

Delta Conservation Framework

A Planning Framework for Integrated Ecosystem
Conservation toward Resilient Delta Landscapes and
Communities by 2050

Executive Summary

9/26/2017

California Department of Fish and Wildlife

Christina Sloop, Brooke Jacobs, Randi Logsdon, Carl Wilcox



SACRAMENTO - SAN JOAQUIN
DELTA CONSERVANCY
A California State Agency



DELTA STEWARDSHIP COUNCIL
A California State Agency

Delta Conservation

As one of the largest inland estuary systems in the United States, the Sacramento-San Joaquin Delta (Delta) is recognized as “the most valuable ecosystem on the west coast of North and South America” (California Water Code, §85002). It is a place where people live and play, with a unique cultural history and an extraordinary natural legacy connected to ecosystems far to the north, south, and west. The Delta plays a crucial role in supporting California’s economic vitality as a central component of the State’s water supply, and contributor to the State’s substantial agricultural productivity. The Delta serves as one of the largest regional water redistribution systems in the world, relying upon a complex network of levees, dams, pumps, canals, drains and reservoirs. It is managed by local, state, and federal institutions to meet goals of water supply, flood control, and ecological conservation. The Delta still maintains patches of valuable habitat for native species including riparian corridors, passageways for adult and juvenile salmonids, and wintering grounds for migratory birds. The Delta ecosystem provides many services (called ecosystem services) to people throughout California, including recreation, aesthetic values, and fresh water. However, the Delta continues to be impacted by environmental degradation, land use changes, and climate change effects. As a result, long-term conservation of the Delta is not a choice but an urgent necessity that will benefit people as much as natural communities.^{1,2,3,4,5,6}

CONSERVATION is defined here as a means to achieving system-wide multi-benefits by integrating protection, enhancement, restoration of ecological function of Delta ecosystems with watershed management, agricultural practices, flood protection, and recreation.



A Call to Action

THE DELTA CONSERVATION FRAMEWORK IS A CALL TO ACTION to work together and develop resilient solutions for the future that integrate the needs of all Delta stakeholders with conservation over the long term.



For decades, government agencies, stakeholders, scientists, and planners have tried to arrive at a common vision for the future Delta. Ecosystem conservation is the focus of one of the two Delta Reform Act's coequal goals (CA Water Code §85054), and in recent years progress has been made to advance the Delta science capacity to support decisions affecting Delta ecosystems. Despite these substantial efforts to address known challenges, the region remains confronted with many stresses including water quality and native species declines; invasive species; vulnerable levees; statewide water demands; uncertainty about the effectiveness of conservation in restoring ecosystem function; climate change; sea level rise; and a lack of a unified vision among Delta stakeholders.⁷

DELTA STAKEHOLDERS are residents, landowners, farmers, and businesses situated in the Delta; native American tribes; the public, including citizens who rely on the Delta for water supply or for recreational uses; beneficiaries up- and downstream of the estuary; restoration practitioners; local, state and federal agencies; non-government organizations; academic institutions; private entities; and policy-makers.

A Common Vision for the Delta

In 2050, the Delta is composed of resilient natural and managed ecosystems situated within a mosaic of towns and agricultural landscapes, where people prosper and healthy wildlife communities thrive.

A new paradigm is needed that seeks to achieve functional ecosystems while acknowledging the needs of the Delta community. The Delta Conservation Framework proposes a common vision that brings together willing stakeholders around the conservation of ecosystems that people, wildlife, and communities of the Delta depend on. This common vision highlights a mosaic of working and natural ecosystems, intertwined within the Delta's agricultural landscape and thriving towns. Non-traditional partnerships focused on multi-benefit outcomes can integrate ecosystem conservation with socioeconomic needs at the landscape scale, and within each region of the Delta. Strategic conservation that builds on the history and environmental richness of the region will contribute to the strong sense of place and socioeconomic values of the Delta. The Delta Conservation Framework's common vision is a first step toward a long-term, landscape-level perspective for an evolving Delta.

The Delta Conservation Framework prioritizes implementing conservation projects on publicly-owned lands first, while remaining open to potential opportunities with willing private landowners.



Purpose

The California Department of Fish and Wildlife (CDFW) developed the Delta Conservation Framework in collaboration with the Natural Resources Agency, Delta Stewardship Council, Delta Conservancy, Department of Water Resources, and Delta Protection Commission. It is founded on feedback from individual meetings, presentations, and a series of six public workshops. A wide range of stakeholders contributed to the development of the Delta Conservation Framework including Delta residents, the Delta Counties Coalition, the Central Valley Joint Venture, federal and regional agencies, non-profit organizations, and consulting firms.

The Delta Conservation Framework provides a conservation vision with goals, strategies and objectives for integrating ecosystem conservation and management with the needs of the Delta community and stakeholders. As a long-term, high-level framework, it is based on a foundation of direct stakeholder input, a wide variety of existing plans, and science. It also serves as the framework to support existing initiatives, including California EcoRestore and the Central Valley Flood Protection Plan Conservation Strategy and initiatives which follow. Going forward, the Delta Conservation Framework will inform the amendment of the ecosystem elements of the Delta Plan and state funding priorities in the Delta.

THE DELTA CONSERVATION FRAMEWORK:

- *Offers a shared vision for the Delta through 2050, with a set of guiding principles for collaboration (Section I).*
- *Advances goals of the California Water Action Plan and the Delta Reform Act (Section I).*
- *Provides a suite of overarching goals with strategies and objectives for implementing long-lasting, landscape-scale, multi-benefit conservation solutions (Sections II – V; Appendix I).*
- *Promotes education and outreach about the importance of a healthy Delta at local, state, and national levels (Section II).*
- *Guides Delta ecosystem conservation and management beyond the California EcoRestore initiative, with focus on improving ecological processes (Section III).*
- *Promotes coordinated adaptive management programs and scientific evaluation of conservation actions over the long-term, in the context of climate change and other stressors (Section IV).*
- *Informs funding priorities (Section V).*
- *Initiates an ongoing forum for collaborative engagement at the landscape scale, and provides guidance for the coordination of collaborative regional conservation partnerships that develop and implement region-specific conservation strategies (Section VI).*

Tackling Delta Challenges

The Delta Conservation Framework includes seven landscape-scale goals with associated strategies and objectives to improve awareness of the Delta (Appendix I), expand stakeholder involvement in Delta conservation planning, provide science-based approaches to reestablish ecosystem function, and offer tools for more efficient permitting, and expand conservation funding. The strategies are intended to be implemented through Regional Conservation Strategies that tie in with existing Delta adaptive management programs,⁸ which will assess progress and changes in ecosystem processes. A science-based adaptive management process is particularly important in the face of the accelerating effects of climate change in the Delta.⁹

Delta Conservation Framework Goals:

- **GOAL A:** Integrate regular stakeholder communication and socio-economic considerations into Delta conservation planning, implementation, science and adaptive management processes.
- **GOAL B:** Support and expand existing public education programs and run state and national outreach campaigns focused on Delta values and ecosystem conservation.
- **GOAL C:** Develop multi-benefit focused conservation and land management solutions to balance environmental and human needs.
- **GOAL D:** Conserve ecosystems and their ecological processes to promote function to benefit society and natural communities, and improve conditions for species recovery.
- **GOAL E:** To evaluate conservation progress and to address climate change stressors and other drivers of change, implement the Delta Science Program and Interagency Ecological Program science strategies, the adaptive management program for Biological Opinions related to state and federal water project operations (AMP), and the adaptive management program for California EcoRestore.
- **GOAL F:** Improve the capacity and approaches for permitting processes in the context of Delta conservation implementation.
- **GOAL G:** Develop mechanisms to secure long-term funding for continued conservation implementation and management.

People and Place

It is essential to recognize the Delta as an evolving place with its unique agricultural, cultural, recreational, and natural resource values, as outlined in the Delta Reform Act (CA Water Code §85054). Stakeholders, including the Delta community, play a key role in the successful planning and implementation of conservation-oriented programs and projects. Integrated conservation and land management solutions which are sensitive to specific local, cultural, and environmental circumstances are needed. Socioeconomic research in the Delta should be used to inform conservation planning, conservation project implementation, and collaboration among agencies and stakeholders. When planning conservation it is important to:

- 1) Work in regional partnerships using available tools, processes, and science to articulate what is possible within a given region;
- 2) Select the conservation strategies that are appropriate for individual regions given their unique social and biological legacies;
- 3) Prioritize conservation on public lands, while remaining open to opportunities with willing private landowners;
- 4) Implement good neighbor policies and practices to avoid unintended impacts of conservation on neighboring landowners¹⁰, and
- 5) Educate the public about how healthy ecosystems benefit them through ecosystem services. Delta ecosystem services include open space, opportunities for outdoor recreation and tourism, scenery and aesthetic values, pollination services, flood protection, clean water, clean air, and biodiversity.

DELTA COMMUNITY

refers to the residents, landowners, farmers, and businesses situated in the Delta.

Finding Common Ground

Lasting ecological sustainability can best be achieved through an integrated approach, as current land uses are central to considerations of how Delta landscapes function, now and into the future. Collaboration that includes Delta residents, landowners, farmers, public agencies, scientists, and NGOs on local and regional levels is essential to building the trust needed to implement sustainable conservation actions and realize long-term results. This can be accomplished by long-standing regional partnerships with broad participation from Delta stakeholders that develop forward-thinking Regional Conservation Strategies. Effective multi-benefit projects simultaneously improve landscape-level ecosystem function and provide benefits to humans. Examples of multi-benefit conservation strategies include using conservation lands to sequester carbon and reverse land subsidence, reducing the abundance of noxious invasive species, establishing multi-use floodplains with annual crops, wildlife-friendly agriculture, and expanding low-impact outdoor recreation in conservation areas. The Delta Conservation Framework serves as a high-level guide for regional planning processes and ties together projects at the landscape scale through a common vision, guiding principles, and landscape-scale goals, strategies and objectives. Examples of this regional partnership approach already exist in the Suisun Marsh and Yolo Bypass, and are emerging in the Cache Slough Complex and the Central Delta Corridor (see Appendix II).

Regional Conservation Strategies are:

- *Non-regulatory, long-term, broadly supported regional conservation action plans.*
- *Developed collaboratively by a planning partnership of public agencies, Delta community members, non-governmental organizations, and other stakeholders.*
- *Aligned with the landscape-scale goals and strategies of the Delta Conservation Framework and tailored to the needs of a given region.*
- *Achieved by implementing a suite of phased conservation projects within a conservation opportunity region on public lands, or in collaboration with willing private landowners.*

Process-Based Ecosystem Conservation

The Delta Conservation Framework directly aligns with and supports the tools and approaches outlined in the 2017 publication *Delta Renewed – A Guide to Science-Based Ecological Restoration in the Delta* (Delta Renewed). Conservation practices should focus on reestablishing natural ecological processes and promoting the functions and adaptive capacity of Delta ecosystems, rather than restoring the Delta to pre-Gold Rush Era conditions. This approach to conservation includes protecting, enhancing, or restoring critical ecosystem processes to increase ecosystem complexity and diversity, and support resilience over the long-term. Ecosystem resilience can be accomplished by replicating landscape elements across space, increasing linkages among landscape elements to support wildlife movement, and creating functional redundancy across the landscape. When possible, large areas should be conserved in places where ecosystem function is likely to persist over the long term, despite climate change. In addition to conducting conservation, it is essential to create multiple benefit projects to promote biodiversity in the human-dominated landscapes of the Delta. Multi-benefit conservation, as outlined in Delta Renewed, focuses on tying conservation efforts to benefits of wildlife-friendly agricultural lands and urban areas as part of the larger landscape mosaic.

The Delta Conservation Framework promotes ecosystem process-based conservation, the value of people and place, multiple benefit outcomes, public education and outreach for Delta conservation, improved efficiency of permitting processes, and expanded conservation funding.



Photo: Birds Eye View

Decision Making Grounded In Science

Best-available science is critical to inform and evaluate conservation in light of ongoing ecosystem stressors, climate change, and socioeconomic conditions. This includes conducting research, implementing adaptive management, and monitoring at project-specific and regional scales to improve the scientific basis of planning and management decisions over time. It is vital to understand long-term socioeconomic trends and evaluate those in light of impending changes from sea level rise, conservation implementation, and other drivers. For example, using conservation planning tools and processes based in social sciences, such as *Structured Decision Making* and *Scenario Planning*, can help to improve the efficiency and effectiveness of planning processes. It is important to prioritize conservation actions using both ecological and socioeconomic approaches to evaluate individual project impacts.



To explore a variety of potential economic and ecological solutions, *Regional Conservation Planning Partnerships* should weigh a range of factors including ecosystem conservation opportunities; projections of long-term climate change and sea level rise; local land uses; and the needs of local communities. Collaborative multidisciplinary approaches have the potential to make community-supported conservation a reality. If stakeholders from all perspectives are willing to engage, multi-benefit conservation is a real possibility.

Conservation Opportunity Regions

During the 2016 Delta Conservation Framework public workshops, stakeholders identified conservation opportunity regions (COR) that divide the Delta into smaller areas with distinct local land-uses, communities, ecosystem types, and publically owned lands. They include Suisun Marsh, Yolo Bypass, Cache Slough Complex, Central Delta Corridor, South Delta, North Delta, and Contra Costa. Descriptions of potential COR were developed from a combination of feedback from workshop participants, new and ongoing planning efforts, and conservation opportunity areas identified in the Delta Plan¹¹ and the Draft Bay Delta Conservation Plan.¹² Appendix II contains short summary overviews of individual conservation opportunity regions. These summaries are standalone segments of the Delta Conservation Framework to be used by existing and prospective regional partnerships to establish or promote Regional Conservation Strategies.

Document Primer

- **Section I** of the Delta Conservation Framework offers a general overview of the Delta, describes changes ahead, gives an outline of the purpose of the Delta Conservation Framework, and provides a shared vision and set of guiding principles for planning and implementation efforts.
- **Section II** addresses ways to integrate ecosystem conservation with the needs of the Delta community.
- **Section III** highlights the reasons why ecosystem conservation must focus on natural ecological processes to promote the improvement of function.
- **Section IV** explains how to support ecosystem conservation through increased Delta science capacity and emerging coordinated adaptive management programs.
- **Section V** suggests ideas to better focus and coordinate Delta conservation processes such as permitting and funding solicitations.
- **Section VI** outlines approaches, tools, remaining challenges, and call for action to implement the Delta Conservation Framework.
- **Appendices** provide more in-depth information about tools and resources available to participants in regional partnerships.



The Way Forward

Implementing the Delta Conservation Framework is an invitation for all interested stakeholders to come to the table to find acceptable solutions that consider the entire mosaic of the Delta landscape. It is a call to work together to improve ecosystem function, bolster ecosystem services for people, support Delta wildlife, and grow science capacity to allow continual learning from conservation actions. The path toward more ecologically functional Delta ecosystems within a thriving Delta community remains controversial. All Delta stakeholders can play a key role in helping to develop an integrated Delta that blends current land uses, including productive agricultural land, with effective conservation. It highlights the urgent need for stakeholders to consider the unknown and face the challenges of climate change and other factors. It is an appeal to better coordinate permitting processes and to obtain the necessary short- and long-term funding to implement and manage conservation projects in the Delta. To be successful, all participants need to be open to new possibilities and be willing to come together to sculpt collaborative solutions to conservation challenges in the Delta.

Endnotes

- ¹ USBR and DWR (2008). Appendix R: Sensitivity of future Central Valley Project and State Water Project operations to potential climate change and associated sea level rise - final report In: the CVP/SWP OCAP Biological Assessment on the continued long-term operations of the Central Valley Project and State Water Project. U.S. Bureau of Reclamation Technical Service Center, Denver, CO, and Mid-Pacific Region, Sacramento, CA (USBR) and California Department of Water Resources (DWR), Sacramento, CA. Available: https://www.usbr.gov/mp/cvo/ocapBA_2008.html. Accessed January 25, 2017.
- ² Natural Resources Agency (2009). 2009 California Climate Adaptation Strategy - a Report to the Governor of the State of California in Response to Executive Order S-13-2008. California Natural Resources Agency, Sacramento, CA. Available: http://resources.ca.gov/docs/climate/Statewide_Adaptation_Strategy.pdf. Accessed January 25, 2017.
- ³ CO-CAT. (2013). State of California sea-level rise guidance document. California Climate Action Team, Coastal and Ocean Working Group (CO-CAT). Available: http://www.opc.ca.gov/webmaster/ftp/pdf/docs/2013_SLR_Guidance_Update_FINAL1.pdf.
- ⁴ Brown, L. R., W. A. Bennett, R. W. Wagner, T. Morgan-King, N. Knowles, F. Feyrer, D. H. Schoellhamer, M. T. Stacey and M. Dettinger (2013). Implications for future survival of delta smelt from four climate change scenarios for the Sacramento-San Joaquin Delta, California. *Estuaries and Coasts*. **36**: 754-774.
- ⁵ Luoma, S. N., C. N. Dahm, M. Healey and J. M. Moore. (2015). Challenges facing the Sacramento-San Joaquin Delta: Complex, chaotic or simply cantankerous? Delta Stewardship Council, Delta Science Program, Sacramento, CA.
- ⁶ Wheeler, S. M. (2014). Climate Change and Agriculture in the Delta Region. PowerPoint presentation at The Science Behind Delta Climate Change Impacts Workshop on 13 February 2014. Water Education Foundation, West Sacramento Civic Center, West Sacramento, CA.
- ⁷ Luoma, S. N., C. N. Dahm, M. Healey and J. M. Moore. (2015). Challenges facing the Sacramento-San Joaquin Delta: Complex, chaotic or simply cantankerous? Delta Stewardship Council, Delta Science Program, Sacramento, CA.
- ⁸ Lund, J. E., S. Brandt, T. Collier, B. Atwater, E. Canuel, H. J. S. Fernando, R. Noorgard, V. Resh, J. Wiens, J. Zedler. 2016. Improving Adaptive Management in the Sacramento-San Joaquin Delta. A Review by the Delta Independent Science Board. Delta Stewardship Council, Sacramento, CA. Available: <http://deltacouncil.ca.gov/docs/final-delta-isb-adaptive-management-review-report>. Accessed: April 2017.
- ⁹ Dettinger, M., J. Anderson, M. Anderson, L. Brown, D. Cayan, E. Maurer. (2016). Climate Change and the Delta. *San Francisco Estuary and Watershed Science*, 14(3). jmie_sfews_32805. Retrieved from: <http://escholarship.org/uc/item/2r71j15r>.
- ¹⁰ DWR (2017). DWR Agricultural Lands Stewardship Workgroup - potential strategies - Strategy A4.1. California Department of Water Resources, Agricultural Lands Stewardship Workgroup (DWR), Sacramento, CA. Available: <https://agriculturalandstewardship.water.ca.gov/web/guest/strategy-a4.1>. Accessed: January 27, 2017.
- ¹¹ Delta Reform Act (2009). Sacramento-San Joaquin Delta Reform Act of 2009, 35 CA Water Code § 85000. Available: http://www.leginfo.ca.gov/pub/09-10/bill/sen/sb_0001-0050/sbx7_1_bill_20091112_chaptered.html Accessed: May 2017.
- ¹² BDCP 2013. Bay Delta Conservation Plan Public Draft (BDCP). Available: <http://baydeltaconservationplan.com/EnvironmentalReview/EnvironmentalReview/2013-2014PublicReview/2013PublicReviewDraftBDCP.aspx>. Accessed 6/2/16.