”

Findings

The Council and stakeholders identified several emerging issues related to the Delta as Place. Broadly, some stakeholders believe that the concept of the Delta as an evolving place is still being defined, and that stakeholders and decision-makers struggle to understand or have a common vision of what it means. This interpretive process will require considerable transparency from all parties involved.

Representation from in-Delta communities is a common concern for many residents who feel that a lack of orientation to Delta as Place by decision-makers and non-residents could be a future barrier to the Plan's success. Stakeholders suggested that open communication and meaningful inclusion during the planning process (as opposed to during litigation), as well as clearly defined expectations and factors for success, could lead to more consistent progress.

While the Delta Plan includes a core strategy to "maintain Delta agriculture," some current and past agricultural practices in the Delta have contributed to land subsidence, aquatic habitat loss, and water quality degradation. As the climate continues to change, sea level rise and levee vulnerability will further increase risks to Delta communities and residents. Moving towards a strategy that favors improving Delta agriculture and evolving Delta land uses to be more sustainable may be more aligned with long-term protection of the Delta as an evolving place. Future Delta Plan amendments could recommend guidance, incentives, or other programs to support alternative land-use practices that would produce a more resilient system that better preserves the Delta's unique characteristics.

Cultural resources, tribal values, and ecocultural values are part of what makes the Delta a unique and evolving place. Currently, the Delta Plan focuses primarily on the agriculture and economic side of Delta as Place, consequently missing some of the important and unique ecosystem services and values. Additional research and analysis could inventory and document these distinct cultural issues (i.e., cultural, tribal, ecocultural) and incorporate emerging social science work to help guide more targeted policies and recommendations related to Delta as Place.

While the Delta Plan dedicates Chapter 5, *Protect and Enhance the Unique Cultural, Recreational, Natural Resource, and Agricultural Values of the California Delta as an Evolving Place*, to Delta as Place considerations, the Delta Protection Commission has recommended to the Council "...that any revisions to the Delta Plan must include within each chapter specific recommendations and policies to achieve the protection and enhancement of the Delta's unique cultural, recreational, natural resource and agricultural values as an evolving place." Recent updates to Delta Plan Chapters 3, 4 (ongoing), and 7 are responsive to this recommendation.

Another area highlighted by Council members, stakeholders, and the Delta Independent Science Board, is the need to incorporate more social science into research, studies, and planning being conducted within the Delta. Social science was identified as one of the priority areas in the Delta Science Program's Science Action Agenda. In January 2019, the Council convened a Social Science Task Force that will recommend strategies for agencies to improve the use of social science for communication and

decision-making in the Delta, including how it relates to Delta as Place. The Delta Social Science Task Force cohosted a workshop during July 2019 to highlight how social science research can address Delta management needs and to explore the integration of social and natural sciences in other systems.

To continue addressing these concerns, the Council recommends (1) the preparation of an issue paper summarizing the best available science and identifying policy options related to “Delta as Place” following completion of the ongoing efforts, including the Climate Change Vulnerability Assessment and Adaptation Strategy, social science task force, and public participation plan, and (2) to continue to engage the Delta Protection Advisory Committee and Delta Protection Commission when conducting future Delta Plan amendments.

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Chapter 5. Next Steps

<To be developed after August 2019 Council meeting>

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⁵ California Environmental Protection Agency. 2019. Urban Heat Island Index for California. Available at: www.calepa.ca.gov/climate/urban-heat-island-index-for-california/

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¹¹ (*ibid*)

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