



# Return of the Wetlands



*South San Francisco Bay  
Celebrates a Decade of Restoration*



“This is an enormously ambitious project requiring years of planning—and we’re already seeing results on the ground,” said Eric Mruz, manager of the Don Edwards San Francisco Bay National Wildlife Refuge, in January 2013 on the 10<sup>th</sup> anniversary of the historic land acquisition for the South Bay Salt Pond Restoration Project—an unprecedented effort, in the middle of a major urban center, to restore a landscape the size of Manhattan to a thriving wetland ecosystem.

In 2003, under the leadership of U.S. Sen. Dianne Feinstein, 15,100 acres of former commercial salt ponds were purchased or acquired through donation from Cargill Inc., the first step in a campaign to restore 100,000 acres of lost tidal wetlands around San Francisco Bay. Funds for the acquisition were provided by federal and state resource agencies and several private foundations, including the William and Flora Hewlett Foundation, the Gordon and Betty Moore Foundation, and the David and Lucile Packard Foundation.

**Above:** The endangered California clapper rail makes its home in the marshes of the restored former salt ponds.

About the 85 percent of tidal wetlands around the bay were lost to development over the last century and a half. These habitats serve as giant filters, removing toxic pollution and nutrient runoff that otherwise hurt the bay’s fragile ecosystem. Historically, bay wetlands have also worked as natural sponges that protect communities from tidal flooding by absorbing and slowly releasing storm water. On the climate front, they capture and store atmospheric carbon that otherwise would contribute to global warming, and they serve as a natural buffer against sea level rise. The bay’s wetlands also pulse each year with thousands of migrating and resident birds, fish and other species that rely on these habitats to forage, rest and raise their young.

The loss of the wetlands led to the dramatic decline in marsh-dependent species such as the salt marsh harvest mouse and the California clapper rail. The loss of tidal wetlands has also contributed to decreased water quality in the bay and increased the risk of flooding.

The project is “a rare opportunity to reverse some of the damage done to bay habitats over the last century,” says John Bourgeois, executive project manager of the effort.

After the property was acquired, the Service, the California Department of Fish and Game (now the California Department of Fish and Wildlife) and the California

State Coastal Conservancy brought together a coalition of agency staff, scientists and members of the public to design a restoration plan. The restoration is being implemented in phases, stretching over the next several decades.

Phase one began in 2008 at the project's three salt pond complexes.

At the Ravenswood ponds, Phase one saw the restoration of 240 acres of enhanced pond habitat for nesting and resting shorebirds such as the western snowy plover. The restoration also increased public access, with a nearly three-quarter mile trail and two viewing platforms with interpretive displays.

Phase two, in the planning stage, envisions opening more ponds to tidal action so they can transition to marsh; improving the quality and diversity of managed ponds; and adding more recreational trails and interpretive displays.

Beyond habitat restoration and improved public access for wildlife-oriented recreation, the project aims to provide flood risk management. The development of fully restored wetlands that buffer against flooding will take decades. In the near term, levees that Cargill and its predecessors originally built for salt-making purposes will meet the need for flood protection. With a longer view, the project is partnering with the U.S. Army Corps of Engineers and local agencies to design a comprehensive flood control plan.

Scientific monitoring has shown an increase in native fish, plants and birds in several of the project's newly restored areas.

Despite its impressive record to date, the restoration project faces challenges. One of the most significant is the accelerating pace of sea level rise. While restored tidal marshes lessen the impact of rising waters and protect levees that shield inland areas from storm waves and tidal surges, the marshes need sediment to anchor them. Though there is sufficient sediment in the bay now, that may change with a rising sea level. Which means that the sooner salt ponds are restored to tidal marshes and wetlands the better chance they will have to establish themselves and grow as the sea level rises.

JUDY IRVING



At the Alviso complex, more than 2,600 acres of ponds have been connected to the bay, creating tidal marsh for endangered species, as well as shallow water habitat for shorebirds, pelicans, cormorants and ducks. Another 240 acres of designed pond habitat include shallow waters and 16 nesting islands for migrating shorebirds such as avocets and stilts. And several miles of new trails were opened.

At Eden Landing, 630 acres of tidal habitat have been restored, along with 230 acres of pond habitat for a variety of bird species such as phalaropes and eared grebes. Public amenities include 3.8 miles of trails, an interpretive site with raised walkways and viewing platforms overlooking the remnants of the historic salt works, and a kayak launch.

One of the unique features of the restoration project is its use of adaptive management—the process of folding lessons learned on the ground in restoration activities into future management practices. That process is playing a critical role in determining which combination of habitats provides the best environment for resident and migrating species of birds, fish and other wildlife.

Each year, the project's scientists monitor and evaluate data on everything from mercury accumulation and sediment dynamics to the impact of trail use on birds. That information guides management decisions about future restoration work.

**Above:** Aerial photos of Island Pond A21 show the return of thriving marsh just two and a half years after being restored to tidal flow.

Representatives of the project are confident, however. “We believe the bay community will continue to make wetland restoration a priority,” says Executive Manager Bourgeois. “And the agencies are committed to seeing the work implemented. The benefits are simply too great.”

DOUG CORDELL, External Affairs, Pacific-Southwest Region

#### ? MORE INFORMATION

One key to the success of the South Bay Salt Pond Restoration Project thus far has been the work of volunteers. Find out more at [www.southbayrestoration.org](http://www.southbayrestoration.org).

KRIS BEYRON