



# South Bay Salt Pond Restoration Project

*Restoring the Wild Heart of the South Bay*

## ***South Bay Salt Pond Restoration Project Status Report August 24, 2009***

Since the beginning of the South Bay Salt Pond Restoration Project (Project), there has been a public/private investment of \$183 million in the former salt ponds. As a result of this investment:

- 16,500 acres of former salt ponds have been placed in public ownership and saved from private development.
- The former salt ponds have been disconnected from the salt making process.
- An innovative, science-based, and broadly supported restoration plan was developed within 5 years for the West Coast's largest tidal wetlands restoration.
- Habitat restoration and enhancement is or will be underway in 2010 in 11 South Bay ponds, comprising 3,081 acres (Island Ponds, SF2, A6, A5/7/8, E8A/9/8X) plus 1,400 acres in the North Bay at the Napa Plant site.
- The restoration design is near completion for the restoration and enhancement of another 3 ponds comprising 472 acres (E12/13, A16). Phase 1 construction is scheduled to be complete in 2012.
- New public access to the South Bay will be complete in the next 12 months including a 2.2-mile segment of San Francisco Bay Trail adjacent to Moffett Field and interpretive facilities at the west end of the Dumbarton Bridge.
- A number of studies are underway that will help us understand how the Bay and its fish and wildlife resources are responding to the restoration, resulting in future restoration actions that are even more cost effective.
- We are close to establishing a "Without Project" baseline for the Corps of Engineers' South San Francisco Bay Shoreline Study which will clearly quantify the flood risk to Silicon Valley both now and 50 years in the future, accounting for sea level rise.

The State was expected to be the single largest funding source for the first phase of restoration, but its financial difficulties and challenges in selling bonds undercut its contribution. Federal construction appropriations for the Don Edwards San Francisco Bay National Wildlife Refuge (\$4 million in both FY 2008 and FY 2009, and proposed again for FY 2010) and the recently-announced \$5.8 million in American Reinvestment and Recovery Act funds through the National Oceanic and Atmospheric Administration (NOAA) have proved invaluable in keeping the Project moving forward.

The following report provides details on the accomplishments of the Project over the last six years. A table summarizing the cost of the Project through completion of Phase 1 and the completion of the South San Francisco Bay Shoreline Feasibility Study for the Alviso Ponds and Santa Clara County Area is attached. This table also identifies the sources of funds expended or committed to the Project to date.

### **ACQUISITION AND INITIAL STEWARDSHIP**

With the support of Senator Feinstein, the State Department of Fish and Game (DFG) and the U.S. Fish and Wildlife Service (Service) acquired 16,500 acres of former salt production ponds - the 15,100 acre South Bay Salt Pond Restoration Project and the 1,400 acre Napa Plant Site - for \$100 million: \$72 million from the State Wildlife Conservation Board, \$8 million from the Service, and \$20 million from private foundations (Hewlett, Packard, and Moore and the Goldman Fund, all managed through the Resources Legacy Fund). The 15,100 acres of ponds in the South Bay are grouped into 3 pond complexes:

- 5,500 acres owned by the DFG at the east end of the Hayward-San Mateo Bridge as part of the Eden Landing Ecological Reserve,
- 1,600-acre Ravenswood complex at the west end of the Dumbarton Bridge owned by the Service as part of the Don Edwards San Francisco Bay National Wildlife Refuge (Refuge), and
- 8,000-acre Alviso complex at the far south end of the Bay that is also part of the Refuge.

Upon acquisition of the ponds, the new owners and Cargill worked to transfer management responsibility for the acquired ponds to the agencies. This process, the Initial Stewardship Plan, included the construction of more than 50 new water control structures (sets of culverts with gate valves and flap gates) to circulate water through the ponds in a manner that disconnected the ponds from the salt making process and reconnected ponds directly with San Francisco Bay. Additionally in March 2006, 479 acres of ponds known as the Island Ponds (A19, A20, and A21) were returned to tidal action. While it was anticipated that tidal restoration would require years to re-establish marsh vegetation, site evolution is occurring far more rapidly as shown in the photos below. Prior to the levee breaching, the site looked like a blasted moonscape, but in just 3 years rich Bay mud has been deposited in the site and vegetation is rapidly emerging. Bird use of these ponds has increased dramatically since the introduction of tidal waters in 2006.



**Pond A21 in January 2006 (left) and in June 2009 (right) with Moffett Field hangars in the background**

Another issue that is important in pond management is levee maintenance prior to restoration. Because of the historic subsidence in Santa Clara County, some areas landward of the ponds are below sea level. This underscores the importance of levee maintenance, particularly by the Service in the Alviso pond complex. Until the South San Francisco Bay Shoreline Study is completed and new levees are built, ongoing levee maintenance will be a critical item for the protection of Silicon Valley.

#### **LONG TERM RESTORATION PLANNING AND DESIGN**

The Long Term Restoration Planning process had three basic goals: habitat restoration, flood protection, and wildlife-oriented public access. The planning process, primarily funded by the State Coastal Conservancy (Conservancy) and the Packard, Hewlett, and Moore Foundations, commenced in late 2003 with the signing of a Memorandum of Understanding among the primary planning partners, the Conservancy, the DFG, and the Service<sup>1</sup>; the engagement of a Consultant Team led by Philip Williams & Associates; the establishment of a National Science Panel of national and international experts to advise the Project partners and a local Science Team to provide more in-depth support; and the establishment of a 29-member Stakeholder Forum to serve as the primary public sounding board for the Project. The Project carried forward a rigorous process utilizing the talents of all of these groups resulting in the publication of the Project's Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) in March of 2007 and the Final EIS/EIR in December 2007. The Final EIS/EIR was approximately 3,400 pages including comments and responses on the Draft EIS/EIR.

The environmental documents included assessments of program-level alternatives as well as project-level activities that are the Project's Phase 1 Actions. The program-level alternatives included a

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<sup>1</sup> The Project partners plus two more local partners, the Alameda County Flood Control District and the Santa Clara Valley Water District, signed an amended planning MOU in 2005. This MOU has now been superseded by an implementation MOU among these 5 partners and USGS.

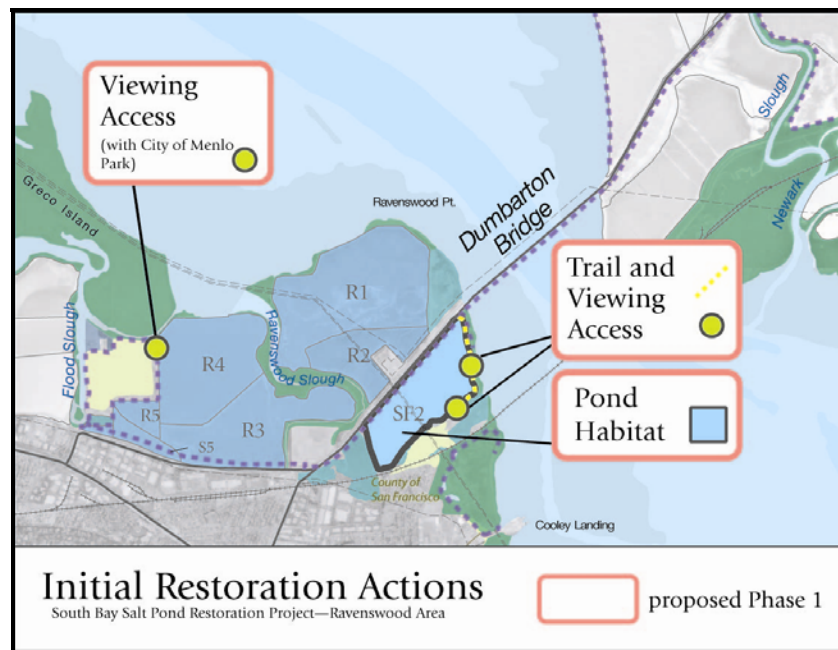
range of habitat types from conversion of half the Project Area ponds to tidal habitats to a more complete tidal alternative where 90% of the Project Area ponds would be restored to full tidal action. The key to successful implementation of these alternatives will be adaptive management: learning from carefully designed restoration experiments in the early stages of the Project to make the future actions more cost effective and more successful. Adaptive Management is an essential component of the Project as it will take roughly 30 years to fully implement the entire Project, beginning with Phase 1.

### PHASE 1 IMPLEMENTATION: CONSTRUCTION AND ADAPTIVE MANAGEMENT

Phase 1 of the Project is basically a two-pronged effort. The first element is the construction of 6 restoration actions and 5 new public access projects. The second element is a set of Applied Studies that are coupled with the restoration and public access actions to provide knowledge from these early actions that can be applied in the future within the Project's Adaptive Management framework.

The Phase 1 construction actions are described below. A table summarizing the Phase 1 construction costs and funding is attached.

#### RAVENSWOOD POND COMPLEX PHASE 1 CONSTRUCTION



Construction began on **Pond SF2** just south of the west end of the Dumbarton Bridge in March 2009. Pond SF2 is being reconfigured to create 237 acres of high quality nesting and shallow water foraging habitat for shorebirds plus habitat for threatened snowy plovers. Water levels will be managed via the installation of 2 new water control structures, excavation of pilot channels through the fringe marsh outboard of the new water control structures, development of an internal water circulation system

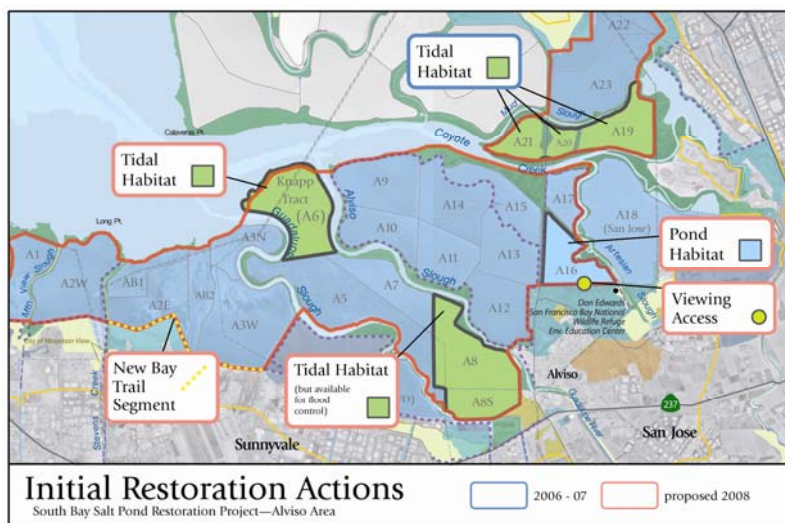
using a series of berms and water control structures such as flashboard weirs, and the construction of 30 nesting islands. Three cells are being created; the two eastern cells are being reconfigured to create nesting islands for birds and shallow water habitat for shorebird foraging. The third, western, cell will be managed similar to existing conditions to provide snowy plover habitat. In addition, 2 viewing platforms and interpretive stations will be constructed on the Bay side of the pond, and portions of the existing trail along Pond SF2 will be upgraded. Funding for this project has come from Service appropriations and mitigation funds from Caltrans and the City of Menlo Park/Peninsula Open Space Trust.



**Pond SF2 Outlet Channel and Outlet Works Construction, August 2009**

At **Bedwell Bayfront Park** a viewing and interpretive station will be constructed overlooking Pond R4 and the other Ravenswood Complex ponds. Funding for this project will come from Service appropriations.

**ALVISO POND COMPLEX PHASE 1 CONSTRUCTION**

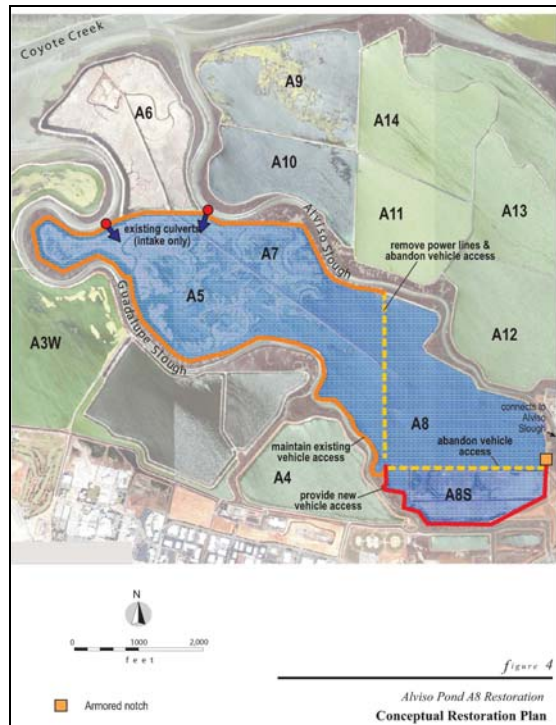


**Pond A6** will be restored to tidal action to ultimately create approximately 330 acres of tidal salt marsh and tidal channel habitat through levee breaching, levee lowering, pilot channel excavation to the adjacent Guadalupe and Alviso Sloughs, and the installation of borrow ditch blocks to direct tidal flows. The habitat will evolve over time through natural tidal processes. Construction funding for this project is coming from an American Recovery and Reinvestment Act (ARRA) grant to the Conservancy from NOAA. Design will be complete in December 2009, and construction is anticipated to start in August 2010.



### Pond A6 Phase 1 Restoration Plan

The **Pond A8** project will introduce controlled tidal action to create approximately 1,400 acres of shallow subtidal habitat in Ponds A5, A7, and A8 through the construction of a 40-ft notch at the southern end of Pond A8 connecting to Alviso Slough, and modified management of existing water control structures on Ponds A5 and A7. The notch will consist of five 8-foot-wide bays, each with adjustable weirs that can be raised or lowered to control water flow. An approximately 475-foot-long pilot channel will be excavated through the fringe marsh of Alviso Slough, connecting the Slough to the notch. Funding for this project is coming from the Santa Clara Valley Water District (Water District), a Proposition 40 grant from the State Water Resources Control Board to the Water District, and a grant to the Conservancy from NOAA (ARRA funds). The construction bid package is expected to be released in late August, and construction is expected to begin in early November 2009.



### Pond A8 Phase 1 Restoration Plan

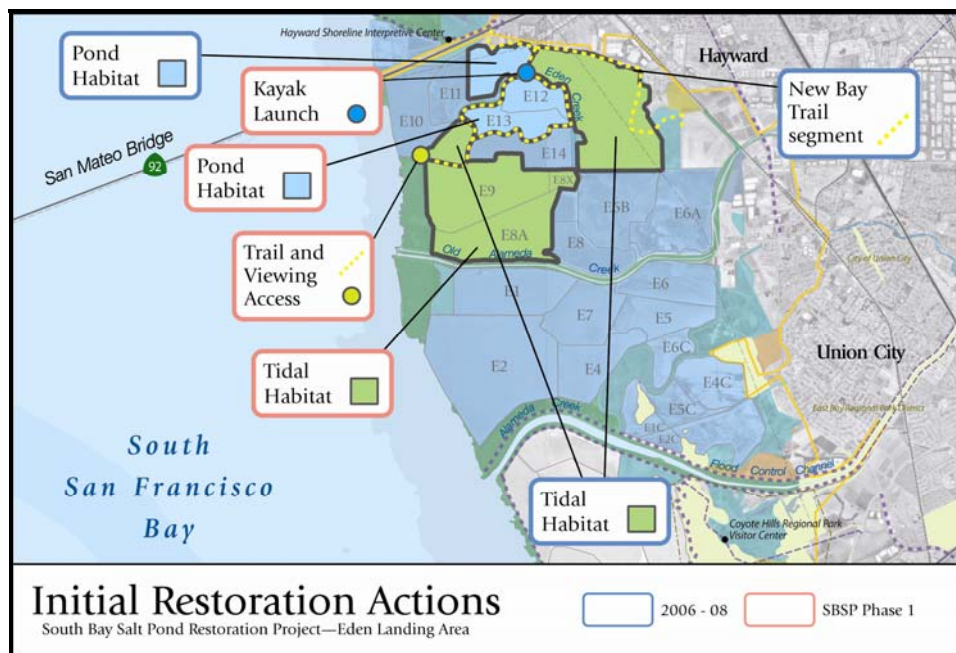
**Pond A16** will be reconfigured to create 242 acres of high quality nesting and shallow water foraging habitat for shorebirds similar to the bulk of Pond SF2. Pond A16 will be graded to create 50 islands for nesting birds and shallow water habitat for shorebird foraging via the installation of 3 new water control structures, excavation of pilot channels to Coyote Creek and Artesian Slough, development of an internal water circulation system using a series of berms and water control structures such as flashboard weirs, and the construction of the nesting islands. Tidal water will flow from Coyote Creek through Pond A17 to Pond A16 and then to Artesian Slough. The intakes into Pond A17 from Coyote Creek will be screened to exclude anadromous fish. In addition, a viewing platform and interpretive station will be constructed at Pond A16. The design work was stopped due to the state bond freeze, but is now ready to recommence using Conservancy bond funds. The first step will be to briefly reevaluate the design approach being used in light of experience gained in the SF2 project.

A 2.2-mile segment of **Bay Trail** will be opened adjacent to Moffett Federal Airfield, connecting existing segments of the Bay Trail in Mountain View and Sunnyvale. The trail has only needed minor improvements, including some re-grading and the installation of a pair of benches for resting and wildlife viewing. The trail segment is ready to be opened once a small parcel of land is transferred from Cargill to NASA, allowing for public access to proceed. The property transfer should happen in September 2009 with the trail opening shortly thereafter.



**Moffett Bay Trail Segment (in red) Connecting Mountain View and Sunnyvale**

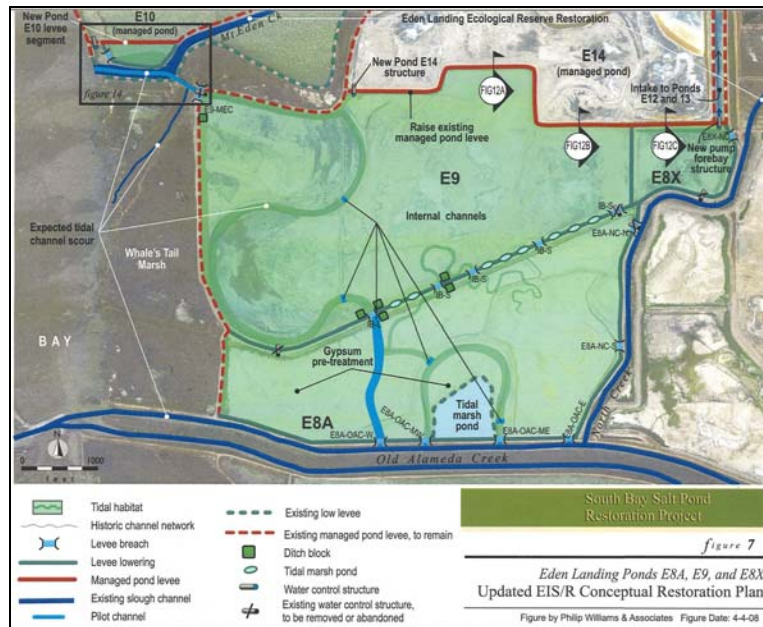
**EDEN LANDING POND COMPLEX PHASE 1 CONSTRUCTION**



**Ponds E8A/E9/E8X** will be restored to tidal action to create tidal salt marsh and tidal channel habitat through levee breaching, excavation of pilot channels through the fringe marsh outboard of certain levee breaches, levee lowering, and the installation of borrow ditch blocks to create 630 acres of restored tidal marsh habitat. The habitat evolution will occur gradually over time through natural tidal processes. The restoration is designed to maintain or improve existing levels of flood protection in Old Alameda Creek. Funding for this restoration is being provided from numerous sources: NOAA (ARRA



funds), the Service (National Coastal Wetlands Conservation program grant), the National Fish and Wildlife Foundation, the Conservancy, and the Alameda County Flood Control District. Construction is expected to begin in early 2010.



**Ponds E8A/9/8X Restoration Site Plan**

**Ponds E12 and E13** will be reconfigured as a small-scale salt pond system to create 230 acres of high quality shallow water foraging areas at varying salinities and 6 constructed nesting islands. This project will include the replacement of an existing pump, installation of three new water control structures for intake and discharge, development of an internal water circulation system using a series of berms and flashboard weirs, and the construction of nesting islands. Ponds E12 and E13 will be reconfigured to create shallow water foraging habitat for migratory shorebirds, with a range of salinities, and a few islands for nesting bird habitat. The design work was stopped due to the state bond freeze, but has recommenced using Conservancy bond funds. The design is expected to be complete in June 2010.

Adjacent to Ponds E12 and 13 and Pond E9, the **Eden Landing Public Access Facilities** will be constructed. They consist of a kayak launch, a 0.8 mile trail to the Salt Works Interpretive Facility, an additional 1.5 mile trail continuing from the Interpretive Facility to the Pond E9 levee breach near the mouth of Mt. Eden Creek, and a seasonally closed 1.5 mile trail around Ponds E12 and 13. The designs are expected to be complete by the end of 2009.

**PHASE 1 APPLIED STUDIES AND ADAPTIVE MANAGEMENT**

In October 2008, the Project issued a Request for Proposals (RFP) for Selected Monitoring and Applied Studies covering 8 different priority areas for research and monitoring in support of the

Project's Adaptive Management effort. In response to the RFP 23 proposals were submitted and the Project is in the process of funding 12 of them with funds provided by the foundations, the Conservancy, and the U.S. Environmental Protection Agency and the San Francisco Estuary Partnership. In addition, the U.S. Geological Survey is performing other Phase 1 Applied Studies with FY 2008 and 2009 federal appropriations. To help manage this effort, the USGS has established a Lead Scientist position for the Project which is initially being funded jointly by USGS, the Service and the Conservancy.

### SOUTH SAN FRANCISCO BAY SHORELINE STUDY

The Conservancy and the Santa Clara Valley Water District have been working with the Corps as non-Federal sponsors of the Shoreline Study since 2005. The sponsors' goal is to identify a share of the Project that can be constructed through the Corps's process. During the early years of the Study, progress was slow in part due to limits on the funding available to the Corps, but with full funding in FY 2009 the Study is on track now to produce "Without Project" floodplain maps for the Alviso Ponds and Santa Clara County area in early 2010. The maps will portray the flood risk for the shoreline area of Silicon Valley in 2017 and 2067 assuming that nothing is constructed in the Project area beyond Phase 1. In June of 2010 the Study will have reached the Feasibility Scoping Meeting which is the culmination of the Without Project analysis. This is a major milestone representing the completion of the baseline analysis for the Study. The Study partners (the Corps, Conservancy and Water District in collaboration with the Service) are now reviewing the Study budget and schedule for the remainder of the Study and considering revisions to the Feasibility Cost Share Agreement to determine the best way to manage projected increases in costs for completion of the Study which is currently estimated to be in 2015.



South San Francisco Bay Shoreline Study Area

## **NEXT STEPS**

While much has been accomplished, there is much more to be done. Future work will focus on the completion of Phase 1, the conclusion of the First Shoreline Study Feasibility Study, and the planning/execution of the next phases of the Project.

### ***Completion of Phase 1***

Construction funds are in place for all but 3 of the Phase 1 actions. Two of the Phase 1 actions which still need funding, Ponds E12/13 and Eden Landing Public Access Facilities, are anticipated to be covered by State and local funds. The estimated cost of the remaining unfunded Phase 1 action, Pond A16, is \$11 million with the Federal share estimated at \$6 million. This estimate may change as the Project re-evaluates the plan for this pond.

### ***Completion of the First Shoreline Feasibility Study***

The Corps, the Santa Clara Valley Water District (Water District), and the California State Coastal Conservancy (Conservancy) are evaluating anticipated cost increases in the overall budget for the Shoreline Study. A revised Feasibility Cost Share Agreement is scheduled to be considered by the 3 agencies in October 2009. As part of that consideration, the agencies will be considering alternative approaches to completing the Shoreline Feasibility Study. One option will be to phase the completion of the Feasibility Study by focusing more on areas with the greatest flood risk as documented in the without Project conditions analysis. For FY 2010 the Conservancy and other partners continue to request \$2.8 million for the Shoreline Study. In addition, the Service needs funding for levee maintenance until lasting flood risk management solutions are in place.

### ***Looking Forward to New Phases of the Salt Pond Project***

In each of the pond complexes, the next phases of restoration are beginning to be formulated. While we anticipate learning much from Phase 1 that will influence the future restoration actions, it is not too early to begin detailed project planning for Phase 2.

For Eden Landing, restoration of the ponds that lie between Old Alameda Creek and the Alameda Flood Control Channel are the primary opportunity. They would be restored in partnership with the Alameda County Flood Control District as part of a project to restore flood carrying capacity in the Flood Control Channel. The Flood Control District has already performed substantial analysis for the project, and environmental review should be underway in 2010.

In the Alviso pond complex, it is anticipated that one or two high priority levee segment improvement coupled with tidal restoration will be identified in the Shoreline Study feasibility scoping effort in 2010. These projects would then be developed either by the Corps with the Service, the State and the Water District as part of the Shoreline Study, or through a local effort led by the State and Water District pursuant to Section 104 of the Water Resources Development Act for future crediting.

In the Ravenswood complex, the Service will be working with the City of Menlo Park to assess flood risk management priorities coupled with restoration of additional Ravenswood Ponds. The Ravenswood complex is unique in that there is not a strong County-wide flood risk management agency like Alameda and Santa Clara Counties. That will make the development of future projects in Ravenswood different from the other two complexes.

## **CONCLUSIONS**

The investment of the state and federal government, private foundations, and local agencies and partners in the South Bay Salt Ponds is producing meaningful results including significant habitat improvements, unprecedented public access to the Bay, and much needed flood protection planning. The benefits of this project will be enjoyed by residents of the Bay and this nation for generations.

<b>S BSP OVERALL PROJECT COSTS</b>			
<b>PROJECT COMPONENT</b>	<b>TOTAL BY COMPONENT</b>	<b>ANTICIPATED FUNDING BY SOURCE</b>	<b>COMMITTED OR SPENT THROUGH AUGUST 12, 2009</b>
<b>POND ACQUISITION (INCLUDING NAPA PLANT SITE)*</b>	<b>\$ 100,000,000</b>		
FOUNDATIONS		\$ 20,000,000	\$ 20,000,000
FEDERAL (FWS)		\$ 8,000,000	\$ 8,000,000
STATE (WCB)		\$ 72,000,000	\$ 72,000,000
LOCAL		\$ -	\$ -
MITIGATION		\$ -	\$ -
SUBTOTALS		\$ 100,000,000	\$ 100,000,000
<b>INITIAL STEWARDSHIP</b>	<b>\$ 21,623,893</b>		
FOUNDATIONS		\$ 6,423,893	\$ 6,423,893
FEDERAL (FWS, NOAA)		\$ 8,200,000	\$ 8,200,000
STATE (WCB)		\$ 5,000,000	\$ 5,000,000
LOCAL		\$ -	\$ -
MITIGATION (SCVWD)		\$ 2,000,000	\$ 2,000,000
SUBTOTALS		\$ 21,623,893	\$ 21,623,893
<b>LONG-TERM PLANNING (EIS/EIR, SCIENCE PROGRAM, STAKEHOLDER PROCESS) AND PHASE 1 PERMITTING AND DESIGN</b>	<b>\$ 23,673,218</b>		
FOUNDATIONS		\$ 6,586,270	\$ 6,586,270
FEDERAL (FWS)		\$ 1,008,776	\$ 1,008,776
STATE (SCC)		\$ 14,114,326	\$ 14,114,326
LOCAL (ACFCD, SCVWD)		\$ 1,963,846	\$ 1,963,846
MITIGATION		\$ -	\$ -
SUBTOTALS		\$ 23,673,218	\$ 23,673,218
<b>PHASE 1 RESTORATION</b>	<b>\$ 38,820,000</b>		
FOUNDATIONS		\$ 580,000	\$ 580,000
FEDERAL (FWS, NOAA, NCWC, NAWCA)		\$ 20,000,000	\$ 13,900,000
STATE (SCC, SWRCB, WCB)		\$ 14,300,000	\$ 2,725,000
LOCAL (ACFCD, SCVWD)		\$ 2,360,000	\$ 2,360,000
MITIGATION (CALTRANS, MENLO PARK/POST)		\$ 1,580,000	\$ 1,580,000
SUBTOTALS		\$ 38,820,000	\$ 21,145,000
<b>PHASE 1 APPLIED STUDIES</b>	<b>\$ 4,475,147</b>		
FOUNDATIONS		\$ 1,349,147	\$ 1,349,147
FEDERAL (USGS, EPA/SFEP, CIAP)		\$ 1,626,000	\$ 1,626,000
STATE (SCC)		\$ 1,500,000	\$ 1,500,000
LOCAL		\$ -	\$ -
MITIGATION		\$ -	\$ -
SUBTOTALS		\$ 4,475,147	\$ 4,475,147
<b>SHORELINE STUDY (FIRST INTERIM FEASIBILITY STUDY)**</b>	<b>\$ 19,300,000</b>		
FOUNDATIONS		\$ -	\$ -
FEDERAL (USACE)		\$ 9,650,000	\$ 5,706,801
STATE (SCC)		\$ 1,000,000	\$ 1,583,933
LOCAL (SCVWD)		\$ 8,650,000	\$ 4,570,345
MITIGATION		\$ -	\$ -
SUBTOTALS		\$ 19,300,000	\$ 11,861,079
<b>GRAND TOTALS</b>	<b>\$ 207,892,258</b>	<b>\$ 207,892,258</b>	<b>\$ 182,778,337</b>
TOTALS	FOUNDATIONS	\$ 34,939,310	\$ 34,939,310
	FEDERAL	\$ 48,484,776	\$ 38,441,577
	STATE	\$ 107,914,326	\$ 96,923,259
	LOCAL	\$ 12,973,846	\$ 8,894,191
	MITIGATION	\$ 3,580,000	\$ 3,580,000
	TOTALS	\$ 207,892,258	\$ 182,778,337

\* Acquisition included 1,400-acre Napa Plant Site. Cost of restoration of this site included \$1,764,970 for planning and design (\$1,384,500 Foundations and \$380,470 State) and \$12,397,226 for construction (\$8,400,000 Federal (NOAA-ARRA) and \$3,997,226 State).

\*\* Shoreline Study "Committed Funds" include those appropriated through FY 2009. Corps, SCC, and SCVWD are revising the Project Management Plan and will be considering a new, increased budget and FCSA in October 2009. Non-Federal cost share split between SCC and SCVWD to be determined as well.