

Delta Conservation Framework

Section VI

Contents

VI. Delta Conservation Framework Implementation	2
Implementation of the Delta Conservation Framework.....	3
Regional Conservation Planning Partnerships	3
Individual Project Implementation	4
Scenario Planning.....	4
Open Standards for the Practice of Conservation	6
Structured Decision-Making	7
Conservation Opportunity Regions.....	9
Informing the Delta Plan Amendment.....	10
Lasting Sustainability through Delta Conservation.....	11
The Way Forward.....	12
Endnotes	15

VI. Delta Conservation Framework Implementation

1 The Delta Conservation Framework serves as a high-level conservation planning framework through
2 2050, with a landscape-scale focus across the entire Delta, Suisun Marsh, and Yolo Bypass. It is closely
3 aligned with previous and ongoing efforts to coordinate and plan conservation in the Delta and provides
4 goals and implementation strategies with objectives to guide the development of *Regional Conservation*
5 *Strategies* by *Regional Conservation Planning Partnerships* (Regional Partnerships). Examples of the
6 Regional Partnerships approach already exist in the Suisun Marsh and are emerging in the Cache Slough
7 Complex, Yolo Bypass, and the Central Delta Corridor. The Delta Conservation Framework also highlights
8 the importance of integrating conservation planning with existing and incipient Delta adaptive

THE DELTA CONSERVATION FRAMEWORK

- Offers a shared vision and overarching goals on how to achieve Delta conservation.
- Initiates an ongoing forum for collaborative engagement.
- Promotes education and outreach about the importance of a healthy Delta at local, state and national levels.
- Serves as a long-term extension of the California EcoRestore initiative.
- Outlines strategies and objectives for potential solutions to known Delta conservation challenges.
- Provides guidance for the coordination of collaborative regional conservation strategies.
- Informs state and other funding priorities.
- Advances goals of the California Water Action Plan and Delta Reform Act.

9 management programs¹ to evaluate the effectiveness of strategies and objectives over the long term.
10 This approach is particularly important in the face of the accelerating effects of climate change.²

11 To implement the suite of overarching goals, the Delta Conservation Framework suggests strategies
12 focused on:

- 13 1. Conducting an open, collaborative partnership planning process with representation from all
14 sectors and interests;
- 15 2. The integration of conservation planning and socioeconomic factors, particularly recreation and
16 agriculture;
- 17 3. A shift from a focus on single species toward improving the underlying processes of functioning
18 ecosystems that in turn provide species habitat and ecosystem services;
- 19 4. Improving the implementation and long-term management of conservation projects through
20 permitting processes that increase efficiency and save costs; and

21 5. Moving beyond short-term financial support to securing funding for the long-term operation
22 and management of conservation lands.

23 This section summarizes recommended tools to implement the Delta Conservation Framework
24 strategies and highlights summary overviews of specific *Conservation Opportunity Regions* (COR)
25 throughout the Delta. This section also offers an overview of how this document may serve to inform
26 the upcoming amendment of the Delta Plan, Chapter 4, on ecosystem protection, restoration, and
27 enhancement. Finally, it presents an initial direction and a way forward, despite the challenges and
28 mounting urgency to improve Delta ecosystems for the benefit of humans and wildlife.

29 **Implementation of the Delta Conservation Framework**

30 There are two primary approaches recommended for implementing the Delta Conservation
31 Framework's overarching goals and strategies. The first approach is to form independently facilitated
32 Regional Partnerships that propose region-specific suites of projects utilizing a decision process based in
33 best-available interdisciplinary science. The second approach allows for individual project
34 implementation in areas without an established Regional Partnership.

35 Projects that are part of a Regional Partnership, or individual conservation projects, could submit
36 proposals to available funding sources, including Proposition 1 or Greenhouse Gas Reduction Fund
37 solicitations. State funding solicitations run by California Department of Fish and Wildlife (CDFW) and
38 the Delta Conservancy will, by virtue of grant solicitation language that aligns with the Delta
39 Conservation Framework goals, integrate into the landscape-scale planning blueprint the Delta
40 Conservation Framework provides.

41 **Regional Conservation Planning Partnerships**

42 *Regional Conservation Strategy* planning would be conducted by members of a Regional Partnership.
43 Each Regional Partnership should be independently facilitated, ideally by an entity familiar with the
44 conservation planning methods and tools but no vested interest in the region. A variety of tools and
45 processes are available to assure success of Regional Partnership engagement during the development
46 of *Regional Conservation Strategies*. These tools can include scenario planning,^{3,4} the Open Standards
47 for the Practice of Conservation (Open Standards),⁵ and Structured Decision Making (SDM),⁶ among a
48 variety of others.^{7,8,9,10,11,12,13,14,15} Short overviews, presented below, of these three approaches outline
49 how these are used individually or in combination to achieve an effective planning process and desired
50 outcomes. In addition, the Delta Plan provides guidance for a three-phase and nine-step Adaptive
51 Management Framework (see also Section IV).¹⁶

52 For each of the COR, Regional Partnership participants would develop a Regional Conservation Strategy
53 that reflects the guiding principles outlined in Section I, all of the overarching goals, and individual
54 strategies and objectives that are most applicable to that region. A *Regional Conservation Strategy*
55 should be developed through a comprehensive evaluation of available regional datasets on vegetation,
56 habitat quality, presence of species, agricultural and other land use patterns, water management,
57 existing infrastructure (e.g., levees and water diversions), and other relevant socioeconomic information

58 like land values, projected sea level rise, and flood risk. Incorporating all of these factors helps create a
59 comprehensive picture of where conservation could work, and where it would not, within a region.

60 Each Regional Partnership should develop regionally relevant SMART objectives (specific, measurable,
61 attainable, result-oriented, and time-bound) that are aligned at the landscape scale with overarching
62 Delta Conservation Framework objectives. These regional SMART objectives should be developed based
63 on available information and the expertise of local stakeholders, scientists, and agency partners. The
64 partnership should then evaluate objective-based implementation actions based on how they would
65 play out during implementation. After they are evaluated by the Regional Partnership, actions and
66 related objectives should be ranked and prioritized based on considerations of project effectiveness
67 over the long term, integration with neighboring land uses, and influence on landscape-scale ecological
68 function.

69 **Individual Project Implementation**

70 The second approach guides implementation of individual projects being proposed in areas without an
71 established Regional Partnership or *Regional Conservation Strategy*. Individual conservation projects
72 could be implemented in the Delta on publically owned lands or as a result of collaboration between
73 willing landowners and local, state, or federal agencies. Individual projects in areas where no Regional
74 Partnership has been established should adhere to good neighbor practices established by the California
75 Department of Water Resources (DWR) Agricultural Land Stewardship group to ensure that short- and
76 long-term impacts on neighboring land uses are avoided or minimized.¹⁷

77 **Scenario Planning**

78 Scenario planning is a strategic way to plan for the future. It helps to achieve desired outcomes over the
79 long term by evaluating the consequences of alternative pathways to achieve a defined goal. Also called
80 scenario thinking, or scenario analysis, it is a structured way for agencies, organizations, or partnerships
81 to think about how a variety of strategies and actions will likely affect the future by developing and
82 evaluating a small number of scenarios—stories about how the future might unfold and how this might
83 affect the issues that confront them in the short and long term.

84 To develop and evaluate a suite of representative planning scenarios, potential prejudices and biases
85 that could influence the decision making process need to be acknowledged. In the first step of scenario
86 planning, participants are instructed to recognize and let go of prior misconceptions to identify known
87 facts (see Figure 6.1 – Step 1 – Rules of the game). In the second step, recognizing what cannot be
88 controlled will help participants identify factors that can be influenced by the actions proposed to reach
89 desired outcomes. Also, identifying the main drivers and related key uncertainties (Figure 6.1 – Step 2)
90 in the various contexts helps to establish the most likely forces at play and uncovers the potential for
91 affecting them. This will help participants understand potential pitfalls and divergent viewpoints. As
92 misconceptions, prejudices, and key uncertainties are clarified, understanding and trust can be built.
93 Examples of prejudices and key uncertainties affecting successful conservation implementation in the
94 Delta are outlined in Table 6.1.

95 The three to five scenarios developed in Step 2 are told as sequential stories, describing the assumptions
96 made regarding how the future will unfold in each case and suggesting various factors and outcomes for
97 key uncertainties. Each scenario then serves to “visualize” the possible steps toward achieving a goal
98 and potential pitfalls to reaching them relative to the existing uncertainties. These scenarios can then be
99 individually evaluated and ranked. Evaluation of their strengths, weaknesses, opportunities, and threats-
100 -scenario by scenario--allows identification of the most promising options for moving forward (Figure
101 6.1– Step 3). When the most promising options rise to the top, they can be used to develop SMART
102 objectives for implementation (Figure 6.1 – Step 4).

103 Scenario planning in conservation is a vital tool that enables planners to consider landscape-scale and
104 long-term dynamics. For example, it could be used to help anticipate impacts of short- and long-term
105 changes (e.g., land use or climate change, respectively) on ecosystems, species, infrastructure, water
106 management, agricultural practices, and recreation. These changes could then be integrated into the
107 long-term conservation planning picture.¹⁸ A scenario planning approach could be integrated within a
108 SDM process (see Structured Decision Making below) to incorporate a decision model, long-term
109 adaptive management, and funding needs when anticipating how near-term conservation actions may
110 evolve into the future. Scenario planning can also be incorporated into the Open Standards as part of
111 the conceptualize-project step to evaluate several possible options for reaching the desired outcomes at
112 varying time steps.

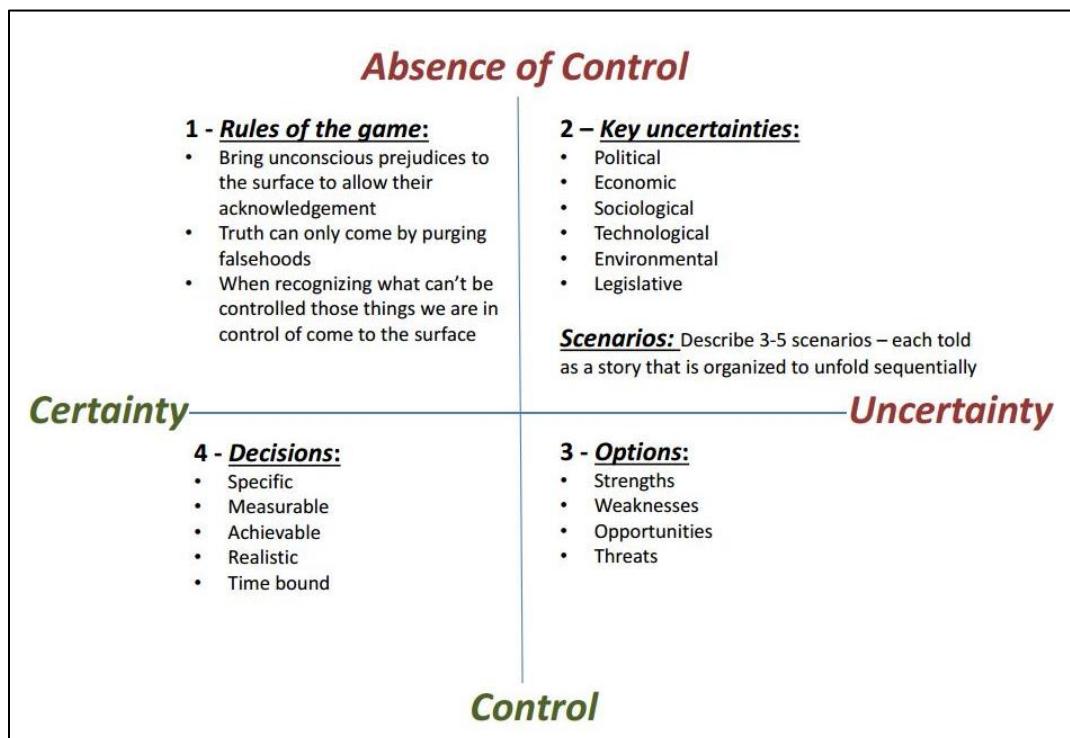


Figure 6.1: Key considerations in the scenario planning process with levels of certainty and control
(Source: Brefi Group Limited, www.brefigroup.co.uk).

113

114 **Table 6.1:** Examples of prejudices and key uncertainties affecting successful conservation
115 implementation in the Delta.

Prejudices – Limitations – Key Uncertainties	Controllable?	Potential Approach/Solution
Delta conservation is independent from other land uses	yes	Good neighbor practices
People do not benefit from Delta conservation	yes	Multi-benefit conservation
Conservation area managers are bad neighbors	yes	Good neighbor practices
Delta conservation is incompatible with agriculture	yes	Wildlife-friendly agriculture
People's needs don't matter to conservation decision makers	yes	Multi-benefit conservation
Conservation areas do not offer opportunities for recreation	yes	Multi-benefit conservation
Impacts of conservation (e.g., tidal wetland flooding) will negatively affect other land uses, especially agriculture (e.g., levee seepage affecting prime agricultural soils)	yes	Multi-benefit conservation
Status quo of subsidence is not a problem and does not have to be addressed through change in agricultural practices	yes	Education and outreach on carbon farming to reverse subsidence
Climate change effects will change the Delta ecosystems	somewhat	Maintaining or increasing ecosystem and infrastructure resilience through restoring ecosystem function and establishing transition zones
Will Delta stakeholders be able to move Delta conservation forward in collaboration?	yes	Outreach and inclusive planning partnerships

116

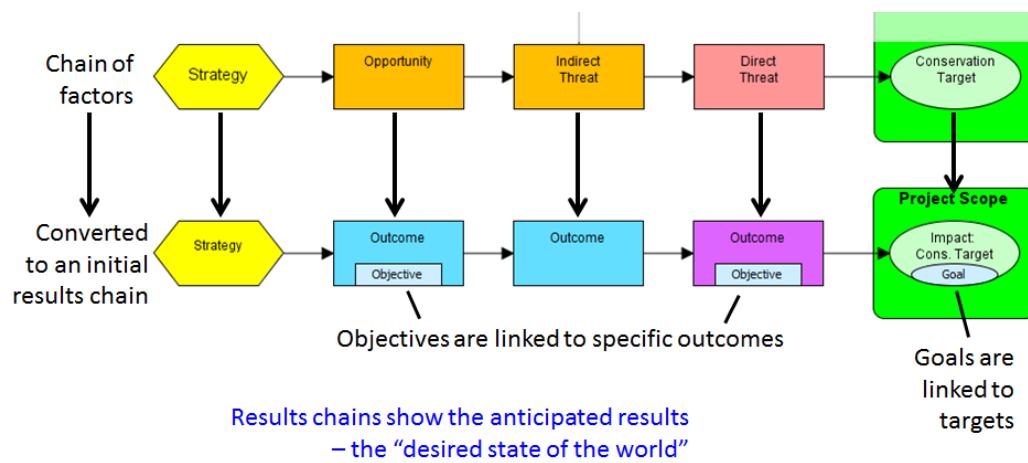
117 **Open Standards for the Practice of Conservation**

118 The Open Standards provide a well-established conceptual framework and tool set for conservation
119 planning, implementation, and monitoring. They represent the state-of-the-art in the conservation
120 community's knowledge of the process for designing, managing, and monitoring conservation activities.
121 ^{5,19,20,21} The Open Standards help conservation partnerships use a coordinated and systematic approach
122 to their conservation initiatives so they can learn what works, what does not work, and why. Ultimately,
123 this process allows conservation partnerships to adapt, improve their future efforts, and link in with
124 other efforts which use the same approach to planning.

125 The five main Open Standards process steps are: 1) conceptualize the project; 2) develop a formal action
126 plan; 3) implement actions; 4) analyze, use, and adapt; and 5) capture and share learning. These steps
127 are described further in Appendix XV. The Open Standards also offer a software tool called Miradi for
128 use throughout the planning process. It allows users to create conceptual models; analyze factors in

129 light of their impact on the conservation targets (e.g., specific ecosystem types, species, human-oriented
130 benefits) and desired outcomes; and create implementation, management, and monitoring plans and
131 project budgets.

132 The Open Standards' concepts can be applied at any stage in the conservation process, and they will
133 allow planning teams to consider the benefits of conservation to human communities and integrate
134 socioeconomic aspects.²² They include an in-depth, rational analysis of individual strategies called
135 "results chains" that allows planners to evaluate whether actions are linked, focused, feasible, and
136 appropriate for reaching the targeted goal. By following if-then logic steps along a results chain, this
137 evaluation ultimately prioritizes strategies to achieve conservation goals through related actions (Figure
138 6.2). The Open Standards also facilitate long-term planning in the context of climate change by
139 encouraging planners to 1) understand and respond to existing and future impacts of climate change,
140 alongside other conventional threats or pressures; and 2) develop and implement actions that do not
141 erode options for responding to future climate change impacts.



142

143 **Figure 6.2:** Example Open Standards results chain showing how the logic behind a strategy (yellow hexagon) can be tested in
144 a step-by-step approach. Strategy is linked with intermediate action outcomes (blue) that are connected by "if then"
145 statements and lead to the ultimate outcome (purple). These interconnected intermediate outcomes will then affect the
146 desired outcome specific to a conservation target (e.g. ecosystem, species) and related goal (green). [Source: Open
147 Standards for the Practice of Conservation]

148 The Open Standards approach and associated tools can support the development of *Delta Regional
149 Conservation Strategies* by providing a structure to approach conservation planning consistently. Open
150 Standards can be used in concert with scenario planning (described above), decision approaches such as
151 SDM^{23,24} (described below), and decision support models such as Marxan.²⁵ Marxan was used
152 successfully by the Bay Area Conservation Lands Network for prioritization of Bay Area conservation
153 lands.²⁶

154 Structured Decision-Making

155 Resource management and conservation investment decisions are characterized by complexity and
156 uncertainty. As a result of the complex links between ecosystem function, existing land uses, and local
157 communities, Regional Partnerships will have to deliberate on a wide range of factors including 1)

158 multiple objectives and stakeholder perspectives; 2) overlapping jurisdictions of local, state, and federal
159 agencies; 3) short- and long-term effects of land use and climate change on regional sustainability and
160 ecosystem function; 4) cumulative effects of all factors combined over time and space; and 5) high levels
161 of uncertainty. All these necessary considerations create an intricate web of potentially competing or
162 confounding factors when planning conservation. As a result, the decisions made by a Regional
163 Partnership must consider a combination of subjective judgments made by experts about the potential
164 consequences of proposed alternatives, as well as difficult, value-based judgments about priorities,
165 preferences, and risk tolerance. In some cases, these decisions are associated with high-stake economic,
166 environmental, social, and political implications; and they will be closely scrutinized by technical, public,
167 and political interests. Arriving at the best decision is even more difficult because stakeholders
168 participating in a Regional Partnership are almost always working with limited resources. For example,
169 government agencies are increasingly required to do more with less, on short timelines, and with rising
170 expectations for quality, consistency, and transparent decision-making.

171 SDM is based in decision theory and risk analysis. It offers an organized and transparent approach to
172 identifying and evaluating alternatives that integrates science and policy explicitly; and it focuses on
173 engaging stakeholders,

174 experts, and decision-makers **Structured Decision Making Steps:**

175 in productive decision-
176 oriented analysis and
177 dialogue. The dialogue
178 established by the SDM
179 approach allows participants
180 to deal proactively with
181 complex problems and
182 judgments by following a
183 decision-focused roadmap
184 for integrating activities
185 related to planning, analysis,
186 and consultation (Figure 6.3).

187 SDM incorporates a simple
188 set of concepts and helpful
189 steps for problem-solving
190 that are focused on
191 achieving fundamental
192 objectives. In SDM, every

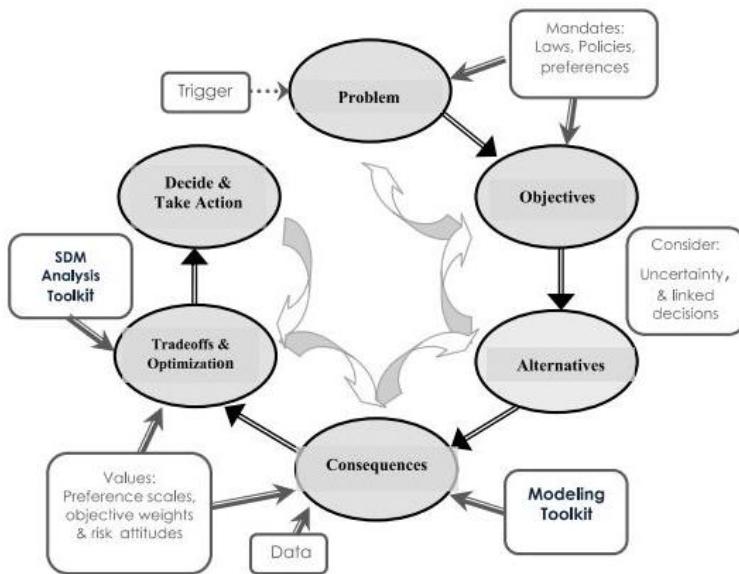


Figure 6.3: Structured Decision Making roadmap. Source: U.S. Fish and Wildlife Service

193 decision consists of several primary elements: management objectives, decision options (Alternatives),
194 and predictions of decision outcomes (Consequences) (Figure 6.3). As a result, making decisions based
195 on clearly articulated fundamental objectives includes crucial SDM concepts such as dealing explicitly
196 with uncertainty and responding transparently to legal mandates and public preferences or values in
197 decision-making⁶ (Figure 6.3). SDM has been incorporated into the Adaptive Management Program

198 process,²⁷ and it can be used to inform all phases of adaptive management (see more information in
199 section IV).

200 The Open Standards or scenario planning results will directly contribute to the “Alternatives” and
201 “Consequences” steps of the SDM cycle. Individual planners and land managers, or Regional
202 Partnerships, can use these and other tools to plan conservation using a strategic, coordinated
203 approach. By prioritizing conservation actions based on the likelihood of long-term effectiveness in
204 achieving conservation objectives, the potential for outcomes to evolve over time, and short- and long-
205 term cost effectiveness of projects, is clarified. By regularly re-evaluating factors, scenarios, strategies,
206 and decisions over time, conservation planners will better understand how early projections played out
207 and how management of conservation lands needs to be adjusted over time.

208 **Conservation Opportunity Regions**

209 The Delta Conservation Framework encourages implementing conservation projects on available
210 publically owned lands, or on lands with existing conservation easements that usually have restricted
211 land uses. If willing landowners are interested in participating in conservation activities, conservation
212 projects could be implemented on privately-owned lands as well. Private landowners that already
213 voluntarily participate in conservation activities include nongovernmental organizations like The Nature
214 Conservancy or California Waterfowl Association and agricultural practitioners working with these and
215 other entities.²⁸ During the 2016 Delta Conservation Framework public workshops, stakeholders
216 identified COR to divide the Delta into smaller subregions that better reflect local land use,
217 communities, ecosystem types, and the location of existing publically owned lands. These COR sit within
218 roughly defined geographic regions in the Delta, Yolo Bypass, and Suisun Marsh where public lands and
219 existing conservation lands offer opportunities for conservation. The COR identified here were
220 developed to balance feedback from workshop participants, new and ongoing planning efforts, and
221 conservation opportunity areas identified in the Delta Plan²⁹ and Draft Bay Delta Conservation Plan
222 (BDCP).³⁰ They include Suisun Marsh, Yolo Bypass, Cache Slough Complex, Central Delta Corridor
223 Partnership, South Delta, North Delta, and Contra Costa.

224 Appendix II contains short summary overviews of individual COR that describe regional setting,
225 management or planning history, opportunities for conservation, climate change and adaptation
226 opportunities for long-term sustainability, potential solutions to recognized challenges, links to the Delta
227 Conservation Framework, and entities/partnerships important for implementation. These COR
228 summaries are intended as standalone segments of the Delta Conservation Framework to be used by
229 existing and prospective Regional Partnerships to establish regional conservation planning efforts. The
230 structure of COR overviews are similar; and in some cases, content may overlap for consistency. These
231 COR overviews highlight the progress thus far in each COR with an existing or emerging Regional
232 Partnership, or they provide ideas on how new Regional Partnerships and *Regional Conservation*
233 *Strategies* could be developed in regions where these are not already under way.

234 **Informing the Delta Plan Amendment**

235 In 2015, the Delta Stewardship Council (Council) made a commitment to evaluate the need for an
236 ecosystem restoration amendment to the Delta Plan. Separately, the Council also considered a Delta
237 Plan amendment to address conveyance, storage, and operations of the water supply systems, also an
238 original component of the 2013 BDCP Public Draft.³⁰ In an effort to inform an amendment of Chapter 4
239 of the Delta Plan on ecosystem protection, enhancement, and restoration, the Delta Conservation
240 Framework provides overarching goals, and associated strategies and implementation objectives, with a
241 combined emphasis on improving ecosystem function and better integrating the socioeconomic realities
242 and needs of Delta residents, agricultural operators, and society (e.g., tourists; separately addressed by
243 the Delta Plan, Chapter 5) into planning conservation. It also offers suggestions for how conservation
244 project permitting could be made more efficient and for obtaining lasting funding support. This suite of
245 goals also addresses the aims of most of the Draft BDCP conservation measures (CM; specifically: CM2-
246 CM13, and CM21).³⁰ As a result, the Delta Conservation Framework goals could expand the current
247 focus of the Delta Plan, Chapter 4, with a vision for conservation of a connected mosaic of habitats
248 throughout the Delta, as well as additional recommendations for enhanced Delta channels and rivers,
249 sustained and improved migratory bird habitats, minimized impacts to water quality, and detection and
250 control of nonnative (invasive) species.

251 The Delta Conservation Framework does not address Delta-wide functional flows, nor does it speak to
252 all aspects of improving water quality or improvement of hatcheries and fish harvest management that
253 would result from conservation project implementation. It does include a strategy for maintaining or
254 improving localized ecosystem water availability. The Delta Conservation Framework also does not
255 include early Delta Stewardship Council's consideration of an amendment to the conveyance, storage,
256 and operations of the water supply systems component of the Delta Plan. However, it does include
257 goals and strategies addressing habitat and invasive species impacts; and it provides more insights for
258 how to improve Delta ecosystem resiliency to climate change and other major drivers of change, as well
259 as how to inform and promote mechanisms critical for successful implementation of conservation
260 projects in the Delta going forward. Appendix VIII shows how the Delta Conservation Framework goals
261 and strategies align with 2013 Delta Plan recommendations. Appendix V provides a crosswalk of
262 preliminary goals for the amendment of Chapter 4 of the Delta Plan with the Delta Conservation
263 Framework goals, strategies, and objectives.

264 **The following efforts and resources will inform a Delta Plan, Chapter 4, amendment:**

- Delta Conservation Framework, integrating recommendations from *A Delta Renewed*,³¹
- Issue Paper: *Restoring Habitat with Science and Society in Mind*,³²
- Lessons learned from three years of consultation with project proponents, including promoting the use of best available science and adaptive management and reducing conflicts with existing land uses;
- The California EcoRestore experience with project permitting;
- The Yolo Bypass and Cache Slough Partnership experience with interagency collaboration on integrated flood management, habitat restoration, and agricultural sustainability;

- The tool box of strategies developed by the Agricultural and Lands Stewardship Working Group;³³
- The draft Central Valley Flood Protection Plan Conservation Strategy, developed to support the 2017 update of the Central Valley Flood Protection Plan;^{34,35}
- The ongoing development of an adaptive management program for *EcoRestore*, led by the California Natural Resources Agency, with technical leadership by the Council's Delta Science Program;³⁶
- The conclusions of the Council's report, *Improving Habitats Along Delta Levees*³⁷; and
- Lessons learned from the refinement of the Delta Plan performance measures and the development of project tracking tools.

265

266 **Lasting Sustainability through Delta Conservation**

267 In the context of ecology, the term sustainability describes the ability of ecological systems (ecosystems)
268 to persist indefinitely by remaining diverse and productive. As described throughout this document,
269 conservation is needed to reestablish degraded ecological functions of many Delta ecosystems. Making
270 the connection between the people of the Delta and those entities committed to implementing
271 conservation is vital. Effective education and outreach regarding the benefits of lasting and sustainable
272 Delta ecosystems—their ecosystem services for all Californians—is a key goal with important political,
273 economic, social, and environmental ramifications.

274 Heightening public awareness of the direct connection
275 between a sustainable and healthy environment and
276 Californian's socioeconomic well-being is critical to
277 sustaining the motivation to support and implement
278 ecosystem conservation over the long term.³⁸

279 Ecological systems function on many interrelated
280 scales. Untangling this functional complexity to identify
281 key actions that will improve ecosystem function is a
282 daunting task, especially when the drivers of
283 ecosystem function are intermingled with human land
284 uses in the Delta. There are numerous uncertainties
285 surrounding our current understanding of each driver
286 of Delta ecosystem function that must be recognized to
287 effectively plan conservation for long-term outcomes.
288 As described above, there are effective tools to help
289 planners untangle this complexity despite key
290 uncertainties, including the Open Standards, scenario
291 planning, and SDM. These are vital tools to evaluate
292 the best paths toward desired conservation outcomes
293 in light of existing uncertainties. Regional Partnerships
294 should consider using these tools as part of *Regional Conservation Strategy* development. Using these
295 types of processes and tools alongside available Delta science will ensure that decisions will be backed

Conservation

here means achieving system-wide multi-benefits by integrating protection, enhancement, reestablishment and reconciliation of ecological function of Delta ecosystems with watershed and agricultural sustainability, flood protection, recreation, and other drivers.

296 by the best available assumptions and data regarding the influence of conservation actions on
297 ecosystem function. Instead of basing decisions on short-term thinking, conservation planners and
298 stakeholders should be able to rely upon an evolving knowledge base to make and reevaluate decisions.
299 This approach is especially critical when evaluating uncertainties around the effects of climate change
300 on Delta ecosystems.

301 **The Way Forward**

302 Following the initiation of California *WaterFix*³⁹ and *EcoRestore*⁴⁰, CDFW committed to leading a high-
303 level planning effort to advance the conservation of the Delta, Yolo Bypass, and Suisun Marsh. As a
304 result, the Delta Conservation Framework offers approaches for stakeholder integration, conservation,
305 and adaptive management of Delta ecosystems to benefit both human and natural communities.
306 Building on prior Delta planning efforts, the Delta Conservation Framework provides a shared vision and
307 long-term, landscape-scale goals in the context of climate change (see Sections I-IV; Appendix I).

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.

308
309 Based on the central premise that the long-term conservation of Delta ecosystems will benefit people
310 and the environment, the guiding principles that underlie the Delta Conservation Framework focus on
311 (See also Section I):

- 312 • PEOPLE AND PLACE: Recognize the *Delta as an evolving place* with unique agricultural, cultural,
313 recreational, and natural resource values.
- 314 • BUILD COMMUNITY AND FOSTER PUBLIC EDUCATION AND OUTREACH: Support outreach,
315 education, and communication across interests, where participants are encouraged to hear all
316 perspectives, interact with respect and humility, and shift the focus away from strict traditional
317 roles toward a better understanding of the big picture to promote multi-benefit solutions.
- 318 • MULTIPLE BENEFITS: Integrate conservation with other land use practices, where possible, to
319 provide simultaneous benefits for wildlife and people at a landscape scale over the long term.
- 320 • PROCESS-BASED ECOSYSTEM CONSERVATION: Focus conservation practices on reestablishing
321 natural ecological processes and promoting the functions and adaptive capacity of Delta
322 ecosystems, rather than restoring the Delta to pre-Gold Rush Era conditions.
- 323 • PROMOTE ECOSYSTEM SERVICES: Highlight the societal values of the many services healthy
324 ecosystems provide to humans by emphasizing these services as benefits to society. Delta

- 325 ecosystem services include open space, opportunities for outdoor recreation and tourism,
326 pollination services, flood protection, clean water, clean air, biodiversity, carbon sequestration
327 and others.
- 328 • DECISIONS GROUNDED IN SCIENCE: In light of continuing ecosystem stressors and accelerating
329 changes from climate shifts and other drivers, as well as changeable socioeconomic conditions,
330 utilize scientific approaches to inform and evaluate conservation practices and projects and
331 conservation-related human needs.
 - 332 • INCREASED EFFICIENCY: Utilize processes that minimize project costs, and provide consistent
333 and integrated tools to support decision-making, evaluation of success, environmental
334 compliance, and permitting; build on past planning documents and existing efforts.
 - 335 • ACKNOWLEDGEMENT OF LONG-TERM FUNDING NEEDS: Recognize that long-term funding is
336 necessary for successful Delta conservation and management through 2050.

337 The Delta Conservation Framework strives to increase public awareness of Delta conservation and
338 advance science-based conservation practices through a series of goals, strategies, and objectives. Its
339 goals address solutions to conservation challenges, potential regulatory conflicts, and other
340 impediments to conservation project implementation. The Delta Conservation Framework encourages
341 using Regional Partnerships to integrate stakeholder perspectives into regional-scale conservation goals
342 and serves as the long-term continuation of existing restoration initiatives, including California
343 *EcoRestore*. Going forward, the Delta Conservation Framework will inform the amendment of the
344 ecosystem elements of the Delta Plan and state funding priorities.

345 The path toward more ecologically functional Delta ecosystems within a thriving Delta community
346 remains controversial. Despite mitigation requirements for infrastructure projects and the state and
347 federal water projects, and a long history of public investment in Delta ecosystems through bond funds,
348 few projects have been initiated and managed over the long term. Implementation of conservation in
349 the Delta will continue to stall unless Delta stakeholders are willing to work collaboratively, knowing
350 they may have to be open to considering and accepting tradeoffs. If no solutions can be found, Delta
351 ecosystem conservation will remain on hold, or occur in a piecemeal fashion. In the meantime, Delta
352 ecosystems and their important services to humans and wildlife will continue on their way toward
353 decline.

354 There is a need to conduct outreach to Delta communities and landowners and bring their perspectives
355 into regional scale conservation planning to inform where projects are sited in the context of local land
356 uses. Collaborative implementation of the Delta Conservation Framework may be a way to make
357 progress towards bridging the many human interests and wildlife needs in the Delta and to achieve
358 lasting conservation success. Conducting conservation planning through Regional Partnerships with local
359 landowners and stakeholders should inform siting of conservation projects, including projects required
360 as mitigation and bond-funded projects. The Delta Conservation Framework prioritizes implementing
361 conservation on publically owned lands, in areas with minimal impacts on local land uses, and in
362 collaboration with willing private landowners. This collaborative approach could also result in increased
363 willingness to consider multi-benefit solutions, or solutions with the least adverse effects on local

364 landowners. Throughout this process it is essential to recognize that Delta ecosystems can provide
365 services to people while also supporting healthy wildlife habitats.

366 The Delta Conservation Framework is an invitation for all interested stakeholders to consider coming to
367 the table to work together with the goal of finding acceptable solutions within the entire Delta
368 landscape. It is a call to continue to contribute to improving ecosystem health, supporting and
369 recovering Delta wildlife, and to keep growing the science capacity to allow continual learning from
370 conservation actions in the context of the Delta as Place. This framework highlights the urgency of
371 considering and facing the challenges of climate change and other factors. It is an appeal to utilize
372 creative approaches to permitting processes and to obtain the necessary short- and long-term funding
373 for Delta conservation and management. To achieve the overarching goals of the Delta Conservation
374 Framework, stakeholders need to be willing to work collaboratively towards solutions to conservation
375 challenges in the Delta. What will this look like?

- ¹ Lund, J. E., S. Brandt, T. Collier, B. Atwater, E. Canuel, H. J. S. Fernando, R. Noorgard, V. Resh, J. Wiens, and J. Zedler (2016). Improving adaptive management in the Sacramento-San Joaquin Delta. A review by the Delta Independent Science Board. Delta Stewardship Council, Sacramento, CA. Available: <http://deltacouncil.ca.gov/docs/final-delta-isb-adaptive-management-review-report>. Accessed: April 2017.
- ² Dettinger, M., J. Anderson, M. Anderson, L. Brown, D. Cayan, and E. Maurer (2016). Climate change and the Delta. San Francisco Estuary and Watershed Science, 14(3). Available: <http://escholarship.org/uc/item/2r71j15r>.
- ³ Schoemaker, P. J. H. (1995). Scenario Planning: A tool for strategic thinking. MIT Sloan Management Review January 15, 1995. Available: <http://sloanreview.mit.edu/article/scenario-planning-a-tool-for-strategic-thinking/>. Accessed: April 2017.
- ⁴ Symstad, A. J., N. A. Fisichelli, B. W. Miller, E. Rowland, and G. W. Schuurman (2017), Multiple methods for multiple futures: Integrating qualitative scenario planning and quantitative simulation modeling for natural resource decision making. Climate Risk Management 17:78-91. Available: <http://www.sciencedirect.com/science/article/pii/S2212096316300663>. Accessed: September 20, 2017.
- ⁵ Conservation Measures Partnership (2017). Open Standards for the Practice of Conservation – Guidance. Conservation Measures Partnership. Available: <http://cmp-openstandards.org/using-os/guidance/>. Accessed: Janaury 28, 2017.
- ⁶ USFWS (2008). Structured Decision Making (SDM) – Fact Sheet. U.S. Fish and Wildlife Service (USFWS). Available: https://www.fws.gov/science/doc/structured_decision_making_factsheet.pdf. Accessed: May 2017.
- ⁷ Haasnoot, M., J. H. Kwakkel, W. E. Walker, and J. ter Maat (2013). Dynamic adaptive policy pathways: A method for crafting robust decisions for a deeply uncertain world. Global Environmental Change 23(2):485-498. Available: <http://www.sciencedirect.com/science/article/pii/S095937801200146X>. Accessed: September 20, 2017.
- ⁸ Kwakkel, J.H., M. Haasnoot, M. and W. E. Walker (2015). Developing dynamic adaptive policy pathways: A computer-assisted approach for developing adaptive strategies for a deeply uncertain world. Climatic Change 132(3):373-386. Available: <http://link.springer.com/article/10.1007/s10584-014-1210-4>. Accessed: September 20, 2017.
- ⁹ LoSchiavo, A. J., R. G. Best, R. E. Burns, S. Gray, M. C. Harwell, E. B. Hines, A. R. McLean, T. St. Clair, S. Traxler, and J. W. Vearil (2013). Lessons learned from the first decade of adaptive management in comprehensive Everglades restoration. Ecology and Society 18(4): 70. Available: <http://dx.doi.org/10.5751/ES-06065-180470>. Accessed: September 20, 2017.
- ¹⁰ Sarkki, S., J. Niemelä, R. Tinch, S. van den Hove, A. Watt, and J. Young (2013). Balancing credibility, relevance and legitimacy: A critical assessment of trade-offs in science–policy interfaces. Science and Public Policy 41(2): 194-206.
- ¹¹ Heink, U., E. Marquard, K. Heubach, K. Jax, C. Kugel, C. Neßhöver, R. K. Neumann, A. Paulsch, S. Tilch, J. Timaeus, and M. Vandewalle (2015). Conceptualizing credibility, relevance and legitimacy for evaluating the effectiveness of science–policy interfaces: Challenges and opportunities. Science and Public Policy 42(5): 676-689. Available: <https://academic.oup.com/spp/article/42/5/676/1628344/Conceptualizing-credibility-relevance-and>. Accessed: September 20, 2017.¹² Posner, S. M., E. McKenzie, and T. H. Ricketts (2015). Policy impacts of ecosystem services knowledge. Proceedings of the National Academy of Sciences 113(7): 1760-1765. Available: <http://www.pnas.org/content/113/7/1760.full>. Accessed: September 20, 2017.
- ¹³ Hartmann, T. (2012). Wicked problems and clumsy solutions: Planning as expectation management. Planning Theory 11(3)
- ¹⁴ Funtowicz, S. O. and J. R. Ravetz (1993). Science for the post-normal age. Futures 25(7): 739-755.
- ¹⁵ A.T. Knight, R. M. Cowling, and B. M. Campbell (2006). An operational model for implementing conservation action. Conserv. Biol. 20(2): 408-419.

-
- ¹⁶ Delta Stewardship Council (2013). Delta Plan Appendix C - Adaptive Management and the Delta Plan. Delta Stewardship Council, Sacramento, CA. Available: http://deltacouncil.ca.gov/sites/default/files/documents/files/AppC_Adaptive%20Management_2013.pdf .
- ¹⁷ DWR (2017). Agricultural Lands Stewardship Workgroup - potential strategies - Strategy A4.1. California Department of Water Resources, Agricultural Lands Stewardship Workgroup (DWR), Sacramento, CA. Available: <https://agriculturallandstewardship.water.ca.gov/web/guest/strategy-a4.1>. Accessed: September 20, 2017.
- ¹⁸ Moore S., N. Seavy., M. Gerhart. 2013. Scenario planning for climate change adaptation. PRBO Conservation Science and the California Coastal Conservancy. Available: <http://scc.ca.gov/files/2013/04/Scenario-Planning.pdf>. Accessed: April 2017.
- ¹⁹ Conservation Measures Partnership (2013). Open Standards for the Practice of Conservation. Version 3.0/April 2013. Conservation Measures Partnership. Available: <http://cmp-openstandards.org/wp-content/uploads/2014/03/CMP-OS-V3-0-Final.pdf>. Accessed: January 27, 2017.
- ²⁰ Schwartz, M. W., K. Deiner, T. Forrester, P. Grof-Tisza, M. J. Muir, M. J. Santos, L. E. Souza, M. L. Wilkerson, and M. Zylberberg (2012). Perspectives on the Open Standards for the Practice of Conservation. Biological Conservation 155: 169-177.
- ²¹ Poiani, K. A., R. L. Goldman, J. Hobson, J. M. Hoekstra, and K. S. Nelson (2011). Redesigning biodiversity conservation projects for climate change: examples from the field. Biodivers. Conserv. 20: 185-201. Available: <https://link.springer.com/article/10.1007/s10531-010-9954-2>. Accessed: September 20, 2017.
- ²² Conservation Measures Partnership (2016). Addressing social results and human wellbeing targets in conservation projects - Guidance. Available: <http://cmp-openstandards.org/wp-content/uploads/2016/07/Incorporating-Social-Aspects-and-Human-Wellbeing-in-Biodiversity-Conservation-Projects-v.-2.0-July-2016.pdf>. Accessed: January 27, 2017.
- ²³ Thorne, K. M., B.J. Mattsson, J. Takekawa, J. Cummings, D. Crouse, G. Block, V. Bloom, M. Gerhart, S. Goldbeck, B. Huning, C. Sloop, M. Stewart, K. Taylor, and L. Valoppi (2015). Collaborative decision-analytic framework to maximize resilience of tidal marshes to climate change. Ecology and Society 20(1): 30. Available: <https://www.werc.usgs.gov/ProductDetails.aspx?ID=5181>. Accessed: June 2017.
- ²⁴ Dalyander, P. S., M. Meyers, B. Mattsson, G. Steyer, E. Godsey, J. McDonald, M. Byrnes, and M. Ford (2016). Use of structured decision-making to explicitly incorporate environmental process understanding in management of coastal restoration projects: Case study on barrier islands of the northern Gulf of Mexico. Journal of Environmental Management: 183: 497-509.
- ²⁵ Ball, I. and M. Weiss (2016). Marxan Decision Support Software. Available: <http://marxan.net/index.php/> . Accessed June 2017.
- ²⁶ Bay Area Open Space Council (2017). Bay Area Conservation Lands Network, Bay Area Open Space Council, Berkeley, CA. Available: www.bayarealands.org/. Accessed: September 20, 2017.
- ²⁷ Natural Resources Agency (2016). Adaptive Management Program for the California Water Fix and Current Biological Opinions on the coordinated operations of the Central Valley and State Water Projects. Available: http://cms.capitoltechsolutions.com/ClientData/CaliforniaWaterFix/uploads/CWF_BOs_AM_Framework_072_116.pdf. Accessed: April 2017.
- ²⁸ Migratory Bird Conservation Partnership (2017). Wildlife-friendly working lands. Audubon California, Point Blue Conservation Science, and The Nature Conservancy. Available: http://www.camigratorybirds.org/?page_id=30. Accessed: June 2017.
- ²⁹ Delta Reform Act (2009). Sacramento-San Joaquin Delta Reform Act of 2009, 35 CA Water Code § 85000. Available: http://www.leginfo.ca.gov/pub/09-10/bill/sen/sb_0001-0050/sbx7_1_bill_20091112_chaptered.html Accessed: May 2017.
- ³⁰ BDCP 2013. Bay Delta Conservation Plan Public Draft (BDCP). Available: <http://baydeltaconservationplan.com/EnvironmentalReview/EnvironmentalReview/2013-2014PublicReview/2013PublicReviewDraftBDCP.aspx>. Accessed 6/2/16.
- ³¹ Robinson, A., S. Safran, J. Beagle, L. Grenier, R. Grossinger, E. Spotswood, S. Dusterhoff and A. Richey (2016). A Delta renewed: A guide to science-based ecological restoration in the Sacramento-San Joaquin Delta, a report for the Delta Landscapes Project: Management tools for landscape-scale restoration of ecological functions. Prepared for California Department of Fish and Wildlife, Sacramento, CA. San Francisco Estuary Institute (SFEI) Aquatic Science Center, Richmond, CA. Available:

-
- http://www.sfei.org/sites/default/files/project/SFEI_DeltaRenewed_102616_lowres.pdf. Accessed January 25, 2017
- ³² Davenport, J. (2014). Restoring habitat with science and society in mind – issue paper. Delta Stewardship Council, Sacramento, CA. Available: <http://deltacouncil.ca.gov/sites/default/files/documents/files/14-0923%20Ecosystem%20issue%20paper%20Final.pdf>. Accessed: April 2017.
- ³³ DWR (2017). DWR Agricultural Lands Stewardship Workgroup – Potential Strategies. California Department of Water Resources, Agricultural Lands Stewardship Workgroup (DWR), Sacramento, CA. Available: <https://agriculturallandstewardship.water.ca.gov/web/guest/potential-strategies1>. Accessed: September 12, 2017.
- ³⁴ DWR (2016). Central Valley Flood Protection Plan Conservation Strategy. California Department of Water Resources (DWR), Sacramento, CA. Available: http://www.water.ca.gov/conservationstrategy/docs/cs_draft.pdf. Accessed January 25, 2017.
- ³⁵ DWR (2017). Central Valley Flood Protection Plan 2017 update draft. California Department of Water Resources (DWR), Sacramento, CA. Available: <http://www.water.ca.gov/cvfpmp/docs/CVFPP-2017-CVFPP-Update-Draft.pdf>. Accessed Januray 25, 2017.
- ³⁶ IAMIT (2017). EcoRestore Adaptive Management Program white paper. Interagency Adaptive Management Team (IAMIT). Available: <http://resources.ca.gov/ecorestore/wp-content/uploads/2017/04/2017-3-8-EcoRestore-Adaptive-Management-Program-White-Paper-v3-7-2017.pdf>. Accessed April 2017.
- ³⁷ Davenport, J., D. Austin, J. Duryea, D. Huang, and D. Livsey (2016). Improving habitats along Delta levees – A review of past projects and recommended next steps. Delta Stewardship Council, Sacramento, CA.
- ³⁸ Kross, S. M., K. P. Ingram, R. F. Long, M.T. Niles. 2017. Farmer Perceptions and Behaviors Related to Wildlife and On-Farm Conservation Actions. Conservation Letters, March 2017. DOI: 10.1111/conl.12364
- ³⁹ Natural Resources Agency. (2016). California *WaterFix* - Fixing California's water system – securing state water supplies: Alternative 4A. California Natural Resources Agency, Sacramento, CA. <https://www.californiawaterfix.com/>. Accessed: July 7, 2016.
- ⁴⁰ Natural Resources Agency (2017). What is California EcoRestore? California Natural Resources Agency, Sacramento, CA. Available: <http://resources.ca.gov/ecorestore/what-is-california-ecorestore/>. Accessed: January 26, 2017.