

## 2014-2016 CCMP REVISION

CCMP Revision  
HABITAT Subcommittee Meeting #2  
December 3, 2014

### MEETING PACKET

Habitat Subcommittee Members,

Enclosed are the following meeting materials for your review to prepare for the second meeting of the Habitat Subcommittee:

1. **Draft Habitat Objectives.** The draft objectives were prepared by SFEP staff for your use as a starting point for discussion. Please note that under each draft objective are examples of possible action topics that might fall under that objective. The examples are included for illustrative purposes only, in an effort to help explain the types of actions that may fall under a particular objective. Our discussion at the meeting will focus on the objective level.
2. **Appendix A.** A description of the process SFEP staff undertook to develop the draft objectives.
3. **Appendix B.** The objectives and actions prioritization process approved by the Steering Committee and the SFEP Implementation Committee.

To help structure our initial high level discussion on objectives, please focus on whether the draft objectives accomplish the following:

- Support the Habitat Topic Area working goal (Appendix A)
- Reflect/support the sources (Appendix A)
- Increase the resilience of the Estuary in the face of the anticipated impacts as the result of climate change and population growth
- Meet the prioritization criteria (Appendix B)
- Support potential actions that you consider are the “game changers”
- Support potential actions that you feel should be the priorities for the next five years

**CCMP Revision**  
**DRAFT HABITAT OBJECTIVES**  
**12/03/14**

The following are draft objectives, as a starting point for discussion by the Habitat Subcommittee. Under each draft objective are examples of possible action topics. The examples are included for illustrative purposes only, in an effort to help explain the types of actions that may fall under a particular objective.

**DRAFT OBJECTIVES**

1. **Protect and enhance beneficial ecological functions and habitat connectivity** to mitigate anticipated impacts to habitat resources as the result of climate change and population growth.  
**[Quality]**

*HOW (EXAMPLES of possible action topics for illustrative purposes)*

- Protect and manage existing quality habitats of all types
- Restore the functionality of impaired habitats
- Improve terrestrial and aquatic habitat connectivity
- Reduce, prevent, and remediate pollution/contamination
- Maintain natural ecological processes, such as fresh water flows, sediments, and inundation

2. **Maintain and enhance the diversity and abundance of habitat resources** to mitigate anticipated impacts to habitat resources as the result of climate change and population growth.  
**[Quantity]**

*HOW (EXAMPLES of possible action topics for illustrative purposes)*

- Acquire, conserve, and protect existing natural/open spaces
- Create and restore habitat conditions critical to biodiversity
- Promote Regional monitoring/tracking of restoration/mitigation/Green Infrastructure

3. **Protect and enhance the inherent self-sustainability and resiliency of habitat resources** to mitigate anticipated impacts to habitat resources as the result of climate change and population growth.

*HOW (EXAMPLES of possible action topics for illustrative purposes)*

- Prepare Regional Habitat Strategy that responds to Drivers of Change
- Promote Watershed/Green Infrastructure planning and implementation
- Research and apply new habitat restoration methods

**APPENDIX A**  
**2014-16 CCMP REVISION**  
**BACKGROUND ON PROCESS FOR DEVELOPING DRAFT**  
**HABITAT OBJECTIVES**

**Background**

The Habitat Subcommittee met for the first time on September 9, 2014. At that meeting, the Subcommittee brainstormed on habitat issues in the San Francisco Bay-Delta Estuary, both in terms of current stressors and future desired conditions.

A straw goal statement was formed by distilling the existing 2007 CCMP goal statements on Pollution Prevention and Water Use. The Habitat Subcommittee and SFEP staff considered the offered language. There was discussion about word choices such as “health”, “ecosystem processes”, and “resiliency” as potentially misunderstood or misinterpreted. By meeting’s end, the Subcommittee agreed to the following working goal for the Habitat Topic Area, with the acknowledgement that there may be further discussion and revisions specifically regarding use of the term “self-sustaining”:

**Expand, improve, and maintain the diverse terrestrial and aquatic habitats of a self-sustaining SF Bay-Delta Estuary.**

The next two meetings of the Habitat Subcommittee will be focused on drafting objectives for the revised CCMP.

**Process for Developing Draft Objectives**

To prepare for the second meeting of the Habitats Subcommittee, SFEP staff drew from a variety of sources to craft a set of draft objectives for discussion by the Subcommittee.

The *primary sources* were:

1. The 2007 CCMP objectives
2. The results of the brainstorm from the initial Habitat Subcommittee meeting
3. The benchmarks of health described in the 2011 State of the Bay Report

In addition, SFEP reviewed many additional key regional policy or management documents and pulled materials from those that were particularly relevant for the objectives discussion as *secondary sources*.

Finally, SFEP staff and the Subcommittee members recognize that climate change and population growth are key drivers of change for the San Francisco Bay Delta. With the 2016 CCMP, the agencies and organizations of the San Francisco Estuary Partnership are striving to prepare a guide for Estuary managers that will be of great practical benefit in responding to these unprecedented new

challenges as we take a longer-term view of these changing environmental conditions which will become more severe as decades unfold.

Population growth in the Bay Area will increase pressure to develop in existing open spaces and agricultural tracts, further reducing and fragmenting available terrestrial habitats. The economics of development growth may increasingly undermine environmental protections. Expanded population and urbanization will likely generate greater non-point source pollution, further impairing both aquatic and terrestrial habitats. Climate change is predicted to alter hydrology, air and water temperatures, and sea-level. A range of habitat types will see changes in flow regimes, sediment supply, aquatic salinity, inundation, and vegetation.

Given the anticipated impacts to habitat quality and availability as the result of climate change and population growth, the draft objectives are aimed at increasing the resiliency of the habitat resources in the face of these changes.

The following figure (Figure 1) shows the process for developing draft objectives to bring to the Subcommittee for consideration and discussion.

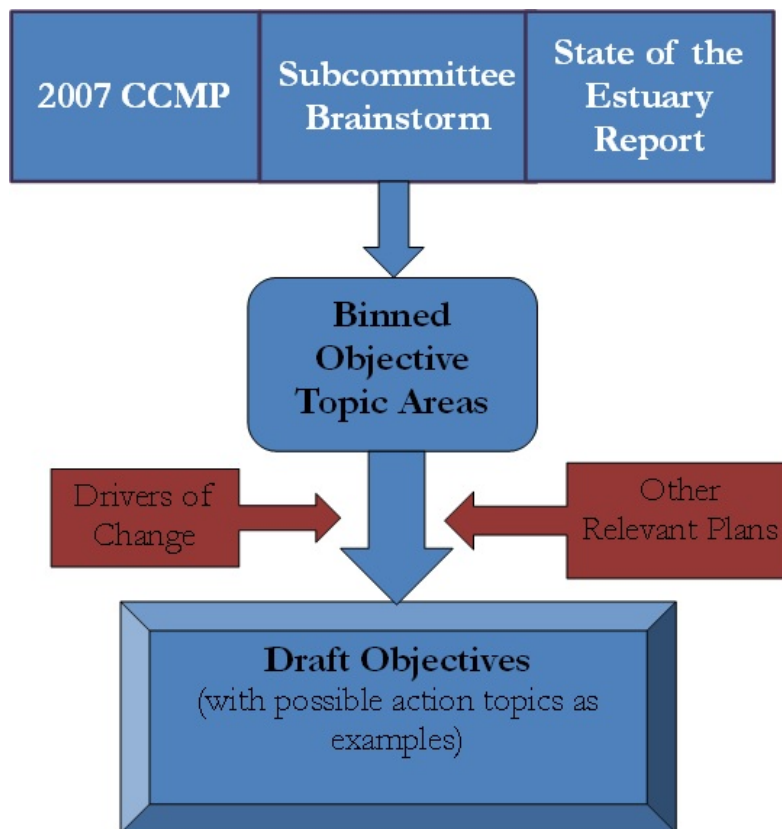


Figure1. Process for Developing Draft CCMP Objectives

Content from the various sources was collected and sorted by common topic area (Table A). Potential objectives were drafted based on the binned content, in direct response to the key drivers of change.

**Table A. Sources for Draft Habitat Objectives**

| SOURCE                 | OBJECTIVE BINS   |   |   |
|------------------------|--|---|---|
|                        | Functionality/Connectivity<br>(Quality)  | Diversity/Abundance<br>(Quantity)   | Sustainability/Resiliency<br>(Driver of Change)   |
| <b>PRIMARY SOURCES</b> |  |   |   |
| 2007 CCMP OBJECTIVES   | <ul style="list-style-type: none"> <li>• Define, study, and protect habitat values of aquatic mineral resources, including sand and oyster shell benthic environments.(AR-8)</li> <li>• Reduce and prevent marine debris and its impacts to the Estuary (AR-9)</li> <li>• Remediate pollution threats to public health and wildlife in the Estuary.(PO-3)</li> <li>• Improve water quality through restoration and enhancement of tidal wetland functions in the Estuary and riparian and floodplain wetland functions in the watersheds.(PO-4)</li> <li>• Develop and implement specific and targeted public education and involvement action plans about fish and wildlife resources and how to restore and improve their populations and habitat.(PI-3)</li> <li>• Effectively monitor and conduct research on flow regime, pollutants, dredging and waterway modification, fish and other aquatic resources, wildlife, wetlands, and land use within the boundaries of the Estuary, using new and existing facilities, programs, agencies, and public involvement groups.(RM-2)</li> </ul> | <ul style="list-style-type: none"> <li>• While awaiting completion of the comprehensive plan called for in Objective AR-5, and in order to create habitat conditions that contribute to the attainment of that Objective, immediately implement a phased approach to provide needed: (i) water quality, flows, and other operational measures; (ii) water management facilities; and (iii) other aquatic components; so long as the phased approach significantly reduces impacts on aquatic estuarine resources (AR-4)</li> <li>• Develop and implement programs in the watershed above the Estuary necessary to complement Objective AR-5.(AR-6)</li> <li>• Protect, enhance, and restore subtidal habitats (AR-7)</li> <li>• Create and restore habitats critical to the survival of plant and animal populations and enhance the biodiversity of the Estuary.(WL-1)</li> <li>• Protect existing wetlands using current, new, and expanded programs of wetland acquisition, easement agreements, and cooperative management systems.(WT-3)</li> <li>• Expand the wetland resource base by</li> </ul> | <ul style="list-style-type: none"> <li>• Improve the effectiveness of the techniques and programs used to monitor and evaluate ecosystem condition/"health" and the responses of the ecosystem to restoration projects, resource management and regulatory actions, and large-scale environmental change (e.g., global climate change and sea level rise-(AR-1)</li> <li>• Use existing and new information to develop and implement a comprehensive plan that protects the Estuary's freshwater inflow-dependent aquatic resources (AR-5)</li> <li>• Create a comprehensive, Estuarywide wetlands management program (WT-1)</li> <li>• Improve the wetland regulatory system (WT-2)</li> <li>• Improve regional monitoring and tracking of wetland restoration and mitigation projects and encourage research on wetland issues.(WT-5)</li> <li>• Promote integrated regional water management and development of diversified portfolios of water management strategies to ensure better water quality, and to foster environmental restoration and</li> </ul> |

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|                                       |  | <p>restoring, enhancing, and creating wetland resources using a variety of approaches (WT-4)</p> <ul style="list-style-type: none"> <li>• Encourage, support and implement the beneficial reuse of dredged material for projects such as wetlands creation/restoration, levee rehabilitation, landfill cover, and upland building material where environmentally acceptable.(DW-4)</li> </ul> | <p>stewardship, efficient urban development, protection of agriculture, sustainable water uses, reliable water supplies, and a strong economy.(WU-4)</p> <ul style="list-style-type: none"> <li>• Use existing institutional capacity to improve planning, regulatory, and development programs of local, regional, and state agencies to protect the resources of the Estuary, in concert with a sustainable economy.(LU-1)</li> <li>• Coordinate and improve integrated and regional management for land use, water supply and recycled water, stormwater management and flood protection, habitat and watershed protection, transportation, housing, and physical infrastructure, to both protect the Estuary and its watersheds and provide for a sustainable economy.(LU-2)</li> </ul> |
| <p><b>SUBCOMMITTEE BRAINSTORM</b></p> | <ul style="list-style-type: none"> <li>• Interconnected (and functioning)</li> <li>• Connectivity <ul style="list-style-type: none"> <li>○ across and along shoreline – more complete habitat/ ecotone</li> <li>○ between watersheds and marshes</li> </ul> </li> <li>• Large parcels</li> <li>• Protect and restore large and small parcels – complete marsh habitats</li> <li>• Adequate flows</li> <li>• Less pollution <ul style="list-style-type: none"> <li>○ Cleaner stormwater</li> </ul> </li> <li>• Green infrastructure (multiple functions)</li> <li>• Gradients diversified <ul style="list-style-type: none"> <li>○ Topographic</li> <li>○ Salinity</li> </ul> </li> <li>• Structural integrity</li> </ul> | <ul style="list-style-type: none"> <li>• All available habitats are acquired and restored</li> <li>• Protected and appreciated</li> <li>• Maintain habitat and native species diversity</li> <li>• Ensure habitats are there for species</li> <li>• Maintain balance of habitats – no net loss</li> </ul>   | <ul style="list-style-type: none"> <li>• Adjusting to drivers of change/increasing resiliency <ul style="list-style-type: none"> <li>○ More space beyond present footprint</li> <li>○ More sediment</li> <li>○ More water</li> </ul> </li> <li>• Accommodation for sea level rise</li> <li>• Economically valued</li> <li>• Dynamic/ever-changing</li> <li>• Sustain species diversity (re: climate change – how much effort to preserve species?)</li> <li>• Figured out what we want to do</li> <li>• Have Restoration Authority in place</li> <li>• Set up habitats to be resilient/ respond to future conditions</li> </ul>   |

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| <p>2015 STATE OF THE ESTUARY REPORT</p> | <ul style="list-style-type: none"> <li>• <b>Estuarine Open Water:</b> <ul style="list-style-type: none"> <li>○ Seasonal low-salinity habitat <ul style="list-style-type: none"> <li>▪ Salinity: 2pt/1,000pt &lt; 65 km from Golden Gate for &gt; 100 days from Feb – June</li> </ul> </li> </ul> </li> <li>• <b>Baylands (tidal marsh/flat):</b> <ul style="list-style-type: none"> <li>○ Physical/biological condition <ul style="list-style-type: none"> <li>▪ CRAM score for physical structure of North coast marshes</li> </ul> </li> </ul> </li> <li>• <b>Watersheds:</b> <ul style="list-style-type: none"> <li>○ Stream habitat Condition <ul style="list-style-type: none"> <li>▪ CRAM score of 75% of reference reach value</li> </ul> </li> <li>○ Stream biological integrity <ul style="list-style-type: none"> <li>▪ 75% of watershed stream assessments score “excellent-good” using BMI</li> </ul> </li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• <b>Baylands (tidal marsh/flat):</b> <ul style="list-style-type: none"> <li>○ Regional extent <ul style="list-style-type: none"> <li>▪ Restore 100,000 wetland acres</li> <li>▪ Restore 30,000 tidal flat acres</li> </ul> </li> <li>○ Size of existing parcels (patch size) <ul style="list-style-type: none"> <li>▪ ±25% of historical patch size/each size category</li> </ul> </li> </ul> </li> <li>• <b>Watersheds:</b> <ul style="list-style-type: none"> <li>○ Width of riparian areas <ul style="list-style-type: none"> <li>▪ % of historical riparian width distribution</li> </ul> </li> </ul> </li> </ul> |  |
| <p><b>SECONDARY SOURCES</b></p>         |   |   |  |
| <p>Delta Plan, 2013</p>                 | <ul style="list-style-type: none"> <li>• <i>Stated Objective:</i> “restore the Delta ecosystem including its fisheries and wildlife, as the heart of a healthy estuary and wetland ecosystem”</li> <li><i>Envisioned Ecosystem:</i> <ul style="list-style-type: none"> <li>• The tidal channels and bays in the Delta and Suisun Marsh connect with freshwater creeks, upland grasslands, and woodlands</li> <li>• The Sacramento and San Joaquin rivers and other Delta tributaries include reaches where streams are free to meander and connect seasonally to functional floodplains</li> <li>• Habitats for resident and rearing migratory fish, birds, and upland wildlife are connected by migratory corridors, including areas with high-quality cover</li> </ul> </li> </ul>  | <p><i>Envisioned Ecosystem:</i></p> <ul style="list-style-type: none"> <li>• More variations in water flows and conditions make aquatic habitats, tidal marshes, and floodplains more dynamic, encourage survival of native species, and resist invasions by weeds and pests</li> </ul>   | <p><i>Envisioned Ecosystem:</i></p> <ul style="list-style-type: none"> <li>• The ecosystem is resilient enough to absorb and adapt to current and future effects of multiple stressors without significant declines in ecosystem services</li> </ul> |

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|  | and feeding opportunities  |  |   |
| SF Bay Area Conservancy Program Strategic Plan 2013-2018 (State Coastal Conservancy) | <p><b>Objective 11D:</b><br/>Enhance tidal wetlands, managed wetlands, seasonal wetlands, upland habitat, and subtidal habitat.</p> <p><b>Objective 11F:</b><br/>Enhance riparian and riverine habitat or other watershed functions and processes for the benefit of wildlife or water quality, including removal of barriers to fish passage or projects that ensure sufficient instream flow.</p> <p><b>Objective 11H:</b><br/>Eradicate non-native invasive species that threaten important habitats in the San Francisco Bay Area.</p> | <p><b>Objective 11A:</b><br/>Protect tidal wetlands, managed wetlands, seasonal wetlands, riparian habitat, and subtidal habitat.</p> <p><b>Objective 11B:</b><br/>Protect wildlife habitat, connecting corridors, scenic areas, and other open-space resources of regional significance.</p> <p><b>Objective 13A:</b><br/>Protect working lands, including farmland, rangeland and forests.</p> <p><b>Objective 13B:</b><br/>Implement projects that assist farmers and ranchers to steward the natural resources on their lands.</p> | <p><b>Objective 11C:</b><br/>Develop plans for enhancement of tidal wetlands, managed wetlands, seasonal wetlands, upland habitat, and subtidal habitat.</p> <p><b>Objective 11E:</b><br/>Develop plans for enhancement of riparian and riverine habitat or other watershed functions and processes for the benefit of wildlife or water quality, including removal of barriers to fish passage or projects that ensure sufficient instream flow.</p> <p><b>Objective 11G:</b><br/>Develop plans to eradicate non-native invasive species that threaten important habitats in the San Francisco Bay Area.</p> |
| Draft Baylands Goals Technical Update (BEHGU)  | <p><b>Regional Strategies to Promote Resilience in the Baylands Landscape, Habitats and Wildlife</b></p> <ol style="list-style-type: none"> <li>1. Restore watershed connections that nourish the Baylands with sediment and freshwater.</li> <li>2. Design complexity and connectivity into the Baylands landscape at various spatial scales.</li> <li>3. Restore and conserve complete tidal wetlands systems.</li> <li>4. Restore Baylands to tidal action prior to 2030.</li> </ol>  | <p><b>Regional Strategies to Promote Resilience in the Baylands Landscape, Habitats and Wildlife</b></p> <ol style="list-style-type: none"> <li>9. Develop a comprehensive portfolio of transition zone conservation, restoration, and management strategies for the various transition zone types.</li> </ol>   | <p><b>Regional Strategies to Promote Resilience in the Baylands Landscape, Habitats and Wildlife</b></p> <ol style="list-style-type: none"> <li>5. Plan for the Baylands to migrate.</li> <li>6. <i>N/A- living resources</i></li> <li>7. Develop and implement a comprehensive regional sediment management plan.</li> <li>8. Invest in planning, policy and monitoring.</li> <li>10. Develop a regional transition zone assessment program.</li> <li>11. Improve carbon management, prevent further subsidence, and reduce greenhouse gas emissions from Baylands.</li> </ol>                               |



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| <p>San Francisco Bay Subtidal Habitat Goals Report</p> | <p><b>Within Habitat Integration Science Goals</b></p> <ul style="list-style-type: none"> <li>• Understand the ecosystem services supported b marsh sub-tidal integration and living shorelines</li> <li>• Develop best practices for integrating subtidal restoration with adjacent wetlands</li> <li>• Develop best practices for pilot projects to develop living shorelines</li> </ul> <p><b>Within Habitat Integration Restoration Goals</b></p> <ul style="list-style-type: none"> <li>• Explore the integration of upland, intertidal and subtidal habitats in SF Bay</li> <li>• Integrate habitat flexibility to increase resilience in the face of long-term climate change at habitat restoration sites</li> <li>• Explore the use of living shorelines projects as a way to achieve multiple benefits in future shoreline restoration</li> </ul> <p><b>Within Restoration Goals</b></p> <ul style="list-style-type: none"> <li>• Encourage removal of artificial structures that have negative impacts on habitat</li> <li>• Restore and maintain natural intertidal and subtidal rock habitats</li> </ul> <p><b>Within Protection Goals</b></p> <ul style="list-style-type: none"> <li>• Promote no net increase in disturbance to SF Bay soft bottom habitat</li> <li>• Promote <b>no net loss</b> to SF Bay subtidal and intertidal sand habitats, eelgrass beds, native shellfish habitats, natural intertidal and subtidal rock habitats,</li> </ul> | <p><b>Within Restoration Goals</b></p> <ul style="list-style-type: none"> <li>• Encourage the application of sustainable techniques in sand habitat replenishment or restoration projects</li> <li>• Increase native oyster population through a phased, adaptive mgmt. approach</li> <li>• Increase native eelgrass population through a phased, adaptive mgmt. approach</li> </ul> <p><b>Within Protection Goals</b></p> <ul style="list-style-type: none"> <li>• Establish eelgrass reserves</li> <li>• Identify and protect areas for future eelgrass expansion, restoration or creation</li> <li>• Identify and protect areas with potential for future shellfish expansion, restoration or creation</li> </ul> <p><b>Within Science Goals</b></p> <ul style="list-style-type: none"> <li>• Understand the ecosystem services and changes in extent or condition of macroalgal beds</li> <li>• Understand factors controlling the development and persistence of eelgrass beds</li> <li>• Develop the most effective ways of restoring and protecting eelgrass beds</li> </ul> | <p><b>Within Science Goals</b></p> <ul style="list-style-type: none"> <li>• Understand the extent of ecosystem services provided by soft substrate, rocky, shellfish, eelgrass and macroalgal bed habitats.</li> <li>• Understand the factors controlling the development and persistence of shellfish and eelgrass bed habitats</li> </ul> <p><b>Within Protection Goals</b></p> <ul style="list-style-type: none"> <li>• Consider the potential ecological effects of contaminated sediments when developing and planning projects that disturb subtidal sediments</li> </ul> <p><b>Within Habitat Integration Restoration Goals</b></p> <ul style="list-style-type: none"> <li>• Explore the integration of upland, intertidal and subtidal habitats in SF Bay</li> <li>• Integrate habitat flexibility to increase resilience in the face of long-term climate change at habitat restoration sites</li> </ul> <p><b>Within Restoration Goals</b></p> <ul style="list-style-type: none"> <li>• Increase native oyster and eelgrass habitats within 8,000 acres of suitable subtidal area over 50-year timeframe</li> </ul> <p><b>*Consider long-term climate change related changes described on page 37</b></p> <p><b>These include:</b><br/> Sea level rise<br/> Temperature rise<br/> Total precipitation</p> |
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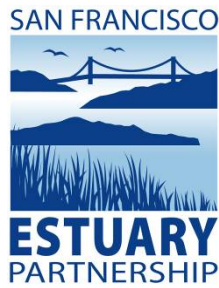
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|   | <p>and existing macroalgal beds of <i>Fucus</i> and <i>Gracilaria</i>.</p> <ul style="list-style-type: none"> <li>• Develop a coordinated, collaborative approach for regional sediment management for SF Bay</li> <li>• Protect: <ul style="list-style-type: none"> <li>-widgeon grass habitat</li> <li>-Sago pondweed habitat</li> <li>-areas for future eelgrass expansion, restoration or creation</li> <li>-areas with potential for future shellfish expansion, restoration or creation</li> </ul> </li> <li>• Enhance and protect habitat functions and historical value of artificial structures</li> <li>• Improve subtidal habitats by minimizing placement of artificial structures that are detrimental to subtidal habitat function</li> </ul> |  | <p>Wind speed<br/>Storm frequency<br/>Acidification<br/>Interactions<br/>Levee failures<br/>Changed delta configuration<br/>Population growth (human)<br/>Continued reduction in sediments<br/>Introduced species<br/>Industrial development</p>   |
| <p>Upland Habitat Goals Project Report 2011</p> | <p><b>Riparian/Fish Conservation Actions</b></p> <ol style="list-style-type: none"> <li>1. Implement Recovery Plan for the Evolutionarily significant Unit of Central California Coast Coho Salmon and the Priority Recovery Actions for the Central CA Coast Steelhead Distinct Population Segment</li> <li>2. Encourage development of multi-stakeholder watershed plans</li> <li>4. Limit encroachment of riparian areas by establishing and enforcing strong stream protection policies</li> <li>6. Implement aggressive sediment and non-point source pollution control measures</li> <li>7. Secure seasonal water releases to benefit native fishes, especially coho salmon and rearing and smolting steelhead</li> </ol>                             | <p><b>Riparian/Fish Conservation Actions</b></p> <ol style="list-style-type: none"> <li>5. Restore stream channels and adjacent riparian habitat including the strategic removal of barriers to fish passage where appropriate</li> <li>3. Secure sensitive undeveloped headwaters and streamside lands through easements, fee acquisition, voluntary stewardship incentives and policies</li> </ol> | <p><b>Riparian/Fish Conservation Actions</b></p> <ol style="list-style-type: none"> <li>2. Encourage development of multi-stakeholder watershed plans</li> <li>3. Secure sensitive undeveloped headwaters and streamside lands through easements, fee acquisition, voluntary stewardship incentives and policies</li> <li>8. Improve the stewardship of streams and riparian areas on public and private land</li> </ol> <p><b>Research Needs</b></p> <ul style="list-style-type: none"> <li>• Development threat assessment Up-to-date</li> <li>• Vegetation Map using MCV classification</li> <li>• Species occurrence info</li> </ul> |

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|   |   |   | <ul style="list-style-type: none"> <li>• Historical baselines of habitat distribution</li> <li>• Stewardship classifications for protected lands</li> <li>• Development of Rangeland sustainability and stewardship indicators</li> <li>• Mapping of unpaved roads, rangelands, policy protection</li> <li>• Tracking regulatory and flood control easements</li> </ul>  |
| <p>Baylands Ecosystem Habitat Goals (Goals Project, 2000)</p> | <p><b>Characteristics of High Quality Habitats (by type)</b></p> <p><b><i>Tidal Flat (148)</i></b></p> <ul style="list-style-type: none"> <li>• Absence of vascular vegetation, except eelgrass.</li> <li>• Diverse and abundant infauna and epifauna attractive to shorebirds at low tide and macroinvertebrates and fishes at high tide.</li> <li>• No, or few, non-native invasive species.</li> <li>• A range of particle sizes (sandy to clay).</li> <li>• Salinities do not rapidly fluctuate.</li> <li>• Well-oxygenated sediments and low contaminant concentrations.</li> <li>• A wide area with little shoreline disturbance.</li> </ul> <p><b><i>Tide Marsh (149)</i></b></p> <ul style="list-style-type: none"> <li>• Well-developed tidal channel systems.</li> <li>• Natural transition to adjacent uplands.</li> <li>• Wide upland buffers to minimize human disturbance.</li> <li>• Connections with other large patches of tidal marsh enabling marsh-dependent birds and mammals to move safely</li> <li>• Pans in the marsh plain and along the</li> </ul> | <p><b>Regional Perspective (pg 92)</b></p> <p>...baylands and adjacent areas should be a diverse mosaic of habitats, including:</p> <ul style="list-style-type: none"> <li>• Many large patches of tidal marsh connected by corridors to enable the movement of small mammals and marsh-dependent birds.</li> <li>• Several large complexes of salt ponds managed for shorebirds and waterfowl.</li> <li>• Extensive areas of managed seasonal ponds.</li> <li>• Large expanses of managed marsh.</li> <li>• Continuous corridors of riparian vegetation along the Bay's tributary streams.</li> <li>• Restored beaches, natural salt ponds, and other unique habitats.</li> <li>• Intact patches of adjacent habitats including grasslands, seasonal wetlands, and forests.</li> </ul> | <p><b>Recommended Objectives for Regional Baylands Science Program (pg 181)</b></p> <ul style="list-style-type: none"> <li>• Increase understanding of baylands habitats and ecological functions.</li> <li>• Build upon existing science and monitoring experience.</li> <li>• Obtain useful information from each restoration and enhancement project and use projects to test new ideas</li> <li>• Monitor to measure progress towards the Goals.</li> <li>• Monitor some mitigation projects.</li> </ul> |

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|  | <p>marsh/upland transition.</p> <ul style="list-style-type: none"> <li>• Other mudflats/wetland types nearby.</li> <li>• Dominance of appropriate species of native plants and animals.</li> <li>• Minimal uplands or structural intrusion/fragmenting to discourage predators access.</li> </ul> <p><b>Muted Tide Marsh (151)</b></p> <ul style="list-style-type: none"> <li>• Open water areas subject to restricted tidal influence and provide important habitat for diving birds</li> <li>• Areas maintained as tidal flat with desynchronized tidal flooding to provide high tide foraging and roosting habitats.</li> </ul> <p><i>Managed Marsh</i></p> <ul style="list-style-type: none"> <li>• Sufficient topographic variation to provide variety of water depths, plant diversity, and high water refugia</li> <li>• Diversity of habitat features to provide nesting, roosting, and foraging for a wide variety of species.</li> <li>• Provision for wetland habitat functions in short supply during certain seasons, years, and portions of the tidal cycle.</li> <li>• Water level management to optimize wildlife utilization.</li> <li>• Well-maintained levees, preferably with outboard marsh to minimize erosion.</li> <li>• A minimum impact on fish populations resulting from water diversions.</li> <li>• An absence of contamination that adversely affects biota.</li> </ul> <p><b>Managed Seasonal Pond (155)</b></p> <ul style="list-style-type: none"> <li>• Frequently or continuously inundated shallow ponds during waterfowl and shorebird migration and wintering</li> <li>• Presence of ponds every year.</li> <li>• Well developed depressional topography,</li> </ul> |  |  |
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|  | <p>scattered shallow ponds after heavy rains, and presence of short sparse vegetation with significant native wetland vegetation.</p> <ul style="list-style-type: none"> <li>• Location near tidal flats to minimize loss of energy by foraging shorebirds.</li> <li>• Minor component of tall, perennial wetlands vegetation, unless managed as a brood pond for waterfowl</li> <li>• Presence of unvegetated areas.</li> <li>• Abundance of preferred plant and invertebrate food sources.</li> <li>• Located within the baylands and on lands transitional with adjacent uplands.</li> <li>• Few nearby obstructions and disturbances.</li> </ul> <p><b>Salt Pond (157)</b></p> <ul style="list-style-type: none"> <li>• Series of ponds with salinities varying from low to mid-salinity (&lt;180ppt), with few high-salinity ponds.</li> <li>• Water depths vary from shallow to very shallow. Water depth spatially variable to increase habitat diversity.</li> <li>• Barren islands within the ponds and/or remote, undisturbed parts of dikes between ponds to provide roosting and nesting sites for shorebirds and terns.</li> <li>• Proximity to tidal flats minimizing energy losses for shorebirds moving to peripheral foraging habitat.</li> <li>• Limited nearby obstructions and disturbances.</li> </ul> <p><b>Riparian Forest (159)</b></p> <ul style="list-style-type: none"> <li>• Extends in a continuous corridor along a stream course.</li> <li>• Extends laterally from stream channel across an unimpeded floodplain.</li> <li>• Forms natural transitional ecotone with</li> </ul> |  |  |
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|  | <p>the adjacent uplands.</p> <ul style="list-style-type: none"> <li>• Free of domesticated animals and human disturbance.</li> <li>• Supports diversity of native understory and canopy plant species—free of invasive plants.</li> </ul> <p><b>Willow Grove (159)</b></p> <ul style="list-style-type: none"> <li>• Hydrological conditions (including water quality) suitable to ensure long-term support of grove vegetation.</li> <li>• Has natural transitional ecotone with the adjacent uplands.</li> <li>• Free of domesticated animals and human disturbance.</li> </ul> |  |  |
| <p>San Francisco Bay Joint Venture (Executive Summary)</p> | <ul style="list-style-type: none"> <li>• Improve habitat management on public and private lands through cooperative agreements and incentives</li> </ul>   | <ul style="list-style-type: none"> <li>• Secure, restore, and improve wetlands, riparian habitat, and associated uplands by applying incentives and using non-regulatory techniques</li> </ul> | <ul style="list-style-type: none"> <li>• Strengthen and promote new sources of funding for <i>(acquisition, restoration, and improvements)</i></li> <li>• Support the monitoring and evaluation of habitat restoration projects and research to improve future restoration projects</li> </ul> |



## APPENDIX B

### CCMP 2016 Revision

#### CRITERIA FOR SETTING OBJECTIVES/ACTIONS

##### Background

A primary goal for the revised CCMP is to be strategic and focused. While the goals will be centered on where the Estuary should be in 2050, the actions should be measurable against objectives and achievable within five years. To assist with the process of considering possible objectives and actions, the IC CCMP Revision Steering Committee agreed to use a prioritization process with specific criteria and a framework for how to use the criteria.

##### Criteria

The following are the agreed upon criteria for prioritizing objectives and actions:

- **Makes progress towards goal(s)**
- **Measurable results within a 5 year timeframe**
- High probability of success/high level of feasibility
- High level of expected benefit
- High level of importance/urgency
- Strengthens Partnerships/Promotes Leveraging
- Related to other actions/interdependency
- Linked to federal/state/local funding priorities
- Considers climate change

##### Framework for Applying Criteria

A potential objective or action does not need to meet *all* the criteria above to be considered for inclusion in the CCMP, but must meet the *majority*.

However, the following criteria are considered *mandatory* and must be met by all objectives and actions:

- Makes progress towards goal(s)
- Measurable results within a 5 year time frame

Every potential objective or action should be assessed by evaluating each of the criteria as they apply to that objective or action as High (3), Medium (2), Low (1), or none (0). Relative scoring of the objectives and actions will be used to prioritize inclusion in the 2016 CCMP.