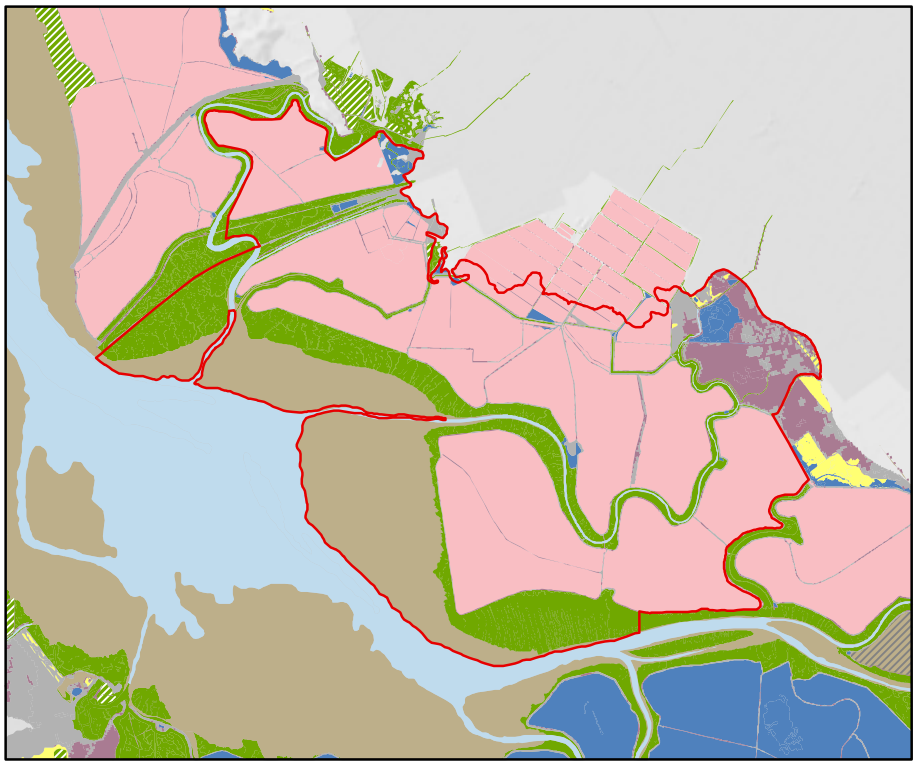

MOWRY SLOUGH AREA

Eastern edge of San Francisco Bay between Albrae Slough and Highway 84 (Dumbarton Bridge)

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 Q.

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)

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Miles

N

Mowry Slough

Unique Opportunities

Segment Q provides an opportunity to restore and enlarge the Dumbarton–Mowry marsh complex of tidal wetlands, potentially expanding available habitat for a core population of the Ridgway's rail. Managed ponds could be modified and maintained for the benefit of large numbers of shorebird species that forage on nearby mudflats, as well as high-salinity specialists such as eared grebes. There are opportunities to restore historic tidal marsh–upland transition zones and associated vernal pool habitat at the upper ends of Newark, Plummer, Mowry, and Albrae Sloughs. This segment has a considerable amount of open space that could be used as transition zone, including the former Pintail Duck Club and Newark areas 3 and 4 (the upper end of Mowry Slough).

Segment Features and Setting

Nearly all the wetlands within this segment were historically tidal salt marsh. These marshes supported extensive channel systems and numerous tidal marsh pans, including backshore pans along the transition zone. The mudflats outboard of the tidal marshes in the segment were moderate in size, with channel and shallow bay habitat more abundant than today. In the adjacent uplands, extensive areas of poorly drained moist grasslands supported vernal pools. Few streams entered the bay in this area; consequently, riparian habitat was limited. Alameda Creek may have variously entered the bay north of Coyote Hills or south, in the vicinity of present-day Plummer Creek.

Today, the majority of the area is composed of diked salt ponds that are still being operated for salt production. However, this segment does contain some of the largest acreage of natural tidal marsh in South Bay, including the Dumbarton, Mowry, and Calaveras Point Marshes. These marshes are important for the Ridgway's rail and the salt marsh harvest mouse. Mowry Slough provides an isolated haul-out area and pupping site for harbor seals. Newark Slough likewise provides a harbor seal haul-out site. The expansive mudflats in this segment are important foraging areas for shorebirds. Fringing marshes in this area have been very stable in recent decades, perhaps due to the lower wave energy and higher deposition rates in extant and restoring marshes than in other sections north of segment Q. Large numbers of California gulls nest along the levees and on islands in the southern portion of 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 increasing 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 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. Restoring tidal marsh would help create a continuous corridor of tidal marsh along the bayshore. 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 ecological 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.

If tidal restoration is not an option for the short term, and the sea-level rise accelerates and sediment supply falls as projected, the marsh plain shoreline will likely give way to narrower fringing marshes over the longer term. 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.

Recommended Actions

FOR HABITATS AND THE LANDSCAPE IN GENERAL

- Restore and enhance tidal marsh along the bayfront to provide a continuous corridor of tidal marsh for the entire length of the segment, particularly around Dumbarton Point (contiguous with segment R).
- 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.
- Optimize the management of ponds for a diverse suite of waterbirds, including 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.
- Elevate or remove the railroad and Hetch Hetchy pipeline and remove other barriers to achieve unimpeded tidal and other hydrological connectivity and reduce predator access to the marsh.
- Protect and enhance the tidal marsh–upland transition zone at the upper end of Mowry, Newark, Plummer, and Albrae Sloughs and in the area of the former Pintail Duck Club.

- Create transition zone habitats on gentle slopes in front of flood-risk-management levees (or other high-ground areas)
- Enhance and restore native oyster beds at suitable areas.

FOR PARTICULAR WILDLIFE POPULATIONS

- Protect the area of harbor seal haul-out along lower Mowry Slough and at the mouth of Newark Slough.
- Continue treatment of invasive *Spartina* at Calaveras Marsh and other sites, and consider revegetation plantings, high-tide-refuge islands, and other enhancements.

Restoration Benefits

The Dumbarton and Mowry Marshes contain a large population of Ridgway's rail. This species could potentially colonize any restored tidal marsh in this segment. (Ridgway's rails have colonized several small diked wetlands that were recently restored to tidal action in the upper reaches of Newark Slough.) One of the contributing factors to the health of Ridgway's rail populations in this segment is that the marshes are large and have not been fragmented by levees as much as in other segments. This makes them relatively resistant to terrestrial mammalian predators due to the absence of main travel corridors (with notable exceptions such as the Hetch Hetchy Aqueduct and the railroad tracks). Modifying and managing a system of seasonal ponds (dry in summer) or islands would increase nesting habitat for the snowy plover as well as other waterbirds.

Challenges

Challenges in this segment include the Union Pacific railroad tracks; PG&E transmission lines, Hetch Hetchy Aqueduct, and other utility corridors; flood-control considerations; the need for continued operation and maintenance of salt ponds; the presence of bittern in some ponds; and predator corridors along levees and other linear features. Controlling invasive *Spartina* remains a critical priority, constraint, and consideration for some existing marshes and for restoration planning. Oyster drill populations could limit native oyster restoration. 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 the US Fish and Wildlife Service, Cargill, the San Francisco Public Utilities Commission, Alameda County, and the cities of Fremont and Hayward.