



# South Bay Salt Pond Restoration Project



*Restoring the Wild Heart of the South Bay*

## March 2008

Welcome to the seventeenth issue of the quarterly electronic newsletter of the South Bay Salt Pond Restoration Project (SBSP). The restoration process is being managed collaboratively by the [California State Coastal Conservancy](#), the [U.S. Fish and Wildlife Service](#), and the [California Department of Fish and Game](#). The purpose of this newsletter is to provide you with a brief update on our effort to restore more than 15,000 acres of former commercial salt ponds in the South Bay which were purchased by state and federal agencies in March of 2003. For more detailed information about the restoration project (or to unsubscribe from this publication) please visit our web site at [www.southbayrestoration.org](http://www.southbayrestoration.org).

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### 1. Working Groups Discuss the Details of Restoration

Three different public Working Groups (representing the three major pond complexes in the project) have been busy this year reviewing the details of habitat restoration, recreation and flood control improvements slated for 2008 through 2010. The Ravenswood Working Group met in January to discuss, among other things, habitat improvements at pond SF2 near the Dumbarton Bridge. They also reviewed the design of two new viewing platforms that will enable visitors to see the ponds and the historic salt marsh near Bayfront Park. The Alviso Working Group met in February to discuss the plan to open up 2.5 miles of new Bay Trail near Moffet Federal Airfield and the design of a new viewing platform. They also discussed the status of plover nesting sites in the area and plans to conduct applied studies on the impact of recreation on local bird populations. The Eden Landing Working Group also met in February. They focused on the design of seasonal and year round trails through the area, a kayak launch at Mt. Eden Creek and the development of interpretive displays at the old salt works. For a complete copy of each Working Group agenda and a set of follow-up notes from each meeting, please check the Events and Meetings section

of the project web site. All Working Group meetings are open to the public and you are encouraged to attend. The Working Groups will meet again later this year, when there is more news to report. If you receive this newsletter, you are on our mailing list and will be notified of upcoming meetings.

It will take several decades to complete all of the restoration and public amenities planned for the ponds but here is a summary of what we expect to accomplish during phase one which runs from 2008 through 2010. The summary below is organized by geographic area. To view a detailed map of Phase One restoration activities for each of the three pond complexes please visit the [project web site](#).

<b>2008 – 2010 Implementation</b>	
<b>Ravenswood Pond Complex</b>	
	Enhance 240 acres of ponds for nesting and resting shorebirds and snowy plovers.
	Construct 0.7 miles of trail near the Dumbarton Bridge.
	Create interpretive displays and build 2 new viewing platforms near pond habitat and historic salt marsh areas.
	Create an overlook in Menlo Park's Bayfront Park with views of the Ravenswood ponds.
<b>Alviso Pond Complex</b>	
	Enhance 250 acres of shallow ponds with 50 nesting islands for migrating shorebirds.
	Connect 900 acres of ponds to the Bay, creating new marsh and shallow water habitats for pelicans, cormorants and ducks.
	Open 2.5 miles of new Bay Trail between Mountain View's Stevens Creek and Sunnyvale.
<b>Eden Landing Pond Complex</b>	
	Restore 630 acres of tidal habitat for endangered species.
	Create 230 acres of pond habitat for a variety of species including ducks and snowy plovers.
	Build 3.8 miles of new trail including a seasonally restricted loop trail.
	Build an interpretive site with raised walkways and viewing platforms overlooking the remnants of the historic salt works.
	Create a new kayak launch on Mt. Eden Creek.



## 2. On the Ground: Volunteers Needed to Plant 5,000 Seedlings!

Over the past few years, project managers have slowly reversed the salt making process and reduced the salinity at many of the ponds by opening levees to the Bay. As a result, hundreds of migrating shorebirds and other waterfowl have returned to some of the ponds. On the landside, an army of volunteers has been busy pulling weeds, picking up trash and hauling debris from the

edge of the Bay. These efforts have prepared the site for Phase One restoration this year. Now it's your turn to pitch in!

Save the Bay and the California Department of Fish and Game invite you to help plant native seedlings at the Eden Landing Pond Complex this month and next. The goal is to plant 5,000 native seedlings at the Eden Landing site this year. The seedlings will help establish a thriving plant community before new areas are open to tidal influence in the coming years.

The success of restoration techniques at this site will be used in future volunteer planting and restoration projects in other parts of the project area. The State Coastal Conservancy is sponsoring Save The Bay's work on similar projects around the Bay and the organization is hoping to extend its volunteer work days to include sites in the Alviso and Ravenswood pond complexes. The next opportunities to volunteer are on Saturday, March 29 and Saturday, April 12. Both volunteer work days are from 9:00 am to 12:00 pm. For more information please visit the [Events and Meetings section](#) of the project web site. We hope to see you and your family at the ponds this spring!



## 3. Faces of the Restoration: Researcher Heather White

Graduate student Heather White is one of many researchers working to deepen our understanding of the South Bay Salt Ponds. Her current research explores the increasingly important question of public recreation impacts on wildlife habitat. Funded in part by the San Francisco Bay Joint Venture, her research will provide valuable information about

the design of future trails throughout the project area. Heather is a graduate student at San

Jose State University in the Department of Environmental Studies and is studying with Project Lead Scientist Lynne Trulio. We caught up with Heather as she was analyzing data collected on ponds A9, A10 and A14 near Alviso. Her research began in October of 2006.

***What specific question are you trying to answer with your current research?***

I'm trying to figure out the impact of trail use on ducks that currently use these ponds.

***How did you design your experiment?***

The trails that I'm working on have never experienced trail use before. The specific levee I am working on will not be open to the public but it provides a good place to conduct a controlled experiment. Each day, my field researcher and I would go out and look at the ducks before any disturbance occurred. We recorded details about their distribution before we walked across the levee. Then we would walk across the levee and use a laser range finder to see how far ducks moved away from us as we walked. We collected data 4 days a week from October to March.

***What is the biggest challenge to this kind of research?***

I think biggest challenge is getting the methodology tied down and trying to figure out the best way to establish a baseline. It was difficult to figure out a way to observe ducks without disturbing them to begin with. The levee that I'm working on is approximately 1000 meters long so I decided to divide it into two zones. We did not count birds in the zone closest to us (500 meters away) because they would already be affected by our presence on the site.

***What have you learned so far?***

Our results are still preliminary, but it looks like the ducks, out to a certain distance, do respond to the presence of people on the trail. Past that distance however, it looks like they do not respond. From this we will be able to make buffer zone suggestions for trails.

***How will this data relate to the research that will be conducted at pond A3W?***

The research at pond A3W will examine the impact to birds of a real, live trail (the new Bay Trail link that will open later this year). I'll be collecting data in the fall and winter when the ducks are there. My current data will serve as a baseline so that we can compare a trail with no active trail use, a trail with controlled use, and a public trail with regular, uncontrolled use to see how the impacts to birds differ.

***What is the most frustrating aspect of this kind of fieldwork?***

Sometimes we get out there and are half way through data collection and a low flying plane or a hawk comes by, all the ducks fly away and suddenly two hours of data collection is no good.

***Why are you interested in this particular research question?***

I'm really interested in wildlife in an urban center and the dual role of protected areas. They have to provide habitat for species and open space for the public to enjoy. We need to find that happy balance in the middle. Both things are extremely important.

***Is there a spot on the Bay that you like to return to again and again?***

I really like the eastern end of the San Mateo Bridge near the Hayward Area Shoreline Interpretive Center. I like how wide open the marsh is there. There are a lot of different bird species and like everyone else, I like getting right to the edge of the Bay to see it all.

*With a proper buffer zone of course?*  
Of course!



#### **4. Science Update: New Data on Mercury at the Ponds**

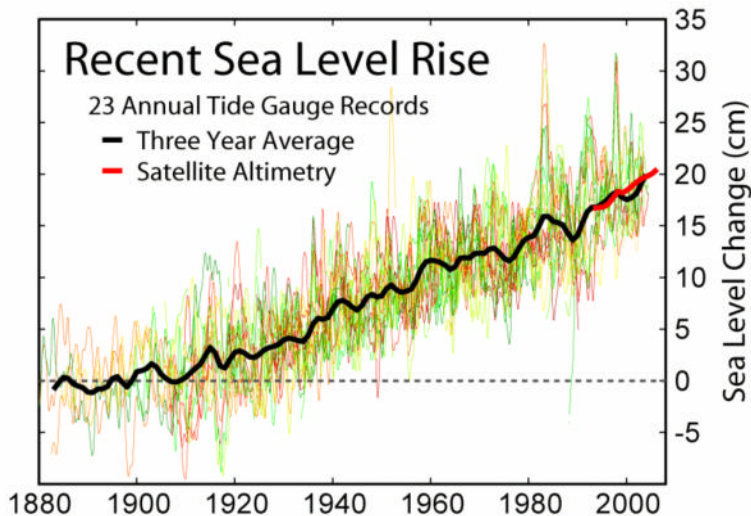
Key to the project's success is its Adaptive Management Program--the process of measuring changes on the ground and folding new information back into the management process. Adaptive Management ensures that as the salt ponds evolve over time, our scientific understanding and best management practices will evolve. A central part of the Adaptive

Management program is a series of applied studies to fill in gaps in our scientific knowledge. In this issue we examine the status of an ongoing study about mercury contamination.

There are two reasons to be concerned about mercury contamination at the South Bay Salt Ponds. First, some of the salt ponds lie at the base of a watershed where one of the largest mercury mines in North America, the New Almaden Mine, was once active and San Francisco Bay is known to contain mercury deposits from other mining regions of the state. Second, studies in other parts of the country indicate that marshes may be ideal habitats for converting relatively benign forms of mercury into toxic methyl mercury. Methyl mercury easily enters the food web and can reach harmful concentrations in fish, birds, and other wildlife.

To address this issue, researchers at the San Francisco Estuary Institute are midway through a study designed to examine the impact of different restoration and management options (for example, leaving a pond as a pond versus restoring it to tidal marsh) on mercury in the food web. For two years, the South Baylands Mercury Project (SBMP) has been examining mercury contaminations in specific marsh and pond species in the South Bay. These species serve as indicators, or biosentinels, providing insight into the degree of mercury contamination in each habitat type. These biosentinels have very small home ranges and are specific to particular habitats. Thus, they can be used to distinguish differences in mercury contamination between fish that live in salt ponds versus those that live in tidal marsh channels, for example. These biosentinel species include tidal marsh song sparrows, brine flies, and several fish, including marsh-resident longjaw mudsuckers.

Some interesting results have already emerged from the project. For one thing, mercury concentrations in the food web vary a great deal among different habitats and locations. For example marsh-resident song sparrow mercury concentrations are much lower in the fringing marsh along Alviso slough near the old Alviso marina than they are in the marsh near the mouth of Newark Slough by Refuge Headquarters. This was a surprising result, given that Alviso Slough drains a mercury-mining watershed and is known to have elevated total mercury in sediment (total mercury includes the more benign forms of mercury and methyl mercury). The SBMP scientists are developing hypotheses that explain this interesting result. The good news for wetlands restoration is that not all tidal marshes have high mercury in the food web. As we learn more about how habitat characteristics affect food web mercury, project managers may be able to manage ponds and restore marshes in ways that minimize mercury harm to wildlife and people. The study will be completed at the end of this year.



## 5. How Will Sea Level Rise Affect the Project?

It is impossible to work on a tidal wetland restoration project of this size without considering the impact of climate change and rising seas. The Project's [Final EIS/R](#) utilizes the 2001 Intergovernmental Panel on Climate Change (IPCC) mid-range sea level rise estimate of 6 inches by 2050 and 18 inches by 2100. However, the

state of the science of sea level rise has been changing very rapidly recently. Over the last year, there have been major advances in the science, suggesting that future sea level rise may be much greater than that predicted. Fortunately, we are working on a phased approach to implementation, enabling the project to make use of the best available science on climate change as well as feedback from adaptive management experiments on the ground as we design and implement each phase of the restoration.

This is what we know so far. Studies have shown that marshes in the South Bay remained intact, even at a time when the land was subsiding and seas were rising because of the high availability of sediment in the far South Bay. Therefore, if sea level rise rates match the lower to mid-range of the predictions and sediment availability remains high, tidal marshes in the South Bay should keep pace with changing conditions as they have done historically. If higher rates of sea level rise prevail, the timeframe for marsh development may be delayed, and tidally-restored areas within the SBSP Restoration Project Area may persist as intertidal, un-vegetated mudflats or shallow open water habitat for prolonged periods. However, the South Bay, and in particular the far South Bay, has historically been a great environment, for sediment deposition. Therefore the tidally-restored ponds are expected to accrete sediment and vegetation is expected to

establish in the face of accelerated sea level rise.

In addition to considering sea level rise in the design of restored marsh areas, the project will also include the latest data in the final design of flood protection levees. The plans will outline a strategy for low-, mid-, and high-end sea level rise predictions.

On the upside, current research shows that tidal salt marsh restoration can be an extremely effective technique for sequestering carbon. While people often look to planting trees as a way to take carbon out of the atmosphere, marsh restoration may be even more efficient, per unit area, at removing carbon. Tidal marshes are extremely productive habitats that capture significant amounts of carbon from the atmosphere, which are stored in marsh soils. Unlike many freshwater wetlands, saltwater tidal marshes release only negligible amounts of methane, a powerful greenhouse gas; therefore, the carbon storage benefits of tidal salt marshes are not reduced by methane production. In addition, as sea levels rise, tidal marsh plains continue to build up to match the rise in water level—if suspended sediments are adequate—continually pulling carbon dioxide out of the air in the process. While specific research is needed to quantify the carbon sequestration capacity of San Francisco Bay tidal marshes, in general, restoring tidal marsh is an effective method for removing carbon dioxide from the atmosphere. For a more detailed discussion of the role of climate change, please visit the [Climate Change and Sea Level Rise section of the project web site](#).



web site.

## 6. How to Learn More and Get Involved

### a. Join A Restoration Work Day:

Save the Bay has scheduled a series of restoration workdays at the Eden Landing this Spring. You can help put your shoulder to the wheel by volunteering a couple hours to help pull weeds, and plant natives. For more information please visit the [Events and Meetings section](#) of the project

**b. Watch the video:** KQED TV broadcast an insightful piece about the restoration project on its science show, Quest. You can view this and other television coverage of the project online at the [Video and Audio page of the web site](#). The web site also includes a short film by award winning filmmaker Judy Irving about the project as well as a short time lapse study of the recently restored Island Ponds produced by Judy in 2007. [Click here to view the footage](#).

**c. Listen to the podcast:** The project has produced two short podcasts about the project that include interviews with Executive Project Manager Steve Ritchie and Refuge Manger Clyde Morris. [Click here](#) to listen to or download the podcasts. For additional

podcasts about Bay restoration, visit the [Your Wetlands web site](#) which includes information about restoration projects around the Bay.

**c. Visit the interactive map:** If you can't make it to the South Bay, but would like to get a virtual sense of the project, visit our interactive map on the project web site. [The map](#) enables viewers to zoom out for a regional overview, or zoom in to inspect a particular pond, slough, or other feature. Detailed aerial photography is available as an optional backdrop.

**d. Attend a Working Group Meeting** The next Working Group meetings will be held in June for the Ravenswood Pond Complex (near the west side of the Dumbarton Bridge) and in early Fall for the Alviso and Eden Landing Pond Complexes. The meeting schedule varies depending on the degree of activity at each pond complex. All of these meetings are open to the public and you are welcomed and encouraged to attend. For details on the next meeting or to read minutes from previous meetings please check the [Event and Meetings section](#) of the Project web site.

*Photo Credits: Tracy Grubbs, Judy Irving, Rob Holt, Save the Bay and dansullivanimages.com, San Francisco Estuary Institute and Heather White.*