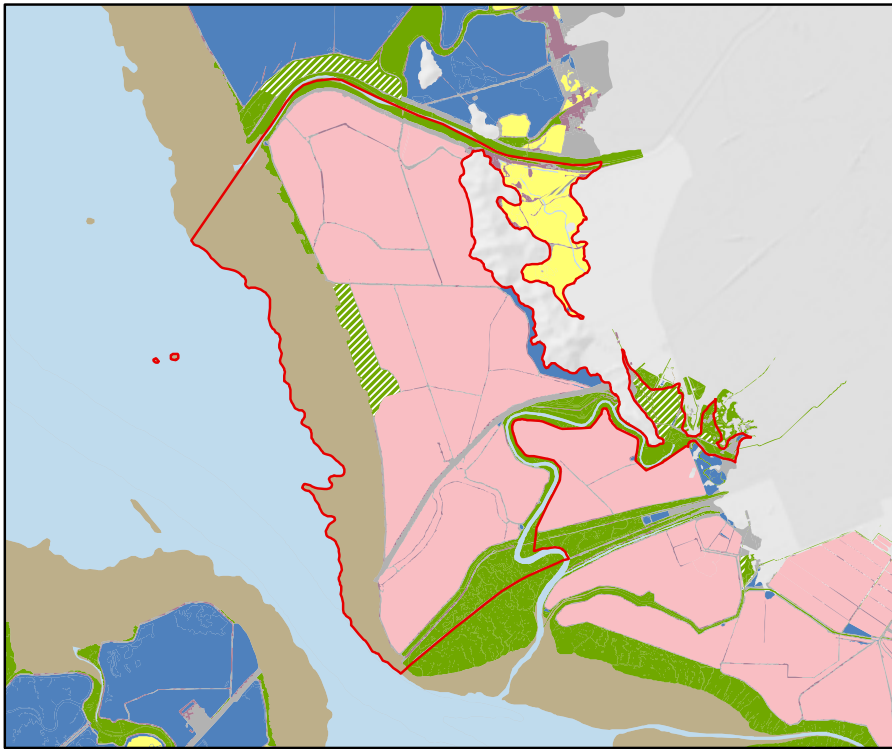


BAYLANDS SEGMENT R



COYOTE HILLS AREA

Eastern edge of San Francisco Bay between Highway 84 and Alameda Creek Flood Control Channel

Baylands 2009

- Bay/Channel
- Diked Wetland
- Salt Pond
- Managed Pond
- Tidal Flat
- Tidal Marsh
- Agriculture and Other Undeveloped Areas
- Developed Areas

Red line shows the boundaries of Segment R.

Hatching indicates areas where restoration activities had occurred as of 2009. For managed ponds this included habitat enhancement.

By: San Francisco Estuary Institute

Data: Wetland data from SFEI includes BAARI (v1, 2009) Baylands and Wetlands, NLCD 2006, and wetland tracker data.

Imagery: ESRI World Imagery (updated 2015)



Unique Opportunities

A corridor of tidal marsh along the bayshore could be restored in this segment. This corridor would connect the Dumbarton Marsh with the existing marsh to the north along the Alameda Creek Flood Control Channel. Salt ponds adjacent to the restored marshes could be managed to provide habitat for waterbirds. La Riviere Marsh and Mayhew's Landing and the adjacent lands offer opportunities for marsh enhancement and migration inland. Both of these harbor salt marsh harvest mice, and La Riviere has a substantial number of Ridgway's rails. Black rails have also been found in La Riviere Marsh in recent years. The hill where the Don Edwards refuge headquarters is located also offers marsh–upland transition zone migration opportunity. This segment has excellent opportunities for restoring a natural marsh–upland transition zone on the western edge of Coyote Hills. On the eastern side of Coyote Hills are seasonal wetlands, grasslands, and willow grove habitat that could be restored or enhanced to allow for marsh migration inland.

Segment Features and Setting

This area is dominated by Coyote Hills and salt ponds. Historically, the majority of the segment was tidal marsh. The marshes were expansive, with well-developed channels and high marsh and abundant tidal marsh pans. The marshes encircled Coyote Hills except to the east, where moist grassland bounded the upper margin of the marsh. These grasslands were characterized by springs and seeps, willow groves, seasonal ponds, and a permanent freshwater pond at the foot of the eastern slope of the hills. Alameda Creek may have variously entered the bay south of Coyote Hills, in the vicinity of present-day Plummer Creek, or just north of this segment. Outboard of the marshes were extensive tidal flats that continued north through segments S and T.

Today, the majority of the area is composed of diked salt ponds that are still being operated for salt production. Very little fringe marsh exists along the salt ponds, with the exception of Ideal Marsh. Coyote Hills and the large Alameda Creek Flood Control Channel are unique features. The diked baylands east of Coyote Hills support the largest remaining willow groves in the baylands ecosystem, seasonal and diked wetlands, and a permanent freshwater pond. The realignment of Alameda Creek through the northern portion of this segment has dramatically altered the hydrology of the area. The mudflats in this segment are very important foraging areas for shorebirds. California gull colonies and much smaller Caspian tern colonies nest on interior levees in this segment. Small numbers of Forster's terns, American avocets, and killdeer nest on internal levees and islands.

Implications of Drivers of Change

Salt-evaporation ponds in this segment will become increasingly difficult to maintain and operate at their specified elevations and salinities. As sea levels rise, levees protecting the ponds will need to be maintained and raised. The outboard levees in particular will be subject to greater wave action as water depths increase, allowing larger waves to propagate inshore. Increasing wave action will also accelerate the erosion of marsh edges, resulting in a narrowing of marshes. Sedimentation rates on



Tidal channel in La Riviere Marsh

existing and restored tidal wetlands are expected to slow over time as suspended-sediment concentrations in the bay decrease.

Considerations for Implementing the Actions

NEAR TERM (NOW TO MIDCENTURY, PRIOR TO SLR CURVE ACCELERATION)

The ponds in this segment are owned in fee title by the Don Edwards San Francisco Bay National Wildlife Refuge. However, Cargill is still actively producing salt in this area and has indicated that it does not plan to make any changes. If that situation changes for any reason, the property would almost certainly be the subject of a large restoration effort. In the near term, there are significant opportunities to restore tidal marsh in existing ponds that would help create a continuous corridor of tidal marsh along the shore. These restorations could include the reconnection of complex channel networks while incorporating topographic variation by placing material to mimic features such as natural levees, and could incorporate shallow pans.

LONG TERM (LATTER HALF OF THE CENTURY, AFTER SLR CURVE ACCELERATION)

At some point the degree of sea-level rise may make it unrealistic to maintain the pond levees. Prior to that point, a plan for restoring or relocating the functions of these ponds should be implemented that would move them outside the hazard zone. Simply restoring tidal action to the managed ponds late in the century may result in the creation of deep tidal ponds. To alleviate this, “warping up” the ponds could be undertaken during the earlier part of the century, allowing the accretion of the pond to be managed as well.

In the longer term, if the sea-level rise accelerates and sediment supply falls as projected, marsh plains will probably give way to narrower fringing marshes. Tidal marshes may be unable to keep up with the rising sea level, resulting in increased inundation of the marsh surface. This may lead to habitat conversion, perhaps to low marsh and mudflat. This area could be targeted for a managed pond landscape that meets the needs of specific wildlife species in the longer term.

Recommended Actions

FOR HABITATS AND THE LANDSCAPE IN GENERAL

- ◆ Restore large areas to tidal marsh, creating a continuous corridor of tidal marsh around Dumbarton Point (contiguous with segment Q).
- ◆ Create transition zone habitat where feasible at the edges of existing marshes at Coyote Hills, on gentle slopes in front of flood-risk-management levees, and other suitable locations.
- ◆ Maintain and manage a small complex of salt ponds for shorebirds and waterfowl. Modify pond management as necessary to accommodate sea-level rise and other changes by modifying water-control structures, managing ponds to facilitate warping, and reconfiguring or relocating ponds as necessary.

- ◆ Work with willing sellers to protect open space as it becomes available for conservation. Evaluate the feasibility of restoring tidal marshes in this area should ponds not remain in salt production.
- ◆ Protect and enhance existing willow groves and seasonal wetlands.
- ◆ Consider removing the flood-control levees on the north side of the Alameda Creek Flood Control Channel's lower reaches as part of restoration planning for this area.
- ◆ Restore and enhance oyster beds and eelgrass beds at appropriate locations.
- ◆ Reduce the horizontal erosion of marshes by creating shell beaches in front of marsh scarps and by creating coarse beaches and berms in front of the outboard levee to protect managed ponds.
- ◆ Explore the use of creative flood-management techniques that take advantage of the benefits of restored tidal wetlands.

FOR PARTICULAR WILDLIFE POPULATIONS

- ◆ Control invasive *Spartina* to minimize its spread to newly restored neighboring marshes.

Restoration Benefits

Restoring tidal wetland along the bayshore west of Coyote Hills would provide a dispersal corridor for Ridgway's rails and salt marsh harvest mice between the Dumbarton and Ideal Marshes and the marshes north of the Alameda Creek Flood Control Channel. Restoring the tidal marsh–upland transition zone would provide high-tide refugia for tidal species and increase habitat for rare plants.

On publicly owned ponds, maintaining and managing a system of seasonal ponds and islands would provide snowy plover nesting habitat and roosting and foraging habitat for other shorebirds and waterfowl.

Challenges

Challenges in this segment include the presence of invasive *Spartina*, flood-protection considerations, Highway 84, predator corridors along numerous levees, the potential for oyster drills to limit oyster restoration, the continued planned operation of salt production, and station KGO.

The South Bay Salt Pond Restoration Project is one of the key regional plans for this segment. Planning will require coordination with local agencies and organizations, including Alameda County, the US Fish and Wildlife Service, Cargill, the East Bay Regional Park District, Caltrans, and the cities of Hayward and Fremont.