

Priority Restoration Projects For BDCP Near-Term Implementation

1. Calhoun Cut/ Lindsey Slough

The Calhoun Cut Ecological Reserve is located on the northwest edge of the Sacramento Delta, within the Cache Slough tidal drainage. The property, which is owned by California Department of Fish and Game (DFG) is 927 acres consisting of 334 acres of wetlands and 593 acres of upland areas.

The restoration project is designed to increase the area of functional inter-tidal fresh water marsh habitat, restore processes necessary to create riparian canopy adjacent to tidal channels, and create conditions that allow for the natural re-generation of a mosaic of different wetland habitats ranging from tidal marsh to riparian to upland transitional salt panne habitat. The restoration of the tidal channel system to Lindsey Slough consists of removing several existing features that restrict flow through the slough, excavating starter channels, and blocking Calhoun Cut to restore Lindsey Slough's tidal channel system.

2. Yolo Ranch

This action entails breaching levees in the southern part of the Yolo Bypass to return tidal action to approximately one half of the 3,400 acre Yolo Ranch which is currently owned by the Westlands Water District (WWD). This will restore tidal marsh, open water, riparian, and upland habitats (the upland habitat also serves to accommodate sea-level rise into the project). Yolo Ranch was acquired by WWD in 2007 with the intention of creating tidal marsh and open water to benefit delta smelt. This area is currently being used for farming and grazing. This area was part of the proposed North Delta Wildlife Area which was being considered in the 1990s. Metropolitan Water District is currently evaluating several project design alternatives.

3. Dutch Slough

The Dutch Slough Restoration Project (DSRP) will restore wetland and upland habitats on the 1,166-acre Dutch Slough property owned by the Department of Water Resources (DWR). The DSRP site is located in the City of Oakley in northeast Contra Costa County.

The DSRP provides a significant opportunity to provide restored habitat for native fishes and other aquatic and wetland species as well as improve understanding of restoration science in tidal marsh wetland ecosystems in the region.

The DSRP Draft EIR evaluates three restoration alternatives, which vary primarily in the amount of imported fill used to increase acreage of tidal marsh. Each DSRP alternative includes habitat restoration features and experiments designed to evaluate restoration scenarios. The experimental and restoration features are not mutually exclusive as many of the experimental features are expected to provide significant restoration benefits, and vice versa.

4. Decker Island

Decker Island is ideally situated to maximize aquatic habitat for native Delta species and migratory birds. DFG owns the northernmost 34.5 acres. An initial restoration project was conducted in early 2000 but resulted in an area conducive to non-native predatory species. Proposed actions will be designed to improve circulation and as increase the ratio of intertidal to subtidal habitats to improve conditions for native fish and discourage non-native spawning.

5. McCormack Williamson Tract/Grizzly Slough

The North Delta Flood Control and Ecosystem Restoration Project presents unique opportunities for synergy in achieving flood control and ecosystem restoration goals. Components considered for the flood control such as setback levees and flood bypass areas may also be configured to create quality habitat for species of concern in the North Delta area. A North Delta flood solution will allow passing of flood flows through McCormack-Williamson in a way that minimizes flood impacts to the system.

McCormack-Williamson Tract is owned by the Nature Conservancy (TNC) who is an active participant in the North Delta Improvements planning process. TNC is partnering with UC Davis and DWR North Delta staff to explore integrated flood control and ecosystem restoration on McCormack-Williamson Tract.

One proposed action involves restoring 1200-1300 acres of subtidal, intertidal, and supratidal habitat on the approximately 1600 acre McCormack-Williamson Tract. This would be achieved through a combination of actions including degrading levees to function as weirs. Additional riparian habitat would be developed with the construction of low slope wildlife levees on the landside of the exterior levees and a breach in the southern levee.

Restoration work is also proposed on the 490 acre Grizzly Slough parcel will result in a mixture of habitats including upland, seasonal wetland, riparian, and aquatic tidal and non-tidal.

The North Delta Flood Control and Ecosystem Restoration Project Draft Environmental Impact Report was released on January, 2008 and the anticipated completion date for the Final EIR is July, 2010.

6.Fremont Weir Fish Passage Improvements

Elements of this project involve modify the existing fish ladder and the construction of solid ramps in portions of the Fremont Weir for sturgeon and other fish species under existing field conditions. Monitoring and studies will increase the chances of multi-species fish passage success with new fishways that will be designed in subsequent phases.

This project would involve the modification of a flood control structure, but is not expected to require any additional water, nor would it alter inundation conditions in the Yolo Bypass.

7.Fremont Weir Modifications for Seasonally Inundated Floodplain Enhancement

This action would modify the Fremont Weir using an engineered structure to allow increased floodplain inundation during the wet season that will result in more available native fish rearing habitat and improve fish passage over the weir.

The construction footprint of this action is primarily on State lands, but the operational footprint for floodplain inundation would affect private lands, for which additional flowage easements would need to be negotiated.

During the period of operation for partial floodplain inundation, land-based operations such as agriculture would be delayed in the affected area, but would still occur in the adjacent western fraction of the Yolo Bypass. Therefore, it may be necessary to provide fish screens for pumps or safe harbor agreements.

8.Lisbon Weir

This action calls for the modification of a small agricultural weir in the Yolo Bypass to improve fish passage.

Lisbon Weir would be modified to allow flow and fish passage, while maintaining or improving the capture of tidal water for diversion. The project could be operated to allow unimpeded fish passage or managed to restrict passage if conditions warrant.

9. Putah Creek Realignment

This project consists of the realignment of the lower portion of Putah Creek to a more natural channel where it flows within the Yolo Bypass. This more natural waterway would increase available low-flow flood plain area, create managed shallow water habitat, and potentially create riparian habitat. This action supports elements in the Yolo Bypass Wildlife Area Land Management Plan developed by Department of Fish and Game and is State land located within the Yolo Bypass Wildlife Management Area.

10. Meins Landing

Meins Landing is a 666 acre property located in the eastern Suisun Marsh along Montezuma Slough and owned by DWR. This restoration project is a collaborative effort between DWR and the other Suisun Marsh Charter agencies (DFG, FWS, NMFS, SRCD, CALFED, USBR).

The type of restoration for this site has not been determined due to the fact that tidally inundating the site will require buoyancy controls for two of three major utility pipelines. Project cannot move forward before agreements are reached with each of the pipeline companies.

Under current conditions, tidal restoration of Meins Landing will subject adjacent privately held properties to inundation and will therefore need mitigating actions which may include new levees.

11. Hill Slough

The Hill Slough Wildlife Area Restoration Project will restore tidal wetlands and moist grassland habitat from approximately 940 acres of existing diked seasonal and perennial wetlands in northern Suisun Marsh, Solano County.

All property in the project area is owned and managed by the Department of Fish and Game.

12. Rush Ranch

The Rush Ranch marsh restoration project would restore 70 acres of brackish tidal marsh habitat and three acres of tidal channels. Restoration of tidal marsh at this site will increase connectivity between the existing tidal marsh at Rush Ranch and future restoration projects planned along Hill Slough. This particular site is unique because it occurs on a high marsh-upland transition zone and connects to a small ephemeral watershed. While relatively common at Rush, these features are extremely rare elsewhere in the SF Bay Estuary.

13. Prospect Island

DWR recently acquired about 1300 acres (the northern $\frac{3}{4}$ of Prospect Island) to restore it to tidal action by permanently breaching the levees, with the goal of creating tidal marsh and associated open water habitat. These types of habitats are relatively rare in the Delta, and the opportunities for restoring them are limited. This will provide habitat for Delta smelt, juvenile Chinook salmon and steelhead, and other native fishes. DWR believes that restoring these habitats will also enhance the Delta food web, providing ecosystem benefits to the rest of the Delta.

DWR estimates that the restoration project will cost approximately \$10 million. DWR is in the process of securing an agreement with the DFG (who will be the owners of the property when

the restoration project is completed) regarding restoration of Prospect Island and nearby areas, as required by the federal Biological Opinions for SWP and CVP operations. This will serve to restore ecological function of the Delta and provide habitat for declining native fish species.

DWR and other agency scientists are looking at several conceptual designs. All alternatives involve the use of several wide (approximately 100 to 500 feet in length) breaches and excavation of central dendritic channels. DWR is also in discussions with the Port of Sacramento to incorporate their portion of the island (the southern one-quarter) into the project. This would add approximately 400 to 500 acres of habitat.

Proposed Approach to BDCP Site-Specific Near-Term Habitat Restoration Projects

The environmental review of the BDCP will assess the effects on the environment of the adoption and permitting of a Plan that provides for the conservation of certain biological resources and establishes mitigation requirements for specified covered activities that may affect those resources. As part of this Plan, commitments will be made to restore a certain amount of aquatic habitat, including tidal marsh, within identified Restoration Opportunity Areas. The environmental analysis conducted for the BDCP will take the entirety of this habitat restoration into account in the context of the overall project description for the BDCP.

Specific projects have been identified that are a priority for early implementation during the BDCP near term implementation period. These individual projects will not be evaluated on a site-specific basis in the BDCP EIR/EIS. Rather, these projects will be analyzed on a parallel, but separate, track from the BDCP EIS/EIR. Certain restoration projects are already on such a track, such as Dutch Slough and McCormick/Williamson Tract, which have been subject to nearly-completed environmental review. This approach allows for accelerated implementation of these individual restoration projects without putting at risk the schedule for the public draft of the BDCP EIR/EIS.

Priority Projects for implementation during the BDCP near term implementation period include:

1. Calhoun Cut/Lindsey Slough tidal habitat restoration (Owner = DFG; Parcel = 927 acres; \leq 165 acres tidal marsh restored)
2. Yolo Ranch tidal habitat restoration (Owner = Westlands; Parcel = 3,408 acres; 600-1,500 acres tidal marsh restored)
3. Dutch Slough tidal habitat restoration (Parcel = 1,166 acres; 390-830 acres tidal marsh restored)
4. Decker Island (NE tip; Owner = DFG; \leq 10 acres tidal marsh restored)
5. McCormick-Williamson Tract/Grizzly Slough (Owner = TNC and SWC; Parcel = 1,800 acres; 1,200-1,300 acres tidal marsh restored)
6. Fremont Weir fish passage improvements
7. Fremont Weir modifications for seasonally inundated floodplain enhancement
8. Lisbon Weir fish passage enhancement
9. Putah Creek fish passage enhancement (Owner = DFG; 10 acres of tidal habitat and 50-500 acres of seasonally inundated floodplain restored)
10. Meins Landing tidal habitat restoration (Parcel = 660 acres; \leq 630 acres tidal marsh restored)
11. Hill Slough tidal habitat restoration (Owner = DFG; Parcel = 1,750 acres; \leq 850 acres tidal marsh restored)
12. Rush Ranch tidal habitat restoration (Owner = Solano Land Trust; Parcel = 2,070 acres; 70 acres tidal marsh restored)
13. Prospect Island tidal habitat restoration (Owner = DWR; Parcel = 1,300 acres; 460-1,300 acres tidal marsh restored)

While these projects are a priority for early BDCP implementation, the delay or non-construction of any of these projects does not mean that BDCP could not meet the goals and objectives of the Plan.

Legend

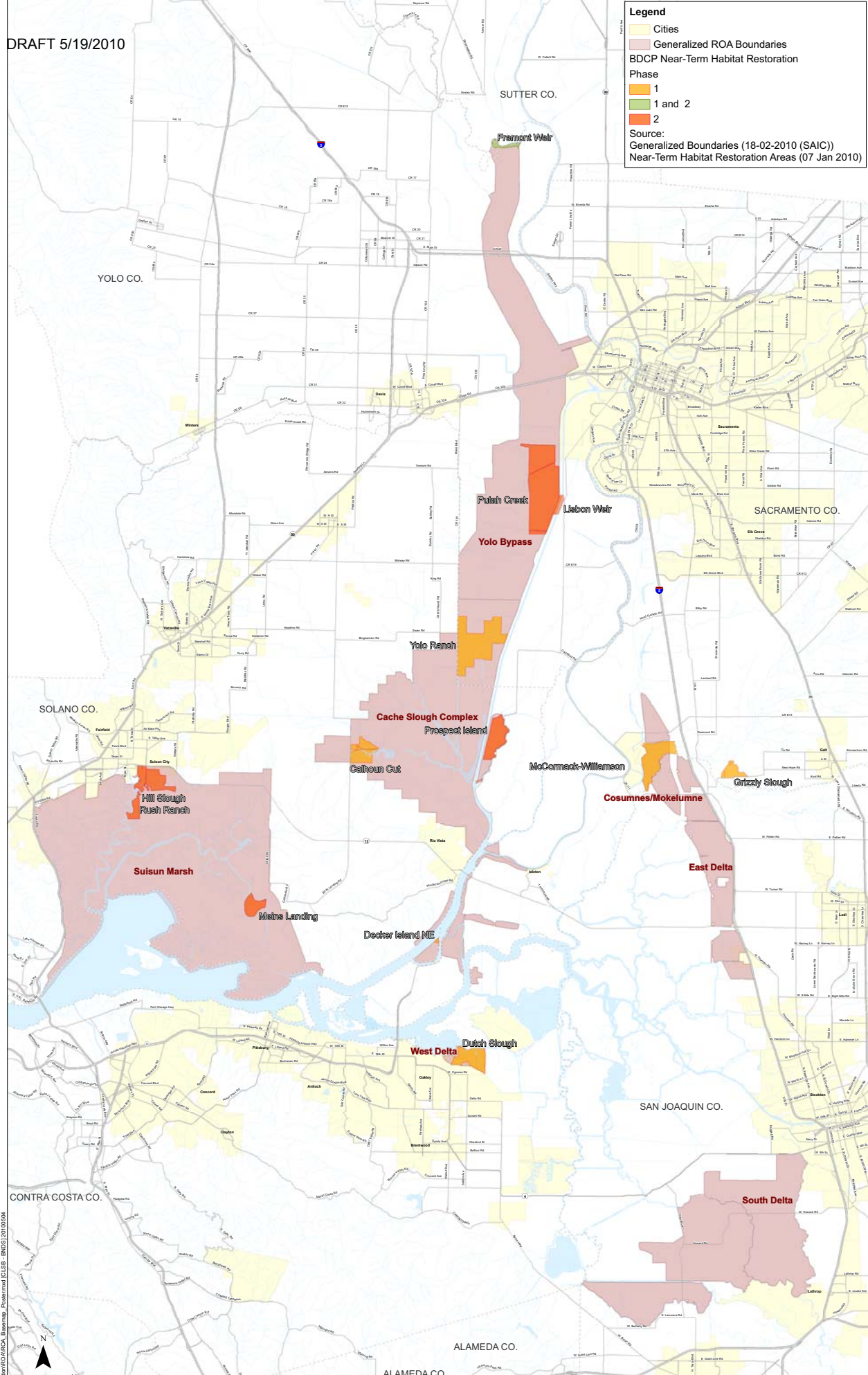
- Cities
- Generalized ROA Boundaries

BDCP Near-Term Habitat Restoration

Phase

- 1
- 1 and 2
- 2

Source:
Generalized Boundaries (18-02-2010 (SAIC))
Near-Term Habitat Restoration Areas (07 Jan 2010)



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PRELIMINARY COST ESTIMATE FOR BDCP NEAR-TERM HABITAT RESTORATION PROJECTS

May 20, 2010

The current list of BDCP near-term habitat restoration projects includes tidal marsh restoration of about 6,655 acres of land. It is estimated that \$10 million would be needed to restore up to 1,300 acres of habitat on Prospect Island, and about \$22 million for restoration of up to 1,300 acres on McCormack-Williamson Tract/Grizzly Slough. Site-specific estimates for the remainder of the sites are not yet available, but are likely to range in total from \$30-70 million, bringing the total amount needed for the near-term tidal marsh projects to approximately \$62-102 million.

Note: these estimates do not include the costs of the Yolo Bypass near-term projects. Approximately \$5-6 million is needed to expedite planning and design of these projects and to work with the counties on implementation issues.