Delta Conservation Framework

Section V

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V. Facilitating Delta Conservation Processes

The Delta Conservation Framework outlines overarching goals with related strategies and objectives to achieve a vision for a future Delta in which people prosper and healthy fish and wildlife populations thrive. The goals presented in this section are focused on the need to improve the permitting process to implement new conservation projects and to expand the scope of funding resources and mechanisms available to plan, implement, and monitor projects over the long term. Participants in the 2016 Delta Conservation Framework workshops (2016 workshops) recognized these as major challenges to the timely and cost-effective implementation of conservation projects in the Delta. Goals F and G (Tables 5.1 and 5.2), therefore, focus on improving efficiency of permitting processes and finding solutions for sustained funding support, respectively—not only for immediate implementation, but also for long-term operation, monitoring, and management of conservation lands. Suggestions for possible solutions to these challenges are offered as strategies with focused objectives. It is clear that even the most well thought-out *Regional Conservation Strategy* with buy-in from stakeholders and the Delta community will not generate successful new conservation projects without long-term funding support and a sustained commitment by regulatory agencies and project proponents to implement these strategies.

Advancing Regulatory Compliance and Permitting of Conservation Projects

Agencies across all levels of government—federal, state, regional, and local—have regulatory responsibilities to review the potential impacts of new projects on infrastructure and the environment in the Delta, Yolo Bypass, and Suisun Marsh. It is important for regulatory agencies to review and permit projects with potential impacts to infrastructure (including roads, bridges, flood protection structures, transmission lines, and natural gas lines) to ensure any negative effects are minimized and public safety is not jeopardized. Similarly, regulatory agencies that are responsible for conserving and managing wildlife and their habitats must review and permit projects to ensure that environmental impacts are minimized, and mitigated if necessary, even if there are projected long-term project benefits to wildlife. Additionally, state and federal agencies issue permits to protect the water quality of all waters of the state and waters of the United States, respectively, including wetlands. Despite the best intentions of each agency, the process to comply with regulatory requirements and implement conservation projects in the Delta is daunting because infrastructure, habitats, waterways, communities, and agriculture occur side-by-side on the landscape. (See text box and Appendix XIII).

COMMON PERMITS, AGREEMENTS, AND DISCLOSURES REQUIRED FOR CONSERVATION PROJECTS:

- Delta Plan Consistency: If a project determines that it meets the conditions outlined in Water Code section 85057.5 as a Covered Action under the Delta Reform Act, it must submit a certification for consistency with the Delta Plan to the Delta Stewardship Council.
- CEQA/NEPA: The California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) each require a lead agency and a process to evaluate impacts of a project on environmental resources, including air quality, water quality, biological, archeological, cultural, and other impacts.
- Authorization for incidental take under the Endangered Species Act (ESA): Incidental take is defined as any action that will "*harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct*" (16 U.S.C. § 1532 (19)) a threatened or endangered species that is "*incidental to, and not the purpose of, the carrying out of an otherwise lawful activity*" (16 U.S.C. §1539 (a)(1)(B)). Section 7 of the ESA further prohibits the destruction or adverse modification of designated "*Critical Habitat*" for listed species.
- Authorization for incidental take under the California Endangered Species Act (CESA): Take of a threatened, endangered, or candidate species (listed species) is defined as "*hunt, purse, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill*" in Fish and Game Code Section 86. Take is generally prohibited without a permit under section 2081 of the Fish and Game Code.
- River and Harbors Act Section 10 Permit: requires authorization of the U.S. Army Corps of Engineers (USACE) to construct any structure in or over a navigable water of the United States (U.S.) or alter the course, condition, location or capacity of a navigable water of the U.S.
- Section 401 Water Quality Certification and Wetlands Program/Porter-Cologne: Regulates discharge of fill and dredged material into state waters under the Clean Water Act Section 401 and waste discharge under the Porter-Cologne Water Quality Control Act.
- Clean Water Act Section 402 Construction General Permit: Required for all construction sites greater than one acre which discharge wastewater or stormwater from a point source into a surface water of the U.S.
- Clean Water Act Section 404 permit: Regulates the discharge of dredge or fill material into waters of the United States, including wetlands.
- Clean Water Act Section 408 permit for alteration of civil works projects: USACE issues permits to projects that alter civil works projects such as levees or other flood control infrastructure.
- Encroachment permits: The Central Valley Flood Protection Board requires an encroachment permit for any project that is within an area for which there is an Adopted Plan of Flood Control.
- Lake and Streambed Alteration (LSA) Agreements: A project proponent is required to notify CDFW before starting any project that may divert or obstruct the natural flow of any river, stream, or lake; change or use any material from the bed, channel, or bank of any river, stream, or lake; or deposit debris, waste, or other materials that could pass into any river, stream, or lake under Fish and Game Code sections 1600-1603.
- National Historic Preservation Act Section 106 Letter of Concurrence: Project proponents must consider potential effects of a project on historic properties before acquiring a permit under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.

Throughout the six 2016 workshops, participants voiced frustration about the number and complexity of permits required for a single restoration project. According to many comments by stakeholders, it has been a challenge working with a variety of agencies with different authorities on various components of a conservation project. The process to apply for and obtain all of the permits required for any projects is complex and lengthy. Years, even decades, can pass before permits are granted and conservation projects are authorized for implementation. This has inherent drawbacks, as often degraded environmental conditions are left to linger until conservation actions can be implemented, the costs of implementing conservation projects increase, and timelines for mitigation compliance are not met.

Table 5.1: Goal F and related strategies and objectives for implementation.

GOAL F: Improve the capacity and approaches for permitting processes in the context of Delta conservation implementation.

Strategy F1: Directly engage with permitting agencies to find ways to improve the permitting process for conservation-related projects.

- OBJECTIVE F1-1: By 2018, establish a permanent *permitting ombudsman* dedicated to facilitating communication and collaboration among entities responsible for implementing conservation projects and state, federal, and local regulatory agencies.
- OBJECTIVE F1-2: By 2020, develop and initiate strategies to provide funding to increase dedicated regulatory staff positions for restoration projects in the Delta, Yolo Bypass, and Suisun Marsh.
- OBJECTIVE F1-3: By 2018, bring together Delta conservation practitioners, regulators, and experts for regular regional meetings to discuss ways to improve efficiency of conservation-related permitting processes and requirements.

Strategy F2: Develop permitting guidelines for the Delta *conservation opportunity regions*

- OBJECTIVE F2-1: Beginning in 2018, initiate discussions with regulatory agencies to develop permitting guidelines to provide high-level guidance for project proponents and agency staff issuing permits for individual projects in the Delta.

Strategy F3: Develop regional programmatic permits for conservation projects in the Delta

- OBJECTIVE F3-1: By 2022, develop guidelines and find the lead implementation agency with executive sponsorship for "programmatic" regional permitting frameworks in the Delta.

Improved Coordination among Regulatory Agencies and Conservation Project Proponents

Delta Conservation Framework Goal F (Table 5.1) highlights the need to implement strategies to facilitate the permitting of conservation projects in a way that improves efficiency for project proponents and meets the regulatory requirements of federal, state, regional, and local permitting agencies.

The complexities of permitting conservation projects can discourage proponents of high-value projects, and steep costs associated with protracted permitting processes can drain the already limited funds available for conservation projects. Assigning a high-level *permitting ombudsman*—for example, someone in the Natural Resources Agency who sits on the Delta Plan Interagency Implementation Committee and brings together conservation practitioners and regulators in regular meetings before and during project planning—will allow collaboration and may break down potential hurdles as soon as they arise (Strategy F1, Table 5.1). Improved communication and coordination among project proponents and permitting agencies will also help project proponents better understand regulatory requirements. It would enable them to prepare permit applications that are tailored to the needs of each permitting agency, at the appropriate time during project design, which could improve efficiency. Additionally, creating regulatory agency staff positions that are dedicated to permitting conservation projects in a specific region, such as the Delta, has the potential to improve the efficiency of permit application review and processing (Strategy F1, Table 5.1).

Below, we outline the three primary conservation implementation challenges identified in the 2016 workshops, and we suggest potential solutions through alternative regulatory mechanisms and increased resources that could be used to support efficient permitting and implementation of Delta conservation efforts. These are initial ideas that could be discussed, along with new ideas and approaches, in regular coordination meetings facilitated by a Delta *permitting ombudsman.*

***Challenge 1*: Staffing limitations at regulatory agencies result in longer periods needed for permit review and processing and subsequent project delays.**

***Solution 1.1*:** At regulatory agencies, fund new staff positions that are dedicated to permitting conservation projects located within the Delta. Dedicated regulatory staff will improve permitting efficiency by creating one consistent point of contact at each regulatory agency to communicate with project proponents and participate in regular coordination meetings. Over the long term, dedicated staff will have the opportunity to develop expertise in a specific area and become more efficient at reviewing permit applications and processing required permits. For example, the California Department of Fish and Wildlife (CDFW) currently has staff positions dedicated to permitting Fish Restoration Program Agreement restoration projects and levee projects in the Delta. These dedicated positions have facilitated project compliance with state environmental laws and regulations.

***Solution 1.2*:** Develop new and promote existing planning tools to help project proponents better incorporate permitting processes into project timelines and budgets. As a general practice, build fee-based permitting and compliance monitoring into project timelines, implementation plans, and overall budgets. This will better reflect the realistic funding needs of all components of the project in the budget and will allow more accurate time and funding allocation throughout the life of the project. Alternatively, to improve cost-effectiveness, long-term projects implemented or managed over decades could take a phased approach to project planning, permitting, and implementation with separate budgets and timelines for each phase.

Conservation practitioners need easily accessible online resources to clearly explain permitting requirements and guidelines for various project planning contexts. Proposed strategies for specific resources include:

1) A permitting guide book and training workshops that summarize steps to take and lessons learned from past projects, to tell project proponents how to best streamline conservation project permitting.
2) A decision tree and table that show all the permits required for conservation projects in various contexts and their associated timelines.
3) A regularly updated list of points of contact within each regulatory agency to assist project proponents during the process of applying for required permits.

Combined, these resources should help practitioners better incorporate permitting processes in project planning and foster interagency coordination ahead of, and during, planning and construction. Appendix XIII contains examples of commonly required permits, disclosures, or notifications to help project proponents understand the number and complexity of permits that may be required for an individual project and their associated timelines. The CDFW Habitat Conservation Planning Branch website explains the state permitting options available.[1]

Challenge 2: **Environmental impacts associated with construction of conservation projects can often create mitigation requirements that increase costs and delay project implementation despite the long-term benefits to habitat and ecosystem function.**

Construction of restoration projects designed to benefit a species listed as endangered or threatened under CESA or ESA (listed species) may result in incidental take of that species (See Appendix XIII for further details). In some cases, restoration targeted to benefit one listed species can result in take of other listed species. Because species can be listed under CESA and ESA, take may trigger the need to work with CDFW and federal agencies or only one regulatory agency. In either case, incidental take of listed species triggers regulatory requirements for projects, potentially including requirements to mitigate for impacts off-site and guarantee long-term funding to support the mitigation site. Although the decision to seek take authorization for state-listed species through an incidental take permit with the CDFW is at the discretion of the project proponent, take authorization under CESA is generally requested if even the potential for take is low. See Appendix XIII for a description of ESA and CESA, which prohibit take of threatened and endangered species, except under specific circumstances. Examples of tactics that may be used to address this complex challenge are listed below.

Solution 2.1: Exemptions from mitigation requirements:

Incidental take of listed species under ESA: Under ESA, certain recovery actions, such as habitat restoration or enhancement that demonstrably benefits the listed species, may be included in a Section 10(a)(1)(A) recovery permit. Activities authorized by this permit would also be exempt from mitigation requirements.

Safe Harbor Agreements: A federal Safe Harbor Agreement (SHA) is a voluntary agreement between cooperating non-federal property owners and the U.S. Fish and Wildlife Service (USFWS) or the National Oceanic and Atmospheric Administration (NOAA), that authorize take resulting from ordinary activities when actions of the landowner contribute to the recovery of the species listed as threatened or endangered under ESA [2]. For example, see the text box on page V-9 for a description of the Lower Mokelumne River Programmatic Safe Harbor Agreement.[3]

The California Safe Harbor Agreement Program Act was introduced to Fish and Game Code in 2009 to encourage landowners to voluntarily manage their lands to benefit listed species.[4] Through state SHAs, CDFW may authorize incidental take of a listed species if implementation of the agreement is reasonably expected to provide a net conservation benefit to the species, among other provisions (Fish and Game Code, §2089.6). California SHAs are analogous to the federal safe harbor agreement program. CDFW has the authority to issue a CD

A Consistency Determination (CD) is used for CDFW to authorize incidental take based on the federal take authorization for species that are both state and federally listed. A CD is issued when the federal authorization is consistent with the requirements of CESA (Fish and Game Code, §2081)

Completed Safe Harbor Agreements

- *2016*- Rock Creek, Shasta County, Shasta crayfish (*Pacifastacus fortis)*
- *2015* - Rock Creek Upper Pool, Shasta County, SHA CD, Shasta crayfish
- *2014* - Carrington Coast Ranch, Sonoma County, Townsend's big-eared bat (*Corynorhinus townsendii)*
- *2014* - Fireworks America, San Joaquin County, large-flowered fiddleneck (*Amsinckia grandiflora*)
- *2014* - Morrison Ranch, Alameda County, large-flowered fiddleneck
- *2012* - Kerns Pond, Shasta County, SHA CD, Shasta crayfish
- *2012* - Agriculture and Land Based Training Association, Monterey County, California tiger salamander (*Ambystoma californiense)*

Source: CDFW (https://www.wildlife.ca.gov/Conservation/CESA/Safe-Harbor-Agreements) based on a federal safe harbor agreement for species that are listed under both ESA and CESA (Fish and Game Code, §2089.22). California SHAs do not require mitigation; although, there must be sufficient funding to determine baseline conditions on the property and to carry out the management action and monitoring for the duration of the agreement (Fish and Game Code, §2089.6 (g)). However, SHAs cannot be entered into with state or federal entities (Fish and Game Code, §2089.4(d)).

LOWER MOKELUMNE RIVER PROGRAMMATIC SAFE HARBOR AGREEMENT

The 2006 Lower Mokelumne River Programmatic Safe Harbor Agreement is by and between the California Association of Resource Conservation Districts and the USFWS, to promote ecosystem restoration, including the conservation of the federally listed Valley elderberry longhorn beetle (*Desmocerus californicus*). This will be accomplished through the voluntary restoration, enhancement, and management of native riparian habitat in the lower Mokelumne watershed under ESA Section 10(a)(1)(A) (Policy 64 FR 32717 and regulation 64 FR 32706). The SHA provides certain regulatory assurances to landowners participating in conservation activities to accomplish these activities without negatively affecting farming operations. The SHA outlines the specific “enrolled properties” in the watershed the agreement pertains to and lists the baseline determination, responsibilities, and management activities for each participating property. The SHA is based on a collective conservation benefit of all enrolled properties, as well as other responsibilities of all enrolled parties. The SHA also outlines how abutting landowners may secure incidental take authorization without committing to undertake any management activities described in the agreement.

Photo courtesy of Jon Katz and Joe Silveira, U.S. Fish and Wildlife Service

A Programmatic SHA refers to incidental take authorization under ESA for multiple landowners in a region who meet the requirements of the agreement.

<u>Habitat Restoration and Enhancement Act (Act)</u>: Assembly Bill 2193 established a permitting process for landowners, state and local government agencies, and conservation organizations to implement small-

scale voluntary habitat restoration projects in California.[5] Habitat restoration projects, as defined by the Act, are projects that have a primary purpose of improving fish and wildlife habitat, meet the eligibility requirements of Clean Water Act Section 401, avoid and minimize incidental impacts, and result in measureable ecosystem benefits. Projects approved by CDFW, pursuant to the Act, will not require additional permits from CDFW, such as LSA Agreements or Incidental Take Permits.

<u>Habitat Conservation Plans (HCP) and Natural Community Conservation Plans (NCCP)</u>: [1] If a project is located within the boundaries of an existing or developing HCP and/or NCCP planning area, take of listed species could be covered by the conservation plan through its reserve design, biological goals and objectives, and conservation measures, and not result in additional mitigation requirements. Siting the project within an approved and operating conservation plan may require strategically planning the restoration project far in advance of its initiation, but would streamline permitting requirements. Appendix VII lists all of the HCPs and NCCPs completed, or in development, that overlap with the Delta, Yolo Bypass, and Suisun Marsh.

<u>Environmental impacts analyzed under CEQA/NEPA</u>: Mitigation for project impacts under CEQA can be avoided by designing conservation projects to meet certain categorical exemptions. For example:

- Small restoration projects (less than five acres) can be sited so that there are no significant impacts on listed species or their habitats (Cal. Code Regs., tit. 14, §15333).
- Projects that are designed to not result in a serious or major disturbance to an environmental resource, and that are designed for the purpose of collecting information before construction or during adaptive management, may be exempt under Class 6 (Cal. Code Regs., tit. 14, §15306).
- Conservation actions other than construction may be taken by regulatory agencies so that they protect natural resources (exemption Class 7) and protect the environment (exemption Class 8) (Cal. Code Regs., tit. 14, §15307-§15308).

If a conservation project does not meet categorical exemptions under CEQA, a Negative Declaration can be prepared if an initial study is conducted and clearly shows no substantial evidence that the project may have a significant effect on the environment (No Effect Determination)[6]. If the initial study shows potential for significant environmental impacts, revising the project proposal and design to avoid or mitigate those impacts could enable the lead agency to issue a Mitigated Negative Declaration and avoid preparing an Environmental Impact Report. NEPA also has categorical exclusions that can be met through careful project planning. In general, designing projects that avoid or have negligible impacts on wildlife or their habitats simplifies the process of developing a CEQA/NEPA document and decreases or eliminates the associated mitigation requirements.

Solution 2.2: *Advance mitigation*[7] could enable conservation project proponents to purchase credits from mitigation banks[8] to meet permit requirements prior to project implementation, after potential impacts have been identified and proponents have received the respective permit or agreement. This approach avoids temporary loss of habitat that can result in higher mitigation ratios, because the mitigation is purchased and habitat is restored and protected before the immediate need occurs. If designed and placed on a landscape scale that considers multiple target species' needs (including daily and seasonal migratory movement distances), mitigation banks could potentially improve ecosystem function more effectively than small, scattered mitigation projects. In many instances, mitigation credits are available for purchase through the services of mitigation banking firms that broker project credits with mitigation banks approved by regulatory agencies. Mitigation credits with CDFW could also be developed through the Regional Conservation Investment Strategies Program (see page V-16). For example, the Burke Ranch Conservation Bank, just west of the Cache Slough Complex, provides mitigation banking for California tiger salamander, Swainson's hawk (*Buteo swainsoni*), and vernal pool species.

Solution 2.3: *Negotiated Consistency* – Conservation projects may address potentially conflicting permit requirements for species listed under both ESA and CESA, present at a given project site, through negotiated consistency. For example, CDFW could issue a CD on a federal ESA authorization, if CESA mitigation requirements are fully met by the ESA permit. Otherwise, mitigation requirements can be negotiated and agreed upon ahead of time. These requirements can be included in the project description and conditions of the federal authorization to meet the CESA requirements and ensure that incidental take and impacts of the taking are minimized and fully mitigated. The more consistent the permits are, the faster the permits can be processed.

Solution 2.4: *Mitigation through on-site restoration* –Occasionally, the needs of listed species conflict, and restoration targeted to benefit one species can result in take of another listed species. For example, habitat restoration activities to benefit Delta smelt (*Hypomesus transpacificus*) at Dutch Slough will likely result in take of Swainson's hawk when restoration of tidal marsh habitat removes known nest trees and associated foraging habitat. In this specific case, the project proponent met with CDFW to develop a project design that benefits and fully mitigates impacts to both species through on-site restoration, habitat enhancement, and long-term conservation. This meets the CESA requirement because the incidental take of Swainson's hawk is considered temporary, for which on-site restoration can fully mitigate.

Solution 2.5: If compensatory mitigation for take of listed species is required, the amount of mitigation and the location of mitigation are at the discretion of the relevant regulatory agencies based on their policies and past practices—CDFW and USFWS or NOAA. In cases where compensatory mitigation for take of listed species is required, regulatory agencies generally recommend that mitigation occur onsite or nearby. However, from a landscape perspective, *Regional Conservation Strategies* should be used to guide the siting of conservation projects required as mitigation within a Delta *Conservation Opportunity Area*. This solution could appeal to regulatory agencies, because siting projects in alignment with the landscape-scale planning associated with a *Regional Conservation Strategy* accounts for increased habitat benefits in larger, contiguous habitat patches.

Challenge 3: **CESA includes a requirement for documentation of funding assurances to support monitoring and management of mitigation lands.**

Even in instances when a project provides on-site mitigation for impacts to listed species, the area set aside for mitigation is required under CESA to have long-term funding and monitoring in place. However, it can be challenging for projects initiated with short-term funding to demonstrate funding assurances over the long term.

Solution 3.1: Expand the number or size of advance mitigation sites established by state agencies and make them more affordable as a way to establish "credits" before a given project is launched. Using credits impacts are mitigated immediately, once a project is implemented. Existing mitigation banks are managed and monitored by third parties over the long term, which relinquishes project proponents from the requirement to secure and document their own long-term funding source.

Solution 3.2: Under Fish and Game Code, §2081, subdivision (a), there is the option for CDFW to authorize public agencies to take listed species for management purposes. Projects that qualify for a SHA or a Memorandum of Understanding (MOU) under Fish and Game Code, §2081 (a), would be exempt from the requirement to establish a long-term funding source, because take of individuals is offset by the benefit of the management action to the listed species. For example, a 2081(a) MOU[9] was issued for the rescue and relocation of Chinook salmon and for increasing instream habitat to benefit the salmon (see text box).

MILL CREEK MEMORANDUM OF UNDERSTANDING (MOU)

In 2015 the Los Molinos Water Company and CDFW established a MOU to provide a framework for cooperative activities and monitoring in Mill Creek, eastern Tehama County, that includes or addresses issues of importance to Central Valley spring-run Chinook salmon (salmon; *Oncorhynchus tshawytscha*), listed as threatened under CESA. The MOU provides authorization for take associated with actions taken by either party to rescue and relocate the salmon, or assist with increasing flows in the creek for the salmon's benefit, as management activities under authority of California Fish and Game Code section 2081(a). General MOU elements include eligibility, fish rescue efforts, designated fish passage flows, changes in the timing of diversions to provide improved instream flow and water temperature conditions that would minimize the need to rescue fish, and the monitoring and evaluations of management actions. Further specific items of the program, tailored by stream, as well as effective time period, are also outlined in the MOU.

Developing Regional Permitting Frameworks in the Delta

The specific regulations and permitting requirements applicable to conservation projects are likely to vary based on site-specific conditions in the Delta, Yolo Bypass, and Suisun Marsh. Except in areas where HCPs and NCCPs have been developed, permits are currently issued on a project-by-project basis by a variety of federal, state, regional, and local agencies (see Appendix XIII for a list of common permitting requirements). This individual project approach requires new analyses of impacts and associated minimization and mitigation for each project by each regulatory agency--a very complex, costly, and lengthy process requiring substantial staff time for both regulatory agencies and conservation project proponents.

Participants in the 2016 workshops suggested developing regional permitting frameworks, or "programmatic permits," to 1) provide clear guidance to project proponents regarding characterization of impacts and associated mitigation requirements (if any), 2) allow for better integration of individual projects into a regional planning vision, and 3) ensure that regulatory agency requirements are met. In response to concerns voiced by 2016 workshop participants, we suggest two related strategies to improve the efficiency of individual project implementation for both regulatory agency staff and project proponents. The first strategy identifies the merits of developing formal, but non-regulatory, guidelines within individual agencies as tools for project proponents and staff permitting conservation projects. The second strategy addresses the merits of programmatic or regional permits and provides several examples of previous and current programmatic permits relevant to conservation in the Delta.

> ***A Programmatic Biological Opinion*** (BiOp) authorizes incidental take for several similar projects within the same region. The purpose of a programmatic BiOp is to expedite consultation under ESA Section 7 for proposed projects that have limited impacts on the listed species. For example, a programmatic BiOp was issued by USFWS for all projects permitted by USACE under the East Alameda County Conservation Strategy. Another was issued for USACE-approved projects that had limited impacts on Valley elderberry longhorn beetle throughout the jurisdiction of the USFWS Sacramento Field Office. As long as projects meet the requirements of the programmatic permit, individual permits for projects are not required.

Common Guidelines for Evaluating and Permitting Conservation Projects in the Delta

Implementation of proposed conservation projects in the Delta is delayed in part by the process of securing the permits from local, state, and federal agencies that are required to begin construction. Permitting large conservation projects in the Delta is challenging because many project proponents don't know which permits they need to obtain and what is required to initiate and complete individual permitting processes. Strategy F1 (Table 5.1) acknowledges the importance of assigning a permanent high-level *permitting ombudsman* to help project proponents understand permitting processes and to facilitate communication with regulatory agencies. In addition to the resources identified in Strategy F1, the efficiency of permitting (for both project proponents and agency staff) could be improved by developing formal, but non-regulatory, guidance documents specifically applicable to conservation projects in the Delta, Suisun Marsh, and the Yolo Bypass (Strategy F2, Table 5.1). These specific guidance documents would be developed by individual agencies, based on their knowledge and expertise in their specific regulatory responsibilities, and vetted internally; the documents could then be summarized in a general guidance document for Delta projects. The guidelines should include consistent definitions of key terms (for example: temporary impact, permanent impact, listed species habitat characteristics) and suggested procedures for project evaluation, consultation, and mitigation (if relevant) in the Delta, Suisun Marsh, and the Yolo Bypass. Such guidance documents should facilitate productive discussions between project proponents and agency staff charged with reviewing and permitting projects. These Delta-focused guidance documents should require less time and fewer staff resources to develop than a formal programmatic or regional permit and should be available for use in the short-term. They could also serve as the first step toward developing a formal regional or programmatic permit.

Develop Regional or Programmatic Permits for Conservation in the Delta

Programmatic permits or regional regulatory authorizations are potential tools to improve the efficiency of conservation project implementation in the Delta by reducing the time required for regulatory agency coordination and review. Despite a longer initial development time, regional or programmatic permits improve efficiency by establishing clear requirements regarding pre-project consultation, specific design requirements in project plans, impact definitions, and required mitigation measures, up front. Agencies can process permit applications more quickly for projects that apply through a regional permit (generally Clean Water Act related) or under a programmatic permit (generally ESA-related). Regional and programmatic permits generally provide guidelines for project design, construction methods, impact assessments, and associated mitigation measures. For example, a programmatic BiOp under ESA is being implemented in the Santa Rosa Plain as part of the Santa Rosa Plain Conservation Strategy.[10]

Conservation actions that may be suitable for programmatic or regional permitting and compliance with State and federal regulations include planting native vegetation, restoring historic features (such as channel alignment), controlling invasive species, managing watersheds to control runoff, removing barriers to fish passage and unnatural hard points within and along channels, and minor vegetation or tree removal, among others[11] (Strategy F3, Table 5.1). Below we provide two examples of programmatic or regional permits in the Delta, including a new, nationwide USACE permit and a former USFWS programmatic BiOp authorizing take of giant garter snake (*Thamnophis gigas*). We also describe recent legislation for the development of a *Regional Conservation Investment Strategy Program* that enables agencies in a region to conduct conservation projects that could serve as mitigation for other projects within the same region.

Example 1: USACE Nationwide Permit 27

In 2017, USACE issued Nationwide Permit 27 (NWP 27) to authorize aquatic habitat restoration, enhancement, and establishment activities in waters of the U.S., under Section 404 of the Clean Water Act (33 CFR Part 330).[12]

Specifically, activities eligible for authorization by USACE under NWP 27 include:

> "*Activities in waters of the United States associated with the restoration, enhancement, and establishment of tidal and non-tidal wetlands and riparian areas, the restoration and enhancement of non-tidal streams and other non-tidal open waters, and the rehabilitation or enhancement of tidal streams, tidal wetlands, and tidal open waters, provided those activities result in net increases in aquatic resource functions and services*." [12]

NWP 27 clearly defines specific activities that are eligible to be authorized through the nationwide permit, and lists reporting, notification, and general permit conditions required for authorized projects. Additionally, NWP 27 states that eligible projects are not required to conduct compensatory mitigation because they must result in net increases in aquatic resource functions and services. Combined, these definitions and consistent requirements provide clarity for both project proponents and staff reviewing permit applications of specific projects.

To account for regional variation within the U.S., the Sacramento District of USACE also issued region-specific conditions under NWP 27 for projects in the Delta.[13] Specifically, the Sacramento District requires all projects in the Delta applying under NWP 27 to provide a preconstruction notification, including:

> "*Sufficient justification to determine that the proposed activity would result in a net increase in aquatic resource functions and services. Functions and services to be considered in the justification include, but are not limited to: short- or long-term surface water storage, subsurface water storage, moderation of groundwater flow or discharge, of energy, cycling of nutrients, removal of elements and compounds, retention of particulates, export of organic carbon, and maintenance of plant and animal communities*." [13]

The Sacramento District office also requires that the preconstruction notification includes descriptions of 1) how the project design minimizes adverse temporary and permanent effects to waters of the U.S., 2) drawings and plans depicting the proposed project and its location relative to delineated waters of the U.S., 3) delineation of aquatic resources consistent with Sacramento District standards, and 4) proposed *Best Management Practices* to be used during construction. When taken together, the guidelines, definitions, and requirements outlined in NWP 27 and the Sacramento District NWP regional conditions provide clear guidance to project proponents and regulatory staff and should help improve the efficiency of conservation project planning and implementation.

Section 401 of the Clean Water Act requires states to certify that projects permitted by a NWP meet all state water quality requirements; and under California's Porter-Cologne Water Quality Act, waste discharge requirements are also necessary. For NWP projects, the State Water Control Board or Regional Water Quality Control Boards may streamline Section 401 and Porter-Cologne requirements by combining or even waiving them for small projects that meet certain CEQA exemptions.

Example 2: USFWS Programmatic BiOp with USACE for 404-Permitted Projects with Small Effects on Giant Garter Snake

In 1997, USFWS issued a programmatic BiOp to USACE for individual projects permitted under Section 404 of the Clean Water Act with impacts on giant garter snake in northern and central California (USFWS Programmatic BiOp)[14]. Projects with less than three acres of permanent impacts, or less than 20 acres of temporary impacts to giant garter snake habitat were eligible to seek take authorization under the USFWS Programmatic BiOp. It includes descriptions of procedures required to implement specific projects, mitigation required to offset impacts of individual projects, and clear definitions of key terms necessary to assess impacts to giant garter snake, including disturbance area, temporary impacts, and permanent impacts.

Programmatic Formal Consultation for U.S. Army Corps of Engineers 404 Permitted Projects with Relatively Small Effects on the Giant Garter Snake within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter and Yolo Counties, California.

"The purpose of this programmatic consultation is to expedite Corps permitted projects, including activities which may qualify for authorization under nationwide permitting, with relatively small effects on the giant garter snake and its habitat. Projects which exceed the programmatic threshold will require individual biological opinions. The Service will re-evaluate this programmatic consultation annually to ensure that its continued application will not result in unacceptable effects on the giant garter snake or its habitat. Restricting this programmatic consultation to projects with permanent impacts of less than 3.00 acres (1.21 hectares) and temporary impacts of less than 20.00 acres (8.09 hectares) of giant garter snake habitat per project will limit the effects of the programmatic process on the giant garter snake and its habitat. Tracking and restricting project effects over time will serve to minimize cumulative effects at local and regional levels." [14]

The clear guidelines, definitions, and mitigation requirements in the USFWS Programmatic BiOp enable USFWS and USACE staff to more efficiently discuss and permit individual projects that require take authorization for giant garter snake. Although this BiOp has expired, USFWS staff continue to use it as a set of informal guidelines when evaluating individual projects with low-level impacts to giant garter snake habitat.

Example 3: CDFW Regional Conservation Investment Strategies Program

In 2016, Assembly Bill (AB) 2087 was signed into law, enabling CDFW to initiate a new pilot *Regional Conservation Investment Strategy* (RCIS) Program.[15] This new program encourages a voluntary, non-regulatory, and non-binding regional planning process intended to result in high-quality conservation outcomes in regions of California. Regions are at the U.S. Department of Agriculture ecoregion scale but may include more than one ecoregion. AB 2087 only allows eight RCISs to be approved by CDFW prior to January 1, 2020, and identified Yolo County as one of four regions in California where RCISs should be developed.

The pilot RCIS Program consists of three components: [15]

1) *Regional Conservation Assessments* – A conservation assessment of a region including analyses of sensitive species, ecosystems, protected areas, and habitat connectivity. The assessment will support the development of long-term regional conservation priorities that include carbon sequestration, water conservation, and preservation of agricultural lands.
2) *Regional Conservation Investment Strategies* – An RCIS establishes biological goals and objectives at the species level and describes conservation actions and habitat-enhancement actions that, if implemented, will contribute to those goals and objectives. Those actions will benefit the conservation of focal species, habitat, and other natural resources. They may be used as a basis to provide advance mitigation through the development of credits (see 3 below) or to inform other conservation investments. Any public agency may develop an RCIS.
3) *Mitigation Credit Agreements (MCA)* – An MCA is a mitigation credit agreement developed under an approved RCIS. An MCA is developed in collaboration with CDFW to create mitigation credits by implementing the conservation or habitat enhancement actions identified in an RCIS. RCISs and MCAs do not provide take authorization for individual projects. Rather, MCAs create credits that may be used as compensatory mitigation for impacts under CEQA, CESA, and the LSA Program. Any person or entity may enter into an MCA with CDFW to create credits, even if the person or entity was not involved in the development of the RCIS. People or entities may create and use, sell, or otherwise transfer mitigation credits upon CDFW's finding that credits have been created in accordance with the RCIS Program requirements.

The development of a RCIS does not create, modify, or impose regulatory requirements or standards, regulate land use, establish land use designations, or affect the land use authority of a public agency. It can be used, however, to streamline mitigation requirements and expedite the permitting of restoration projects within the region. If approved by CDFW, a RCIS may be valid up to 10 years. CDFW may extend the duration of an approved or amended RCIS for an additional 10 years, provided the RCIS is updated to include new scientific information and the RCIS continues to meet the program's requirements outlined in Fish and Game Code section 1850, et seq.

Securing Lasting Conservation Funding

It is not feasible to protect, enhance, restore, and manage Delta ecosystems for the benefit of people and wildlife without committed, long-term financial support. Therefore, strategies to provide long-term funding for conservation planning, implementation, and adaptive management (AM) of conservation lands, are vital to realizing the goals of this Conservation Framework and other Delta-oriented conservation initiatives. In general, there are four primary sources for funding of conservation.[16]

1. ***Government Funding*** – including federal, state, and local government programs;
2. ***Donor-based Funding*** – including nongovernment organizations (NGOs), private foundations, and individuals;
3. ***Payments for Ecosystem Services*** – including greenhouse gas reduction, water rights, tourism fees, and habitat exchanges;
4. ***Mitigation Funding***– including endowments through *Business Biodiversity Offset Programs*[17,18] or other mechanisms to create and manage protected areas as mitigation for impacts to environmental resources.

A centralized source of information about available funding streams and mechanisms is needed to ensure alignment between conservation practitioners and available funding methods, solicitations, and programs.

Additional voter-approved fees, taxes, fines, or dedicated bonds could provide funding for conservation projects. A centralized source of information about available funding streams and mechanisms is needed to ensure alignment between conservation practitioners and available funding methods, solicitations, and programs.

Table 5.2: Goal G and related strategies and objectives for implementation.

GOAL G: Develop mechanisms to secure long-term funding for continued conservation implementation and management.

Strategy G1: Utilize existing short-term state funding opportunities

- OBJECTIVE G1-1: By 2018, update grant solicitation language for available state funding opportunities to directly tie Delta Conservation Framework goals to those funds.
- OBJECTIVE G1-2: By 2022, recognize the potential limitations of current funding programs, and work with policy staff on new bond language to support the Delta Conservation Framework.

Table 5.2: Goal G and related strategies and objectives for implementation.

Strategy G2: Develop long-term funding support for Delta conservation and adaptive management

- OBJECTIVE G2-1: By 2022, develop a suite of 5-10 strategies to develop and secure long-term funding streams for continued implementation and management of conservation lands.
- Objective G2-2: By 2025, foster a commitment to stable funding by implementing at minimum one of the agreed upon strategies in Objective G2-1.

Strategy G3: Develop tools to effectively publicize available funding opportunities

- OBJECTIVE G3-1: By 2022, identify a lead organization and develop and maintain an ongoing information exchange and clearinghouse for available Delta conservation funding opportunities.

Short-term Funding Opportunities

Planning and implementation of conservation projects is most often based on short-term government or donor funding cycles that grant funds over the course of three or five-year contracts.[16] Because most funding is available for short time frames, NGOs and other entities involved in implementing conservation projects are often required to compete for funding with commitments of as little as two years (Strategy G1, Table 5.2).

While appropriate for some efforts, such as fee-title acquisitions of conservation lands, tree-planting programs, or targeted short-term agricultural assistance to promote wildlife-friendly practices, this approach is largely ineffective to support functional ecosystem outcomes that may take decades to unfold. In cases where longer-term programmatic funding is needed, usually for operations and management of passively restoring lands, steady long-term funding is hard to come by.

Constraints placed on funding sources when they come from government bonds, or other time-limited sources with a specific shelf-life (typically 10 years), that fund grant programs create a fundamental limitation on project implementation and long-term success. In most cases, no matter the ongoing project or program need, once short-term funding is gone, work on the project ends or the project languishes—either during the planning stage or after initial project implementation—until a new source of funding can be secured[16]. Just as often, nascent conservation projects fail to gain traction with stakeholders and reach the planning stage because of the lack of available long-term funding to sustain the project through planning, permitting, implementation, and management. Many valuable initiatives—for example, sustained management of ecosystems in the face of climate change—fail or aren't fully realized over the long term because they often occur without monitoring to inform management activities as part of AM for lack of secure, ongoing sources of support. Although short-term funding for conservation in the Delta is currently available (mainly through government bond-supported grant programs), a long-term support structure for lasting conservation implementation, management, evaluation, and local community integration is needed to plan, implement, and manage projects.

Government Funding

Potential Delta Conservation Funding Sources

- ***Participating State and Federal Water Contractors***

- ***State Funding Sources***
  - Water Bonds
    - Propositions 1 & 1E bonds
  - AB 32 Greenhouse Gas Reduction Fund
  - Wildlife Conservation Board (WCB)
  - Interagency Ecological Program (state funding)
  - Delta Stewardship Council
  - Ecosystem Restoration Program
  - Environmental Enhancement Fund
  - Fisheries Restoration Grant Program

- ***Federal Funding Sources***
  - Existing and New Federal Authorizations
  - Central Valley Project Improvement Act Restoration Fund (U.S. Bureau of Reclamation [Reclamation])
  - California Bay-Delta Restoration Appropriations (Reclamation)
  - California Bay-Delta Restoration Appropriations (USFWS)
  - California Bay-Delta Restoration Fund (California Environmental Protection Agency)
  - California Bay-Delta Restoration Appropriations (U.S. Geological Survey)
  - California Bay-Delta Restoration Appropriations (Natural Resources Conservation Service)
  - California Bay-Delta Restoration Appropriations (National Marine Fisheries Service [NMFS])
  - Regional Ecosystem Conservation (NMFS)

Source: Bay Delta Conservation Plan public draft[19]

Short-term funding through government bond initiatives and other programs maximizes the ability of an agency to administer funds and apply creative solutions. It is important to acknowledge agency processes and maintain bond language that allows innovative, flexible, and effective approaches to conservation implementation and for novel conservation solutions to be applied and tested by NGOs and private entities.

Participants in the 2016 workshops called for a focused and consistent messaging campaign to the California legislature from state and local agencies, and NGOs, to highlight the need for additional long-term funding for the implementation and ongoing management of conservation lands. They also suggested that this message emphasize the need for public support of Delta education and outreach campaigns outlined in Goal B. 2016 workshop participants suggested that a portion of California's general funds should be dedicated to Delta conservation efforts, with the premise that Delta ecosystem conservation is a public benefit that provides essential ecosystem services to Californians. The Delta Stewardship Council could consider developing a cohesive, common message with a diverse group of stakeholders, including state agencies, NGOs, and other advocacy groups. The goal is to maximize the effectiveness of limited government conservation funds by simultaneously considering the larger planning context of Delta conservation and the *Delta as Place*, contemplating restoration of ecosystem function on a landscape scale, and recognizing the value of implementing projects in phases driven by available funding and ongoing insights from adaptive management.

A direct budget allocation could be used to support implementation of AM at the project-scale, or contribute to larger, landscape-scale "programmatic" AM monitoring that informs the evaluation of progress across the entire Delta, such as the Tidal Wetland Monitoring Framework.[20] Direct budget allocations could also provide funding to support multi-benefit projects that promote agricultural practices and optimize ecosystem services, for example wildlife-friendly farming, as highlighted in Section II.

Existing Grant Programs

Short-term public funding to support Delta conservation is available from government grant programs administered by CDFW, WCB, the Delta Conservancy, the Coastal Conservancy (Suisun Marsh), the Delta Science Program, and California Department of Water Resources (DWR). For example, of the 30,000 acres of conservation included in the California *EcoRestore* initiative, 5,000 acres of habitat enhancement and restoration projects will be implemented through public funding from Proposition 1 and 1E, the Wetlands Restoration for Greenhouse Gas Reduction Grant Program, and grants to local governments, nonprofit organizations, and other entities. Details about current grant programs are outlined below (Strategy G1, Table 5.2).

Water Quality, Supply, and Infrastructure Improvement Act – Proposition 1 – Delta Programs

The Water Quality, Supply, and Infrastructure Improvement Act of 2014 (Proposition 1; California Water Code §79700 - §79798) provides funding to implement the objectives of the California Water Action Plan (CWAP): more reliable water supplies, restoration of important species and habitats, and a more resilient and sustainably managed water infrastructure.[21] Chapter 6 of Proposition 1 authorizes funding, upon appropriation by the Legislature, for competitive grants for "Protecting Rivers, Lakes, Streams, Coastal Waters, and Watersheds." Delta-focused Proposition 1-funded grants, established by CDFW and the Delta Conservancy, offer short-term support (grant terms are generally three to five years) for scientific studies; water quality improvement projects; and acquisition, planning, and implementation of Delta conservation projects that align with Delta Conservation Framework goals and strategies. California public agencies, nonprofit organizations, public utilities, federally recognized Indian tribes, state Indian tribes listed on the Native American Heritage Commission's Tribal Consultation List, and mutual water companies are eligible to apply (California Water Code §79712[a]). Projects that are undertaken to meet mitigation obligations, or projects that are under an enforcement action by a regulatory agency, are not eligible for funding.

In 2015, CDFW established the *Delta Water Quality and Ecosystem Restoration Grant Program* to administer $87.5 million of Proposition 1 funds for projects that benefit the Delta (California Water Code §79738). CDFW will distribute these funds on a competitive basis through annual proposal solicitation notices issued over a 10-year period. The program focuses on water quality, ecosystem restoration, and fish protection facilities that benefit the Delta. Projects must be consistent with the purposes of Proposition 1 and contribute to implementation of the CWAP, State Wildlife Action Plan, Delta Plan, Delta Science Plan, Central Valley Flood Protection Plan Conservation Strategy, and/or California *EcoRestore*.[22] See Appendix XIV for projects funded under the first two years of this program.[23]

Beginning in 2015, the Delta Conservancy launched a grant program to award $50 million (identified in Chapter 6 of Proposition 1) over a five-year period "for competitive grants for multibenefit ecosystem and watershed protection and restoration projects in accordance with statewide priorities" (California Water Code §79730 and §79731). Proposition 1 and the Delta Conservancy's enabling legislation both focus on projects that use public lands and maximize "voluntary landowner participation in projects that provide measurable and long-lasting habitat or species improvements in the Delta." To the extent feasible, projects need to promote state planning priorities and sustainable communities strategies consistent with Government Code 65080(b)(2)(B). Furthermore, all proposed projects must be consistent with statewide priorities as identified in Proposition 1, the CWAP, the Delta Conservancy's enabling legislation, the Delta Plan, and the Delta Conservancy's Strategic Plan.[24] See Appendix XIV for projects funded under the first two years of this program.[25]

Healthy Delta ecosystems not only provide habitat benefits for wildlife, but also offer important ecosystem services with irreplaceable benefits to the human population. These potential co-benefits include enhancing ecosystems for wildlife habitat that also provide open space and recreation opportunities for humans; protecting and improving water quality and quantity that also benefits human recreation and agriculture; and helping the Delta adapt to climate change while increasing the capacity for preparedness to avoid potential catastrophes associated with extreme events.[26] Delta ecosystem conservation, in particular when aimed at providing these multiple benefits, closely aligns with implementation of Delta Conservation Framework overarching goals and strategies (Goals D-E).

"**Cap-and-Trade** is a market-based regulation that is designed to reduce greenhouse gases (GHGs) from multiple sources. Cap-and-trade sets a firm limit or cap on GHGs and minimize the compliance costs of achieving AB 32 goals. The cap will decline approximately 3 percent each year beginning in 2013. Trading creates incentives to reduce GHGs below allowable levels through investments in clean technologies. With a carbon market, a price on carbon is established for GHGs. Market forces spur technological innovation and investments in clean energy. Cap-and-trade is an environmentally effective and economically efficient response to climate change."

Source: Cal-EPA/ARB 2017 [26]

The Wetlands Restoration for Greenhouse Gas Reduction Grant Program

In 2014, CDFW developed the Wetlands Restoration for Greenhouse Gas Reduction Grant Program[27] (GGRGP) in response to the Global Warming Solutions Act of 2006 (Assembly Bill 32 [Nunez, Statutes of 2006]). California's Cap-and-Trade Program includes an auction system where a portion of the tradable GHG emission permits (called *allowances*) can be purchased at quarterly auctions. Proceeds from the sale of state-owned allowances are deposited in the Greenhouse Gas Reduction Fund. CDFW is administering a portion of these funds, through this grant program, to support the restoration or enhancement of Sacramento-San Joaquin Delta wetlands, coastal wetlands, and mountain meadow ecosystems in order to reduce GHG emissions and provide co-benefits. However, to date, CDFW has only received one appropriation that included local assistance funds for grants (FY14-15). Future funding is not clear. Examples of potential co-benefits this program provides include enhancing fish and wildlife habitat, protecting and improving water quality and quantity, and helping California adapt to climate change.[27]Public agencies, recognized tribes, and nonprofit organizations are eligible to apply.

Increasing the quality and quantity of key wetlands in California will provide measurable carbon sequestration benefits consistent with the most recent climate change adaptation and mitigation strategies, and wildlife and fisheries management and recovery plans.[27] This is critical because wetlands have among the most efficient carbon sequestration rates per unit of all habitat types, allowing both effective and

Sherman Island Wetland Restoration Project

This GGRGP-funded project is implemented in partnership with DWR and University of California, Berkeley, to restore approximately 1,700 acres of permanent wetlands on Sherman Island, in the Sacramento-San Joaquin Delta. Once the wetlands are mature, they are projected to sequester approximately 11.5 metric tons carbon dioxide-equivalent per acre per year or nearly 20,000 metric tons carbon dioxide-equivalent per year for the entire project. The project includes a Delta wide monitoring program for carbon dioxide, methane, and nitrous oxide, which builds upon data collected already. These data sets will support the further development and calibration of models allowing GHG predictions of both baseline and treatment results Delta-wide. The project is closely coordinated with other Delta efforts to develop a GHG protocol for both the voluntary and regulatory Cap-and-Trade markets. Additionally, DWR biologists monitor and assess native plant species annually within the restoration areas and conduct biannual bird surveys and compare observation to pre-project conditions. DWR engineers monitor subsidence reversal rates by utilizing survey techniques. Additional objectives include:

- Restore and enhance connectivity to associated wetlands and upland natural communities within the west Delta.
- Restore and enhance nesting, roosting, foraging, and cover habitats for native wildlife species.
- Improve flood protection and reduce risk of significant water quality impacts
- Protect climate refugia.
- Increase diversity and relative cover of native plant species and minimize the establishment and growth of non-native, invasive plant species.

Source: Sherman Island Wetland Restoration Project - Project Description (Reclamation District 341 and DWR , 2014).

extensive carbon sequestration, and only about 10 percent of the wetlands that existed in California 200 years ago remain today.[27]

Multiple benefits of wetlands for greenhouse gas reduction and habitat recovery include:[27]

- A larger and more efficient storehouse for atmospheric carbon;
- Protecting and improving water quality through filtration and pollution reduction;
- Enhanced water storage through the replenishment of groundwater aquifers;
- Enriched biodiversity by providing essential habitat for many species of fish and wildlife, some of which are endangered or threatened.

Healthy Delta wetlands, therefore, provide important and irreplaceable benefits to the human population and fish and wildlife. Delta wetland conservation, in particular connected to subsidence reversal as an additional benefit, closely aligns with implementation of Delta Conservation Framework overarching goals and strategies (Goals D-E).

Wildlife Conservation Board

The WCB offers a number of funding programs in California aimed at ecosystem conservation.[29] These include programs for land acquisition; ecosystem restoration on agricultural lands; habitat enhancement and restoration; public access development; rangeland, grazing land, and grassland protection; riparian habitat and inland wetlands conservation; and a Natural Heritage Preservation tax credit. Through the *Land Acquisition Program,* WCB acquires real property or rights in real property on behalf of CDFW, or provides grant funds to other governmental entities or nonprofit organizations to buy real property or rights in real property. All acquisitions are made via a Department of General Services approved fair market value appraisal on a "willing seller" basis. The acquisition activities generally entail CDFW evaluating the biological values of property through development of a Land Acquisition Evaluation (used for a single property) or a Conceptual Area Protection Plan (used for multiple properties).

In California, a large number of wildlife species depend on habitat in privately owned agricultural properties. Agricultural lands, depending on the crop type, can afford significant habitat value and connectivity with protected wildlife areas. Agricultural landowners are often willing to integrate wildlife benefits into the management and operations of their properties, yet they lack the capital and/or expertise to implement these practices. The WCB's *Ecosystem*

Conaway Ranch

In 2012, the WCB funded conservation easements in the northern Yolo Bypass on agricultural lands owned by the Conaway Preservation Group.[28] This included 4,000 acres of seasonally or naturally flooded wetlands (primarily rice) for the benefit of fish and waterfowl; 1,000 acres for Swainson's hawk conservation; 1,000 acres for giant garter snake conservation; and approximately 224 acres for tricolored blackbird (*Agelaius tricolor*) conservation. The conservation easements ensure the agricultural use of the land is consistent with environmental and biological benefits to fish and wildlife habitats while maintaining the integrity of historic and current agricultural operations.

Restoration on Agricultural Lands program provides funding to assist landowners in developing sustainable wildlife-friendly practices on their properties that can co-exist with agricultural operations.

The *Habitat Enhancement and Restoration Program* is WCB's general restoration program. It comprises all projects that fall outside WCB's and other mandated programs, and it includes native fisheries restoration and restoration of wetlands such as coastal, tidal, or fresh water habitats that fall outside the jurisdiction of the *Inland Wetlands Conservation Program*. It also contains other native habitat restoration projects including coastal scrub; grasslands; threatened and endangered species habitats; in-stream restoration projects, including removal of fish passage barriers and other obstructions; and other projects that improve native habitat quality within the state.

The *Public Access Development Program* aims to improve public access to hunting, fishing, or other wildlife-oriented recreation throughout California. Financial assistance is available to state and federal agencies, cities, counties, and public districts or corporations to develop public access facilities, including fishing piers or floats, access roads, boat launching ramps, trails, boardwalks, interpretive facilities, lake or stream improvements, and restrooms and parking areas.

The *Rangeland, Grazing Land and Grassland Protection Program* aims to prevent the conversion of rangeland, grazing land, and grassland to nonagricultural uses; protect the long-term sustainability of livestock grazing; and ensure continued wildlife, water quality, watershed, and open space benefits to Californians as a result of livestock grazing. The funding is available to projects that protect the integrity of the rangeland, grazing lands, or grasslands with innovative uses compatible with sustainability. The Program encourages projects to address regional landscape issues.

The *California Riparian Habitat Conservation Program* (CRHCP) aims to help protect, preserve, restore, and enhance riparian habitat throughout California. The CRHCP program objectives include to assess the current extent and status of riparian habitat statewide; identify areas critical to riparian ecosystem maintenance; pinpoint areas in imminent danger of destruction or significant degradation; prioritize protection needs based on site significance and potential habitat loss or degradation; develop and fund project-specific strategies to protect, enhance, or restore significant riparian habitat; develop, administer, and fund a grant program for riparian habitat conservation; and provide a focal point for statewide riparian habitat conservation efforts.

The *Inland Wetlands Conservation Program* (IWCP) was created to assist the Central Valley Joint Venture (CVJV) with protecting, restoring, and enhancing wetlands and associated habitats. The IWCP provides funding to help achieve CVJV's goal of increasing bird populations through land acquisitions, wildlife friendly agriculture, conservation easements, and restoration or enhancement of habitats within the CVJV basins, including Yolo, Suisun Marsh, and the Delta.

The *Natural Heritage Preservation Tax Credit Program* (*Tax Credit Program*) capitalizes on opportunities and benefits arising from integrating divergent interests and forming public/private partnerships. This includes unique and innovative methods to protect and conserve California's farm and ranch lands, natural resources, and local economies. The purpose of the Natural Heritage Preservation Tax Credit Act of 2000 (Public Resources Code Section 37000 et seq) is to protect wildlife habitat, parks and open space, archaeological resources, agricultural land, and water by providing state tax credits for donations of qualified land (fee title or conservation easement) and water rights. The *Tax Credit Program* objectives include the fostering of public/private partnerships to resolve land use and water disputes, assisting habitat stewardship. This is to demonstrate the state's commitment to natural resources protection by rewarding landowners who perceive habitat as an asset rather than a liability. Initially implemented in 2001, the *Tax Credit Program* to date has resulted in the approval of $54.5 million in tax credits. This includes the donation and transfer of ownership of more than 9,407 acres of critical parkland, open space, agricultural conservation easements, wildlife corridors, and archaeological resources.

The Central Valley Project Implementation Act

The Central Valley Project Implementation Act (CVPIA)[30] established certain actions to restore, protect, and enhance fish, wildlife, and associated habitats in the Central Valley—including the Bay-Delta Estuary and Trinity River basins of California—and to address impacts of the Central Valley Project (CVP) on fish, wildlife, and associated habitats. To provide irrigation and municipal water to much of California's Central Valley, the CVP regulates and stores water in reservoirs in the northern half of the state and transports it to the San Joaquin Valley via a series of canals, aqueducts, and pumping plants. To offset CVP impacts, the CVPIA provides restoration funds available from Central Valley water and power users. This restoration fund may be appropriate to fund conservation projects in the Delta, Suisun Marsh, and Yolo Bypass.

Ecosystem Restoration Program: Conservation Strategy for Restoration of the Sacramento-San Joaquin Delta, Sacramento Valley and San Joaquin Valley Regions

The 2014 *Conservation Strategy for Restoration of the Sacramento-San Joaquin Delta, Sacramento Valley and San Joaquin Valley Regions* guides future environmental restoration in the Sacramento-San Joaquin Delta and the watershed associated with this focus area through 2030.[31] The Ecosystem Restoration Program (ERP) Implementing Agencies (CDFW, USFWS, and NMFS) developed this conservation strategy to identify ERP goals, conservation priorities, and processes for Stage 2 of CALFED (Bay-Delta Program Multi-Species Conservation Strategy) and to incorporate an AM framework for management decisions. The approach of the ERP is to restore or mimic ecological processes and to increase and improve aquatic and terrestrial habitats to support stable, self-sustaining populations of diverse and valuable species. The ERP is guided by six strategic goals with associated conservation priorities that serve as a guide to identify potential restoration actions in the focus area:

- Goal 1. Recover endangered and at-risk species and native natural communities.
- Goal 2. Rehabilitate ecological processes.
- Goal 3. Enhance and/or maintain harvested species.
- Goal 4. Protect, restore, and/or enhance habitats.
- Goal 5. Prevent and/or control nonnative invasive species.
- Goal 6. Improve and/or maintain water and sediment quality.

These ERP goals are in close alignment and are integrated with the suite of overarching goals of the Delta Conservation Framework. The ERP provided funding support for 10 years to support conservation planning and implementation in the Delta, including the recent *Delta Landscapes Project* report series[32,33,34] that closely informs the overarching goals, strategies, and objectives of the Delta Conservation Framework.

Donor-Based Funding

Delta conservation partnerships, such as the Yolo Basin Foundation-Yolo Bypass Working Group, CVJV, and Migratory Bird Conservation Partnership include a number of NGO partners (e.g., the Nature Conservancy [TNC], Audubon California, Ducks Unlimited, CalTrout, and American Rivers). These NGOs rely partially on donor funding for their programs, which ultimately benefit the Delta through conservation projects. For the past decade, the private David and Lucile Packard Foundation (Packard Foundation) has supported a number of NGOs to advance conservation and underlying science in the Delta.[35] The Packard Foundation has also been active in attempting to increase federal conservation funding for western states.[35] The Resources Legacy Fund, with core funding from the Packard Foundation, is leveraging additional support from foundations and individuals to implement their California Conservation Innovations initiative (CCI).[36] This initiative focuses on 1) *conservation policies* that will "advance state climate change adaption and resiliency policies and will monitor and engage strategically in sea level rise and energy development policy areas, adapting its engagement to changing needs and opportunities;" 2) *conservation funding* to "develop new, stable sources of conservation funding by identifying viable approaches at local, regional, and state levels…; " and 3) *conservation constituencies* to "engage with younger and more ethnically diverse populations on important CCI policy and funding priorities statewide and in Los Angeles, the Bay Area, and portions of the San Joaquin Valley."[36] The National Fish and Wildlife Foundation (NFWF) also use their programs to leverage public with private funds to achieve lasting conservation solutions across the nation. Through their Western Water Program, NFWF is currently working to develop freshwater restoration initiatives in the Sierra Nevada, Central Valley, and Bay-Delta watersheds of California.[37] With appropriate planning and coordination, these donor-related funding sources could be leveraged to support upcoming Delta-related conservation projects and implement Delta Conservation Framework goals.

Long-term Funding Opportunities

The 2016 workshop participants recognized that long-term funding mechanisms are critical to secure lasting Delta conservation outcomes in the future. Projects often fail to reach their outcome objectives when implemented without long-term financial support for operations, management, and evaluation. Such failures can even jeopardize the projects' initial—often substantial—conservation investments. Long-term support will help implement the Delta Plan and provide continuity over time, by enabling progress evaluation through adaptive management and focused scientific research to ensure past, present, and future Delta conservation projects succeed (Strategy G2, Table 5.2). 2016 workshop participants acknowledged that steady, long-term funding support is difficult to obtain. This section presents some mechanisms that may be used to achieve the needed long-term support for conservation in the Delta through the emerging carbon market and via environmental trust funds that are supported by enduring endowments. These ideas must be evaluated in the context of Delta-specific conservation, and expanded upon as necessary, to develop a suite of strategies to address the long-term funding gap. Lasting financial support is a critical determinant of Delta conservation success, in terms of reaching long-term goals, and is crucial to demonstrate to the public that funding is well spent.

Market-Based Opportunities –Payments for Ecosystem Services

Payments for Ecosystem Services (PES) have the potential to serve as long-term market-based revenue systems and supply long-term funding for Delta conservation.[16] PES is the mechanism for payments when a beneficiary or user of an ecosystem service (such as a business) makes a direct or indirect payment to the provider of that service; in other words, whoever preserves or maintains the ecosystem (such as farmers, landowners, or other natural resource owners) gets paid for doing so. Opportunities through the growing American Carbon Registry (ACR)[38] carbon markets are emerging as another source of conservation funding, particularly in the context of implementing solutions to the land subsidence prevalent in the Delta (see Section II). In both voluntary and regulatory carbon markets, the ACR oversees registration of carbon offset projects, which pay for carbon credits to be used for emissions reduction in the Cap-and-Trade Program (including wetland restoration). The CDFW *Wetlands Restoration for Greenhouse Gas Reduction Grant Program* is based on this new marked-based model for funding conservation.[27]

> *"State and federal funding remains insufficient to address land subsidence that threatens the California water system, and carbon market revenues could help fill the funding gap. The new ACR methodology provides an incentive to landowners in the Sacramento-San Joaquin Delta, Suisun Marsh and other historically natural wetland areas in California to convert their most subsided and marginal agricultural lands to wetlands, or to produce wetlands crops such as rice, which will stop land subsidence and reverse it over time."*
>
> Campbell Ingram, Executive Officer, Sacramento-San Joaquin Delta Conservancy, West Sacramento, CA

Other ecosystem services related opportunities for Delta conservation include funding obtained from tourism fees. In the Delta, tourism fees can be collected, for example, from visitors to parks and refuges by California Department of Parks and Recreation, CDFW, and the Stone Lakes National Wildlife Refuge and, in part, utilized for operations and management of these parks and reserve lands.

Leveraging water markets is a newer concept developed by TNC, utilizing an innovative conservation and impact investment model called *Water Sharing Investment Partnerships*.[39] This investment partnership concept is focused on soliciting investor capital, as well as government grants and philanthropic donations, to acquire a water rights portfolio (similar to stocks or commodities). Most of the water rights are leased or sold back on the market, ensuring a financial return for investors and access to water for farmers and cities. A portion of these water rights are used to divert water back to natural ecosystems and to generate funds for ongoing ecological monitoring.[39] This idea has been tested in a number of places, including San Diego.[39] To know whether it can be applied to the Delta will take further investigation.

Emerging habitat exchanges also have the potential to provide an indirect long-term funding mechanism to support multi-benefit conservation activities. The *Central Valley Habitat Exchange*[40] (Exchange) is one example of a voluntary program that creates new financial returns for private landowners willing to engage in sustainable land management practices and restoration activities that have quantifiable benefits to the environment.[40] The Exchange facilitates investment in conservation through private and public investors, managing the transactions of a market of habitat credits by leveraging wildlife habitat created by willing landowners.[40] Through the Exchange, farmers are essentially paid to use management practices that provide habitat for wildlife, such as flooding fields for Chinook salmon or migratory birds.[40] This new funding stream creates revenue landowners can earn by employing new strategies to manage or restore functional habitat.[40] Habitat exchanges are being considered for other Delta wildlife--including riparian songbirds, shorebirds, waterfowl, and sandhill cranes (*Antigone canadensis*)--and are in development for other species including the monarch butterfly (*Danaus plexippus*) and greater sage-grouse (*Centrocercus urophasianus*).[41]

How Do Habitat Exchanges Work?

"In a habitat exchange, landowners such as farmers and ranchers create, maintain and improve habitat on their property and earn credits for their efforts. Landowners sell these credits to offset impacts from development, such as roads, transmission lines and wind turbines, that impact species and habitat. An independent habitat exchange administrator monitors and verifies credit transactions and reports on progress to ensure species protection. Every credit sale makes species and habitat better off."

Source: Environmental Defense Fund (https://www.edf.org/ecosystems/habitat-exchanges-how-do-they-work)

Endowments for Conservation

As a significant departure from traditional short-term program or project funding, conservation trusts or environmental trust funds (ETF) created with an endowment are better suited to be a long-term source of funding for conservation.[42] In 2011, there were at least 60 ETF established and in development worldwide, mostly in developing countries. Most ETF that finance conservation are legally independent institutions (i.e., established outside of government) managed by an independent board of directors.[42] Many existing ETF have a permanent endowment that has received grants from government and international donor agencies; and they may also manage sinking funds, created through *debt-for-nature swaps* in which a portion of a developing nation's foreign debt is forgiven in exchange for local investments in environmental conservation measures, or revolving funds financed through specially designated user fees or taxes that are only to be used for conservation.[42] (For more detailed information on how ETF work, please refer to http://www.undp.org/content/sdfinance/en/home/solutions/environmental-trust-funds.html.)

Environmental Trust Funds

Independent legal entity and investment vehicle to help mobilize, blend, and oversee the collection and allocation of financial resources for environmental purposes. It is a solution that facilitates strategic focus, rigorous project management, solid monitoring and evaluation, and high levels of transparency and accountability. The term encompasses conservation trust funds, wildlife trusts, climate and forest funds, and other funds established to deliver environmental, social, and economic benefits.

The 2016 workshop participants suggested that endowments for the operation and management of conservation lands should be incorporated into the planning process in the early stages. Although they don't fund restoration projects, endowments required by CESA permits for other projects also contribute to perpetual management of conservation lands that may be interconnected across the landscape.

Conservation Funding Information Exchange

To attract the best possible conservation projects for implementation as part of *Regional Conservation Strategies*, or as individual projects that address Delta Conservation Framework goals, it is essential to effectively advertise available Delta conservation funds. Information about funding opportunities could be advertised on an independent website or organization webpage, where funding entities broadcast current and upcoming solicitations. The San Francisco Bay Joint Venture's *Funding Opportunities* webpage[43] provides an example for this type of listing, or funding clearinghouse. A lead organization should be identified to coordinate this type of web-based, conservation funding information exchange. Including tools to portray the landscape-scale picture of currently funded projects, and links to funded project reports, would help applicants understand how their projects might "fit" into the wider landscape of Delta conservation. This information could also be organized to reflect and inform the Delta stakeholder community about the status of ongoing conservation efforts.

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