Delta Conservation Framework

Section I

Contents

I. A Common Vision for a Sustainable Delta

The Sacramento-San Joaquin River Delta (Delta) is the largest inland estuary system in the United States. It is the "Heart of California" with its extraordinary natural legacy, unique cultural history, and agricultural heritage. The Delta plays a crucial role supporting California's economic vitality as a central component of the state's water supply infrastructure and contributor to the State's substantial agricultural productivity.[1] However, the wildlife habitats and ecosystem services[2,3] that the Delta provides have been, and continue to be, impacted by environmental degradation, land use conversions, economic shifts, sea level rise, and other climate change effects. As a result, the long-term conservation of Delta ecosystems is an urgent necessity.[4,5,6,7,8,9]

In this document, "Delta" refers to the Sacramento-San Joaquin Delta as defined in Water Code §85058, Suisun Marsh and Bay, and the northern Yolo Bypass. This "Delta" area includes the principal conservation opportunity regions described in Section VI and Appendix I. Areas immediately adjacent to the "Delta" comprise the supplementary conservation opportunity regions to be considered in long-term planning.

It is possible to improve and maintain the benefits that Delta ecosystems and wildlife-friendly agricultural lands provide to Californians and native plants and animals (collectively *wildlife*) by implementing timely conservation actions. Conservation opportunities may fade quickly, however, as anticipated changes intensify over the coming decades.[4,5,6,7,8,9] Numerous government agencies, non-government organizations, academic institutions, private entities, policy-makers, landowners, and citizens are involved in Delta conservation, science, and land stewardship. Even though the challenges surrounding the Delta are intensifying, the region continues to be a place of contrast, controversy, and complexity. The Delta remains culturally distinct, agriculturally precious, socioeconomically varied, economically vital, politically controversial, hydrologically managed, and ecologically altered by degraded ecosystem functionality.[8]

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

In 2015, the Brown administration announced a shift away from the development of the Bay Delta Conservation Plan (BDCP) toward two separate initiatives *California Water Fix*

and *California EcoRestore* to accomplish the coequal goals for the Delta, pursuant to the 2009 Delta Reform Act. In response to this pivot, the California Department of Fish and Wildlife initiated and lead the development of the Delta Conservation Framework to provide a shared long-term vision of the future Delta where ecosystem conservation is integrated with the needs of the Delta community.

The Delta Conservation Framework serves as an overarching, landscape-level planning framework to move existing conservation opportunities forward at an accelerated pace and advance new conservation opportunities in the Delta through 2050. The Delta Conservation Framework is intended to promote Delta ecosystem conservation, integrate Delta community perspectives into conservation planning, and highlight multi-benefit approaches and solutions where possible. It offers long-term, landscape-level strategies for conservation to support wildlife communities *and* restore the ecosystem services through the protection, enhancement, restoration, and adaptive management of Delta ecosystems.

> ***Ecosystem Services*** **are "the direct and indirect contributions of ecosystems to human well-being. They support directly or indirectly our survival and quality of life."**
>
> *Ecosystem services can be categorized into four main types*:
>
> ***Provisioning services*** *are the products obtained from ecosystems such as food, fresh water, wood, fiber, genetic resources, and medicines.*
>
> ***Regulating services*** *are defined as the benefits obtained from the regulation of ecosystem processes such as climate regulation, natural hazard regulation, soil formation, water purification and waste management, pollination, or pest control.*
>
> ***Habitat services*** *highlight the importance of biodiversity and for ecosystems to provide habitat for resident and migratory species and to maintain the viability of gene-pools.*
>
> ***Cultural services*** *include non-material benefits that people obtain from ecosystems such as spiritual enrichment, intellectual development, recreation, and aesthetic values.*
>
> *Source: Biodiversity Information System for Europe*

The Delta Conservation Framework is intended to 1) advance the goals of the California Water Action Plan (CWAP),[10] by protecting and restoring the impaired ecosystems of the Delta (Action 3), 2) achieve one of the two coequal goals outlined in the Delta Plan,[1] and 3) address most of the non-flow conservation measures outlined in the draft BDCP.[11,12,13] The Delta Conservation Framework is founded on a broad collaborative approach, and reflects feedback from a wide variety of Delta stakeholders (see textbox). It expands the concept of *Delta as Place* (Blue Ribbon Task Force) to highlight the integration

of the human element with ecosystem conservation going forward, where the idea of *Delta as an evolving place* aligns desired conservation benefits for both humans and wildlife over the long term.

> ***As mandated by the Delta Reform Act of 2009, coequal goals means the "two goals of providing a more reliable water supply for California, and protecting, restoring, and enhancing the Delta ecosystem. The coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place." (CA Water Code §85054)***

The information presented in this document combines input from Delta stakeholders gathered at six workshops held in 2016 with existing planning efforts, relevant policy, and comments received during public review. The Delta Conservation Framework is a living document that is to be reevaluated and updated every five years, in close alignment with reviews of the Delta Plan and Delta Science Plan.[1,14] It will incorporate new insights and directions as our understanding of conservation implementation, climate change, and Delta as an evolving place continues to grow.

The goal-based strategies and associated objectives the Delta Conservation Framework presents are focused on integration of the human dimension into conservation, science-based improvement of ecological and biophysical processes to increase ecosystem function, and overcoming hurdles related to permitting and funding. Implementation is recommended through either regionally-focused collaborative conservation partnerships that develop objectives as part of *Regional Conservation Strategies*, or through the initiation of individual conservation projects that closely align with these goal-based strategies. A partnership approach will facilitate broader regional buy-in and improve the efficiency and effectiveness of project implementation.

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.

DELTA COMMUNITY

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

Following a comprehensive analysis of land uses, infrastructure (e.g. levees, roads, railroad tracks, transmission lines), and ecological opportunities based on socioeconomic, climate adaptation, and other interdisciplinary science (see more details in Section

IV), a regional conservation planning partnership identifies the parameters of what, where, when, and how conservation actions can be implemented within a given region, what considerations or hurdles exist, and how they may be overcome. A *Regional Conservation Strategy* enables these partnerships to start prioritizing implementation of projects in the near term, and identify other potential conservation opportunities for long-term implementation. The *Regional Conservation Strategies* approach provides a collaborative process for discussing the benefits and impacts of individual conservation projects and how they can be most effectively addressed at the local level.

The Delta Conservation Framework promotes ecosystem process-based conservation, the value of people and place, multiple benefit outcomes, building community and public education and outreach for Delta conservation, and increasing efficiencies pertaining to the permitting and funding of conservation projects.

The Delta Conservation Framework serves as a high-level guide for *Regional Conservation Strategies*, tying together projects at the landscape scale through a common vision; guiding principles; and overarching goals, strategies, and objectives. The Cache Slough Complex Planning Partnership and Central Delta Corridor Partnership are examples of emerging efforts that are considering *Regional Conservation Strategies* as a means to move conservation forward across several Delta counties (see Section VI, Appendix II).

This introductory section 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 a set of guiding principles for planning and implementation efforts. Subsequent sections address ways to integrate ecosystem conservation with the needs of the Delta community (Section II), the reasons why ecosystem conservation must be science-based and focus on natural ecological processes (Sections III and IV), how to improve conservation project implementation by making permitting and funding solicitations more efficient (Section V), and the way forward toward implementation of the Delta Conservation Framework (Section VI).

In this document, the term wildlife refers to all native plant and vertebrate and invertebrate animal species that inhabit the Delta as permanent residents or during part of their migratory life cycle.

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.*

Background

The Sacramento and San Joaquin River Delta and Suisun Marsh span six counties and 1,300 square miles of land and water.[1] Forty percent of California's watersheds unite in the Delta through hundreds of miles of interconnected waterways that flow west to San Francisco Bay. Ecologically rich and diverse prior to European settlement, the Delta is now largely a center for agricultural operations interspersed with small towns and communities. It is also home to a growing population of more than 550,000 people. Delta communities are primarily concentrated in the large cities around its fringes, but they are also expanding into the Delta's non-urban areas, such as Discovery Bay, the River Islands near Lathrop, and Hotchkiss tract in Oakley.[1,15,16] Statewide, more than three million acres of prime irrigated farmland and two-thirds of the state's population depend on the Delta watershed for some portion of their water supply.[1] Water flowing through the Delta provides a critical base for most of the state's economic output.[8] A vast levee system protects 400,600 acres of high-quality farmland, communities, and municipalities that occur within the historic Delta floodplain.

The Delta is recognized as "*the most valuable ecosystem on the west coast of North and South America*" (California Water Code, §85002). It still maintains important areas of biodiversity as valuable native wildlife habitat, a passageway for adult and juvenile salmonids, and an important wintering ground for Pacific Flyway waterfowl and other wetland birds.

The Delta supports hundreds of migratory and resident species, including endangered, threatened, and candidate species such as Delta smelt (*Hypomesus transpacificus*), Chinook salmon (*Oncorhynchus*

"The Legislature finds and declares that the Sacramento-San Joaquin Delta, referred to as the Delta in this division, is a critically important natural resource for California and the nation. It serves Californians concurrently as both the hub of the California water system and the most valuable estuary and wetland ecosystem on the west coast of North and South America."(California Water Code, §85002).

tshawytscha), longfin smelt (*Spirinchus thaleichthys*), giant garter snake (*Thamnophis gigas*), California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana draytonii*), Swainson's Hawk (*Buteo swainsoni*), Tricolored Blackbird (*Agelaius tricolor*), Greater Sandhill Crane (*Antigone canadensis tabida*), riparian brush rabbit (*Sylvilagus bachmani riparius*), Ridgway's Rail (*Rallus obsoletus*), salt marsh harvest mouse (*Reithrodontomys raviventris*), and California Black Rail (*Laterallus jamaicensis coturniculus*).[1,11] The Delta also supports federally listed invertebrates and endangered plants such as Suisun thistle (*Cirsium hydrophilum* var. *hydrophilum*) and soft birds-beak (*Cordylanthus mollis* ssp. *Mollis*),[11] as well as species designated by the State Wildlife Action Plan as Species of Greatest Conservation Need.[17]

As an example to illustrate the potential for conservation opportunities at the landscape scale, approximately 49,000 acres of publicly owned and conserved lands occur in the northeastern and central portions of the Delta. These lands are situated along a connected corridor and are currently owned by state agencies, the Nature Conservancy, and the Metropolitan Water District of Southern California.[18] This *Central Delta Corridor* area comprises roughly seven percent of the entire Delta landscape (Section II, Figure 2.2; Section VI, Appendix I). This estimate does not include other conservation properties in the Delta with important wildlife habitat, such as state-owned wildlife areas or ecological reserves on Lindsey Slough, Miner Slough, Liberty Island, Lower Sherman Island, Bract Tract, White Slough, Suisun Marsh, or the Yolo Bypass; conservation easements; local government or privately owned land such as Lower Yolo Ranch and Rush Ranch; or federally-owned land such as Stone Lakes National Wildlife Refuge.

In the coming decades the Delta is expected to undergo substantial changes as a result of climate change, including sea level rise, extreme droughts, and storms with associated flooding, that may contribute further to the evolution of the Delta landscape. [1,4,5,6,9,16,19] These impending changes could impact land use and affect Delta ecosystems, agricultural operations, communities, and the Delta economy over the short and long term.[4,6,20] As a result, these important drivers will be a central part of the regional partnerships' initial scoping evaluation and will directly influence the objectives of the *Regional Conservation Strategies (Please see Section VI for more information on Regional Conservation Strategies)*.

Planning Context

Large-scale conservation of Delta aquatic and terrestrial habitats is called for in a variety of California state legislation, plans, and initiatives and has been debated for decades.[1,21,22,23,24,25,26,27,28,29,30] In 2014, to address California's water management and conservation needs and declining ecosystems, the Brown administration issued the California Water Action Plan (CWAP) to address overarching goals for "Reliability, Restoration, and Resilience." [10,31] The CWAP outlines ten main actions that include: "*Achieve the coequal goals for the Delta*, *protect and restore important ecosystems*, *increase flood protection*, *increase operational and regulatory efficiency*, and *identify sustainable and integrated financing opportunities*."

In 2015, the Brown administration announced a change in the permitting approach for new Delta water conveyance infrastructure. Instead of pursuing the BDCP under Section 10 of the Endangered Species Act (ESA) and the Natural Community Conservation Planning Act, new Delta water conveyance infrastructure permitting is now being conducted under ESA Section 7 and the California Endangered Species Act (CESA), as the California *WaterFix.*[32] Consequently, state and federal agencies shifted efforts to implement California *EcoRestore*, a new California Natural Resources Agency-led initiative to swiftly implement conservation in the Delta, Yolo Bypass, and Suisun Marsh.[1,11,12,20,33]

The California *WaterFix* initiative[32] is aimed at the Delta Reform Act goal to provide a more reliable water supply for California. It proposes to renovate the State's water delivery system by building new water conveyance infrastructure in the Delta that reinstates more natural flow patterns in the Delta and continues to meet San Francisco Bay outflow requirements to protect against salt water intrusion.

California *EcoRestore*[34] was initiated in 2015 to address the Delta Reform Act goal to protect, enhance, and restore the Delta ecosystem. The primary objective of *EcoRestore* is to move forward with 30,000 acres of Delta ecosystem restoration projects by 2020 (Figure 1.1). California *EcoRestore* projects satisfy, and go beyond, requirements by OCAP (Operations Criteria and Plan-related Biological Opinions) for the mandatory restoration of 8,000 acres as federal mitigation for the state and federal water projects.[24,35,36] *EcoRestore* projects are located throughout the Delta, Suisun Marsh, and Yolo Bypass. Desired results include restoring and improving aquatic, subtidal, tidal, riparian, floodplain, and terrestrial ecosystems to benefit fish, wildlife, and people. The projects being tracked by the California *EcoRestore* initiative are at various stages of development, ranging from concept to complete (see Appendix IV). Six projects have been completed and seven others were started during the two years after California *EcoRestore* was initiated. An additional twelve projects are scheduled to start by 2020.

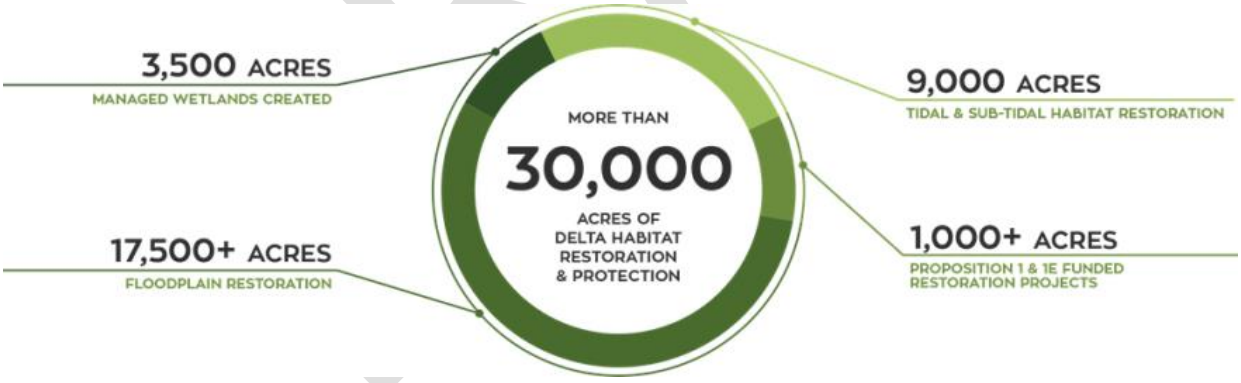

Figure 1.1: California EcoRestore objectives for implementation by 2020.

HIGHLIGHTS OF DELTA REGULATORY HISTORY

Large-scale conservation of Delta aquatic and terrestrial habitats has been debated for decades and is called for in a variety of California state legislation, plans, and initiatives.

- 1992 – DELTA PROTECTION ACT states that "The Delta is a natural resource of statewide, national, and international significance, containing irreplaceable resources. It is the policy of the State to recognize, preserve, and protect those resources of the Delta for the use and enjoyment of current and future generations, in a manner that protects and enhances the unique values of the Delta as an evolving place (PRC §29701-2)."
- 1992 – DELTA PROTECTION COMMISSION was established by Delta Protection Act as a forum for Delta residents to participate in decisions to recognize and enhance the unique cultural, recreational, and agricultural resources of the Delta (PRC §29703.5(a)).
- 1994 – CALFED BAY-DELTA COORDINATION PROGRAM (CALFED) was created to resolve some of the challenging issues affecting Delta ecosystems and wildlife, following a decade of disputes between the State of California, the federal government, agricultural interests, environmental groups, and municipal water services.
- 2006 – BDCP was initiated by the Department of Water Resources (DWR) and the Bureau of Reclamation as a permitting framework for the construction of new Delta water conveyance through a combined 50-year Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP) spanning the Delta, Yolo Bypass, and Suisun Marsh.
- 2006 – DELTA VISION BLUE RIBBON TASK FORCE superseded CALFED, laying the ground work for the Legislature to craft the 2009 Delta Reform Act.
- 2009 – DELTA REFORM ACT includes a package of bills that defined regulatory accountability in the Delta for implementation of conservation measures, as well as measures for water conservation, groundwater monitoring, enforcement to prevent illegal water diversions, and a bond measure to provide needed funding (California Water Code §85054).
- 2009 – DELTA STEWARDSHIP COUNCIL was established by the Delta Reform Act to advance the Delta Reform Act's coequal goals and to develop and oversee implementation of the Delta Plan, a long-term sustainable management plan for the region founded on those goals in the context of the "*Delta as an evolving place*." It is supported by the Delta Independent Science Board and the Delta Plan Interagency Implementation Committee.
- 2009 – SACRAMENTO-SAN JOAQUIN DELTA CONSERVANCY was established by the Delta Reform Act as the state agency responsible for implementing ecosystem restoration in the Delta and supporting efforts that advance both environmental protection and the economic well-being of Delta residents.
- 2014 – CALIFORNIA WATER ACTION PLAN highlights overarching goals for "Reliability, Restoration, and Resilience," and outlining ten main actions that include: "*Achieve the coequal goals for the Delta, protect and restore important ecosystems, increase flood protection, increase operational and regulatory efficiency, and identify sustainable and integrated financing opportunities*."
- 2015 – CALIFORNIA *WATERFIX* was launched in lieu of the BDCP to realize new Delta water conveyance infrastructure under ESA Section 7 and CESA.
- 2015 – CALIFORNIA *ECORESTORE* was launched in lieu of BDCP conservation measures as a new Natural Resources Agency led initiative to swiftly implement conservation projects in the Delta, Yolo Bypass, and Suisun Marsh.

Purpose of the Delta Conservation Framework

The Delta Conservation Framework offers a conservation vision for the Delta based on direct stakeholder input, a wide variety of existing plans, and science. Restoring the Delta ecosystem over the next three decades will occur in an ever-changing social, ecological, and regulatory environment influenced by economic shifts and climate change effects, such as sea level rise.[5,7, 9,37] Despite the substantial efforts to plan conservation in the Delta, many challenges to ecological resilience and function remain. To successfully improve the ecological resilience of the Delta, conservation goals, implementation strategies, and objectives based on a landscape perspective are critical.[29] Lasting ecological sustainability can best be achieved through an integrated approach because human uses of the Delta are central to considerations of how the landscape functions now and into the future. Collaboration that includes Delta residents, landowners, agricultural practitioners, public agencies, scientists, and other stakeholders on local and regional levels is essential to building the trust needed to implement sustainable conservation actions and realize long-term results.

Purpose

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).*

The Delta Conservation Framework is closely aligned with previous and ongoing efforts to coordinate and plan conservation in the Delta. The Delta Conservation Framework offers a suite of overarching Delta conservation goals, strategies, and objectives that incorporate the primary aims of most BDCP conservation measures (CM; including CMs 2-14 and CMS 20-21; see Appendix III). The purpose of the Delta Conservation Framework is to integrate Delta community values and ecosystem conservation goals and provide a structure for collaborative planning, goal-based conservation implementation, and long-term management of the Delta (Figure 1.2).

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.

Specifically, the Delta Conservation Framework:

I. OFFERS A SHARED VISION AND OVERARCHING GOALS ON HOW TO ACHIEVE DELTA CONSERVATION
   - Serves as a high-level Delta conservation guidance document for decision-makers and stakeholders, and for the collaborative development of focused *Regional Conservation Strategies* that link to the system-wide goals outlined in this document.

II. INITIATES AN ONGOING FORUM FOR COLLABORATIVE ENGAGEMENT AND BROAD CONSENSUS

- Establishes a goal, strategies and objectives for actively engaging landowners, federal, state, and local government agencies, regional partnerships, non-governmental organizations, and other relevant stakeholders to collaboratively advance ecosystem conservation goals and strategies on both landscape and regional scales, while ensuring consistency with existing conservation initiatives.

III. PROMOTES EDUCATION AND OUTREACH ABOUT THE IMPORTANCE OF A HEALTHY DELTA AT LOCAL, STATE, AND NATIONAL LEVELS

- Offers strategies and related objectives for promoting public education and outreach about the Delta to improve public understanding of its economic, cultural, and environmental importance and to garner far-reaching support for its health and related socioeconomic sustainability. This is in direct alignment with the public trust doctrine outlined in the Delta Reform Act.

IV. SERVES AS A LONG-TERM EXTENSION OF THE CALIFORNIA *ECORESTORE* INITIATIVE

- Promotes a shared vision among agencies to improve implementation of conservation programs and projects in the Delta as they emerge beyond current California *EcoRestore* initiative projects, with increased efficiencies through cost sharing, collaborative planning, and streamlined permitting.

V. OUTLINES STRATEGIES AND OBJECTIVES FOR POTENTIAL SOLUTIONS TO KNOWN DELTA CONSERVATION CHALLENGES

- Offers strategies and related objectives to address challenges, including the effective integration of community and conservation goals; regulatory conflicts, permitting, and funding barriers hindering conservation project implementation; and needed resources for the long-term maintenance and management of Delta projects.

VI. PROVIDES GUIDANCE FOR THE COORDINATION OF COLLABORATIVE REGIONAL CONSERVATION STRATEGIES

- Provides a framework to guide collaborative future planning, implementation, and integration with long-term adaptive management activities.

The Delta Conservation Framework offers a long-term vision for the Delta, with a set of guiding principles for collaboration and mutual respect and a suite of overarching goals with strategies and objectives for implementation and lasting landscape-scale, multi-benefit conservation solutions.

VII. INFORMS STATE AND OTHER FUNDING PRIORITIES

- Directly informs grant solicitation language for some state funding programs, helps guide distribution of other available conservation support, and serves as a basis for

future funding for long-term Delta conservation, including national, state, regional, and private sources.

VIII. ADVANCES GOALS OF THE CALIFORNIA WATER ACTION PLAN AND DELTA REFORM ACT

- Encourages collaborative approaches through stakeholder partnerships and development of *Regional Conservation Strategies* to implement CWAP Action 3 and informs the amendment of the ecosystem elements of the Delta Plan. Recommends goal-based strategies and related objectives to improve integrative conservation planning that include reconciliation between socioeconomic needs and ecosystem health.

IX. LINKS TO FLOOD PROTECTION PLANNING

- Connects with flood protection planning through the emphasis on approaches for conservation that consider multi-benefit outcomes, as outlined in the 2016 Central Valley Flood Protection Plan Conservation Strategy.[38]

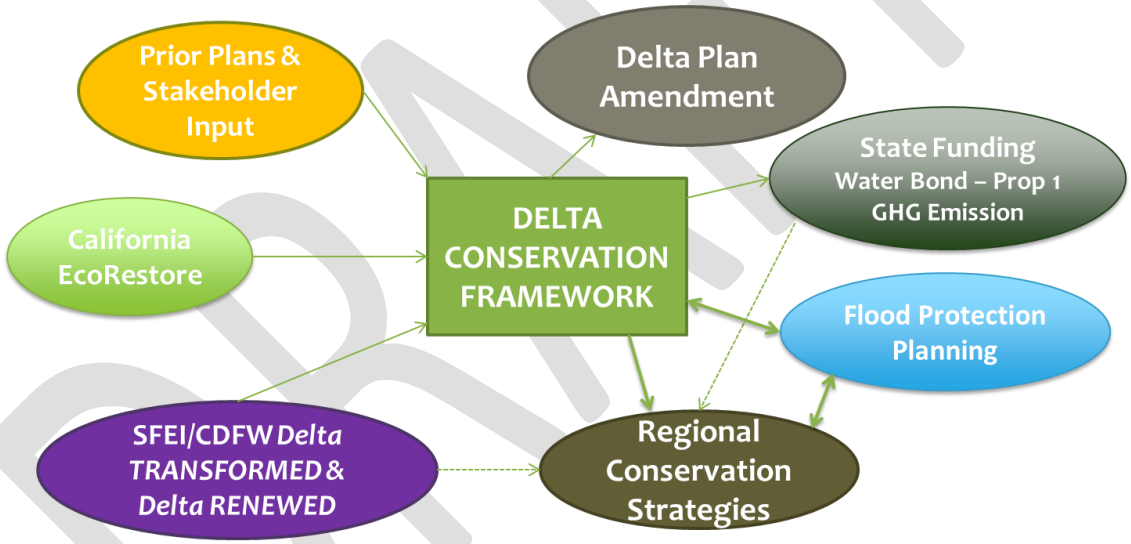

Figure 1.2: Diagram showing the connections between the Delta Conservation Framework and ongoing efforts in the Delta. Stakeholder input, prior planning documents, California *EcoRestore,* and syntheses of best available science serve as the foundation of the Delta Conservation Framework. Looking ahead, the Delta Conservation Framework is intended to inform new region-specific conservation strategies, Proposition 1 funding solicitations, flood protection planning, and the Delta Plan Amendment. Over the long term, the Delta Conservation Framework will continue to evolve in response to new science, stakeholder input, lessons learned through development of Regional Conservation Strategies, and advances in flood protection planning.

Vision for a Future Delta

This section presents a shared vision and set of guiding principles that were discussed by Delta stakeholders during a series of Delta Conservation Framework public workshops in 2016 (see Appendix VI). It also includes a call for collaborative stakeholder participation to work toward this vision over the next three decades.

VISION

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.

This vision can be realized through the Delta Conservation Framework goals outlined in the following sections. When these goal-based strategies and objectives are implemented over the next three decades, the following will result:

- MULTI-BENEFIT OUTCOMES: The Delta is a network of multiple-use landscapes where agricultural productivity, economic vitality, and ecosystem conservation are achieved in a manner that mutually supports the needs of people and wildlife.
- CONSIDERATION OF LANDSCAPE DYNAMICS: Recognizing the Delta as part of a greater system that functions within the context of California's largest watersheds.
- HEALTHY, RESILIENT ECOSYSTEMS: Healthy, resilient Delta ecosystems will have the capacity to adapt through time to impacts associated with climate change, sea level rise, and other environmental uncertainties.
- COLLABORATION: State, federal, and local government agencies will collaborate with each other and Delta stakeholders to achieve multi-benefit outcomes where possible.
- DECISIONS BASED ON SCIENCE: Policy decisions and desired conservation outcomes are informed and evaluated through coordinated Delta science endeavors.
- LOCAL SUPPORT: Delta residents promote the management of healthy ecosystems as the basis of a healthy and economically thriving Delta region.
- LOCAL BENEFITS: Delta residents and visitors actively enjoy the region's unique cultural and natural resource values through wildlife-friendly agricultural practices, tourism, low-impact outdoor recreation, and environmental education activities for all ages.

Establishing a common long-term vision and a set of guiding principles for collaboration and mutual respect are cornerstones for the success of Delta conservation and lasting multi-benefit solutions. Delta stakeholders at all levels should work together when planning and implementing conservation projects.

- RELIABLE LOCAL WATER: A Delta region where effective integrated water management promotes good water quality and a reliable water supply for users in the Delta.
- MULTI-BENEFIT FLOOD MANAGEMENT: A flood management system that provides both improved flood protection and increased habitat value for fish and wildlife, where possible.

Guiding Principles

In order to realize this long-term vision for the Delta, it is critical to highlight the principles that underlie the Delta Conservation Framework goals, strategies, and objectives.

Central Premise

The long-term conservation of Delta ecosystems will benefit both people and the environment.

Guiding Principles

The following principles integrate conservation and socioeconomic goals and describe how to implement conservation actions to promote healthy Delta ecosystems in a way that also benefits Delta communities, is aligned with the Delta's culture and economy, and encourages forward-thinking actions to prepare for and adapt to future changes.

1. PEOPLE AND PLACE: Recognize the *Delta as an evolving place* with unique agricultural, cultural, recreational, and natural resource values.
    a. Seek integrated, collaborative conservation and land management solutions while being sensitive to specific local, cultural, and environmental circumstances.
    b. Consider geographic setting and context in order to select the appropriate conservation strategies within individual regions and their social and biological legacies.
    c. Use available public lands with long-term potential for implementing conservation actions first, then explore existing or potential opportunities with willing private landowners.
    d. Implement good neighbor policies and practices, as outlined in Strategy A4.1 of the DWR Agricultural Lands Stewardship Workgroup.[39]
    e. Integrate ecological, social, and economic resilience into Delta conservation goals.
    f. Consider conservation values of agricultural and urban lands, where appropriate.
    g. Promote agricultural and socioeconomic research in the Delta to continue to inform conservation planning and implementation.
    h. Coordinate conservation policy, planning, and implementation among agencies and stakeholders.

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

2. BUILD COMMUNITY AND FOSTER PUBLIC EDUCATION AND OUTREACH: Support outreach, education, and communication across interests, where participants are encouraged to hear all perspectives, interact with respect and humility, and shift focus away from strict traditional roles toward a better understanding of the big picture to promote multi-benefit solutions.
    a. Foster communication and education that focuses on the role each individual can play to improve the Delta.
    b. Conduct regular public outreach and engagement with Delta stakeholders to plan, implement, and evaluate Delta conservation efforts.
    c. Promote early and consistent coordination among resource agencies, practitioners, local residents, land- and business owners, and other stakeholders to develop regional conservation strategies, related funding support, and general regional permitting frameworks.
    d. Expand planning efforts to include multiple sectors and stakeholders and ensure broad consensus.
    e. Seek a better understanding of each other's needs and interests, such as ensuring economic vitality and investing in local interests while finding solutions to benefit wildlife.
    f. Support Delta outreach and education campaigns that teach the importance, status, and value of the Delta at local, state, and national levels, with a strong focus on younger generations.

3. MULTIPLE BENEFITS: Integrate conservation with other land use practices, where possible, to provide simultaneous benefits for wildlife and people at a landscape scale over the long term.
    a. Foster more natural hydrologic processes and use conservation to sequester carbon and reverse subsidence (sinking land) to benefit people and the Delta ecosystem.
    b. Incorporate the relative geographic distribution of natural and agricultural ecosystems across the Delta landscapes.
    c. Reduce the abundance and occurrence of noxious invasive species, where possible, to benefit ecological communities, enhance recreation, and benefit agriculture.

4. PROCESS-BASED ECOSYSTEM CONSERVATION: Focus conservation practices 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.
    a. Protect, enhance, or restore critical ecosystem processes with a focus on complexity and diversity, to promote resilience and adaptability.
    b. Create functional redundancy by replicating landscape elements across space and by increasing linkages among landscape elements to support wildlife movement.
    c. Provide ecosystem and wildlife connectivity across the landscape and through time.
    d. Design and coordinate conservation projects and regional conservation strategies as part of a larger mosaic at the landscape scale, with consideration of the position, future trajectories, and existing and historical biological conditions of projects.

e. Where feasible, conserve large areas, with a long time period in mind.
f. Promote biodiversity in human-dominated landscapes according to the principles of *reconciliation ecology* and a focus on tying conservation efforts to benefits of wildlife-friendly agricultural lands and urban areas as part of the larger landscape mosaic.

5. PROMOTE ECOSYSTEM SERVICES: Highlight the societal values of the many services healthy ecosystems provide to humans by emphasizing these services as benefits to society. Delta ecosystem services include open space, opportunities for outdoor recreation and tourism, pollination services, flood protection, clean water, clean air, biodiversity, and others.
    a. Evaluate and communicate the societal values of ecosystems to humans in the context of conservation.
    b. Educate the public about how healthy ecosystems benefit them through the many services they provide.

6. DECISIONS GROUNDED IN SCIENCE: In light of continuing ecosystem stressors and accelerating changes from climate shifts and other drivers, as well as changeable socioeconomic conditions, utilize scientific approaches to inform and evaluate conservation practices and projects and conservation-related human needs.
    a. Conduct research and adaptive management, including modeling, ecological monitoring, and evaluation at project-specific and regional scales to continually improve the scientific basis of planning and management decisions and measuring the achievement of goals over time.
    b. Understand long-term agricultural and other socioeconomic trends and goals, and evaluate those in light of impending changes from sea level rise, conservation goals, and other uses.
    c. Weigh long-term gains against potential short-term impacts, ecologically, socially, and economically.
    d. Recognize a larger landscape-scale, long-term framework, where small pieces are implemented in stages to increase cost-effectiveness, and give opportunities for checks and improvements along the way.
    e. Utilize conservation planning tools and processes based in social sciences, such as the *Open Standards for the Practice of Conservation* and *Structured Decision Making*.

7. INCREASED EFFICIENCY: Utilize processes that minimize project costs, and provide consistent and integrated tools to support decision-making, evaluation of success, environmental compliance, and permitting; build on past planning documents and existing efforts.
    a. Use standard approaches for achieving goals and implementing multi-benefit objectives aimed at maintaining, enhancing, or restoring system-wide aquatic, fluvial, transitional, and terrestrial ecosystem functions, while benefiting people.
    b. Utilize opportunities for infrastructure upgrades, such as setback levees or fish screens, to achieve ecological benefits, where possible.

c. Find mechanisms to improve the efficiency of environmental compliance and permitting requirements by working directly with regulatory agencies.

8. ACKNOWLEDGEMENT OF LONG-TERM FUNDING NEEDS: Recognition that long-term funding is necessary for successful Delta conservation and management through 2050.
    a. Develop and post online a consolidated list of funding opportunities for all Delta stakeholders.
    b. Explore opportunities for stable long-term funding sources to develop, implement and manage conservation projects in the Delta.
    c. Utilize endowments for long-term operations and management of conservation lands, when possible.
    d. Through legislation or ballot initiatives, secure state funding for long-term operations and management of publically-owned wildlife areas and ecological reserves and federal funding for long-term management of national wildlife refuges and other federally-owned lands.

Building on a Strong Foundation

This section describes two of the primary components that serve as the foundation of the Delta Conservation Framework:

1) Input from Delta stakeholders gathered at six workshops in 2016, and
2) Information in existing planning documents, ongoing and completed conservation efforts, relevant policy, and public review.

The role of science in guiding the development of the Delta Conservation Framework is described in Section IV.

Input from the Delta Stakeholder Community

Stakeholders, including Delta community members, play a key role in the successful planning and implementation of conservation-oriented programs and projects. This is especially important when reconciling the complex, often multi-dimensional human and environmental components at play in the Delta.

During a series of six workshops in 2016, stakeholders raised important issues to be considered to develop a common vision and an integrated conservation approach for Delta ecosystems (Appendix VI). Overall, participating stakeholders emphasized the importance of agriculture as the Delta's economic engine and the need to involve Delta community members when planning, implementing, and managing conservation actions. However, only a few Delta community members participated in the 2016 workshop series. This was due to a combination of factors including: 1) they are understandably busy making a living; 2) they lack trust in the process, based on their past experiences; 3) some are simply not in favor of any conservation; and 4) state agencies are still learning how to best conduct effective outreach. Once a local champion got involved to spread the word and share a sense of urgency,

participation by Delta community members increased in the last two workshops. Participating community members voiced concerns over why they were not aware of the process from the start, showing that more effective methods of outreach and communication are needed in the future, beyond websites and e-mail distribution lists. Community members suggested improving outreach by posting fliers in public places such as post offices and community centers, as well as placing outreach announcements in church bulletins or local newspapers. The direct integration of the Delta local stakeholder community into conservation activities was emphasized in many discussions, and it is now the focus of several goals of the Delta Conservation Framework (see Section II).

In general, stakeholders agreed that Delta conservation will move forward most successfully by focusing on lands currently under public ownership or on lands managed under specified conservation easements owned by non-governmental organizations, businesses, or private citizens. It is also important to consider the importance of preserving local tax bases, adequately funding long-term management of public lands, and avoiding additional regulations and negative impacts on agriculture. Stakeholders supported a focus on multi-benefit solutions, including financial incentives for wildlife-friendly farming practices,[30,40] long-term agricultural conservation easements with willing Delta landowners,[40] or other incentives (see Section II for details).

During the workshops, Delta local stakeholders emphasized the importance of a "bottom-up" approach, where conservation projects are developed at a regional level with local support that ensures resident landowner participation in conservation planning and implementation. They agreed that applying good-neighbor practices to avoid negative impacts on agriculture and other neighboring land uses[39] will go a long way toward obtaining local support and successfully implementing Delta conservation. In general, stakeholders requested better long-term planning that recognizes local history, the importance of working landscapes, and climate change and that integrates the needs of Delta residents into conservation goals. There was overall recognition that strong levees are beneficial to everyone. Maintaining strong levees could present multi-benefit solutions if wildlife habitats can be improved as part of flood protection projects.[38] Stakeholders also called for a balance of public access and "wild" conservation lands, to allow recreational access while protecting sensitive wildlife areas from disturbance.

Workshop participants supported a greater focus on improving ecological processes to restore ecosystem function and going beyond emphasis on single species conservation under federal and state endangered species laws and regulations (ESA/CESA), to improve wildlife habitat and connectivity. This expanded approach will directly benefit wildlife and will help the recovery of declining populations of special status species. Specifically, participants favored a landscape conservation approach that is tied to locally driven project planning and implementation that builds on or integrates existing regional planning forums and efforts. Overall, the stakeholders' messages were clear: it is important to take responsibility over the long-term for achieving desired conservation outcomes while also considering potential impacts on neighboring landowners and others in the region. This can be accomplished through local-scale collaborative planning processes and regular evaluations of conservation

performance on the basis of predefined goals, as part of long-term adaptive management. Successes and failures should be communicated to stakeholders as lessons are learned.

Generally, in order for Delta conservation planning, implementation, and long-term management to be a success, short- and long-term financial and local community support are critical. Stakeholders acknowledged that the importance of the Delta to California, one of the largest economies in the world, needs to be better promoted and communicated through education and outreach campaigns at local, state, and national levels. Lastly, stakeholders also recognized the need to make the conservation permitting process more efficient to expedite implementation and reduce the cost of conservation projects.

Considering Existing Plans

There are many existing planning documents to consider when evaluating the potential for conservation in the Delta. This section presents a short overview of the primary planning documents considered during the development of the Delta Conservation Framework (*see text box, Appendix VII*). The Delta Conservation Framework does not supersede these individual planning efforts, but instead connects and integrates them into the larger landscape-scale perspective. It suggests them as important references for consideration as part of ongoing or future *Regional Conservation Strategies* and individual projects. In particular, in locations where *Regional Conservation Strategies* overlap with regionally-focused planning efforts, such as Habitat Conservation Plans (HCP) and Natural Community Conservation Plans (NCCP), regional goals, strategies, and objectives should tie in with those in the pre-existing plans. Appendix VII provides summaries of the existing plans that should be considered in *Regional Conservation Strategy* planning partnerships and individual project planning, and it offers further insight into how these plans relate to the Delta Conservation Framework.

IMPORTANT PLANNING REFERENCES

[Please see Appendix VII for more information]

- *CWAP*
- *Delta Plan*
- *BDCP (public draft)*
- *Delta Economic Sustainability Plan*
- *Central Valley Flood Protection Plan and Conservation Strategy*
- *Suisun Marsh Habitat Management, Preservation, and Restoration Plan*
- *HCPs and NCCPs*
- *Ecological Restoration Program Conservation Strategy*
- *State Wildlife Action Plan*
- *San Francisco Bay Comprehensive Conservation and Management Plan*
- *Bay-Delta Water Quality Control Plan*
- *State Parks Recreation Proposal*
- *Central Valley Joint Venture Implementation Plan*
- *Federal Recovery Plans*

[Natural Resources Agency, CDFA et al. 2014, Natural Resources Agency, CDFA et al. 2016, Delta Protection Commission 2012, DWR 2016, DWR 2017, USBR, USFWS et al. 2013, CDFW, USFWS et al. 2014, CDFW 2015, SFEP 2016, SWRCB 2017, Cal-EPA 2017, California State Parks 2011, CVJV 2006, USFWS 1999, USFWS 2013]

As a particularly important example, the 2014 CWAP outlines concerns regarding declines in the Delta's wildlife species, resilience of Delta levees to significant seismic events, and the Delta's vulnerability to floods and the effects of sea level rise, which pose significant risks to Delta residents. Relevant CWAP actions to address these concerns include:

- *Action 3:* Achieve the coequal goals for the Delta
- *Action 4:* Protect and restore important ecosystems
- *Action 8:* Increase flood protection
- *Action 9:* Increase operational and regulatory efficiency

The Delta Conservation Framework includes several overarching long-term goals with strategies to address these CWAP actions. These include strategies related to:

- Reestablishing or improving Delta ecosystem function (GOAL D; Section III);
- Optimizing connectivity, functional food webs, management of harmful invasive species, and low-impact human use of conservation areas to reduce negative effects on sensitive wildlife (GOAL D; Section III);
- Levee maintenance and flood management practices that afford additional or improved habitat, and improving agency land management processes and procedures (GOAL C; Section II);
- Climate adaptation and adaptive management in Delta conservation and community planning (GOAL E; Section III);
- Improving permitting procedures (GOAL F, Section V);
- Securing funding (GOAL G, Section V).

As such, implementation of the Delta Conservation Framework will serve to further Actions 3, 4, 8 and 9 in the future.

601 # Endnotes

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