County of San Mateo Harbor District

San Mateo County

Site Description

San Mateo Harbor District was granted Public Trust lands at Pillar Point Harbor in 1960. Pillar Point Harbor, located approximately 25 miles south of San Francisco in the northern part of Half Moon Bay, was created by riprap breakwaters built by the U.S. Army Corps of Engineers between 1959 and 1961. Pillar Point Harbor remains a major commercial and sport fishing harbor, with 369 berths, on California's central coast, and is host to many public events including the annual Mavericks surfing competition, and the Christmas boat decorating contest. The area also includes several public beaches, coastal trails, bike routes, and pedestrian pathways. Before the construction of the harbor, the area was made up of wide sandy beaches with minimal erosion. While the construction of the outer breakwaters stabilized the shorelines within the harbor, it increased cliff retreat and beach erosion south of the eastern breakwater. The impacts of sea-level rise, which include increased shoreline erosion rates, will only exacerbate these issues and further threaten the Public Trust uses provided by the harbor's coastal resources. Pillar Point Harbor has developed several adaptation strategies to address the vulnerabilities of the area to sea-level rise, some of which include shoreline armoring to protect Highway 1, beach nourishment, and managed retreat.

Granted Land Type:
Small Harbor/Marina with Recreational Amenities or Natural Assets

Public Trust Uses

Primary Uses: Navigation

Secondary Uses: Commerce, Fisheries

Coastal Hazards considered:
tidal inundation, 100-year storm, shoreline change/ erosion, cliff retreat, tsunamis

Modeling system used for mapping:
NOAA

Sea level rise scenarios/elevations
LINK TO FULL ASSESSMENT

Vulnerable Public Trust Resources	
Built Facilities	Visitor facility, berthing slips, commercial fish-buying center, ice-making facilities, docks, piers, restrooms, launch ramps
Natural Assets	Coastal wetlands, beaches

Other Economic Vulnerabilities

Values presented below are in 2017 dollars. Adaptation costs include beach nourishment only, calculated at $40 to $70 per cubic yard. The other option would be to install a seawall or revetment, which costs between $100,000 to $300,000 and is considered to be long-term; however, it will not restore the recreational and ecosystem value due to beach loss. Revenues from granted land were approximately $6.5 million for 2017/2018.

Loss of beach access due to revetments

Proposed Adaptation and Mitigation Measures

Protect

Monitor shoreline conditions regularly to ensure future trail sustainability; monitor the inner breakwater and pier conditions to ensure the harbor's functionality in the future; monitor sand accumulation to avoid a navigational hazard due to sedimentation in the future and keep the boat launch facility functional; monitor vegetation status; employ beach nourishment; install a seawall; repair and improve current revetments along the shoreline of Princeton (this will result in loss of beach and public access, see photo).

Retreat

Execute managed retreat due to probable bluff retreat at Reach 7; monitor revetment conditions at Reach 8.

Managed Retreat

Reach 7 will experience significant bluff retreat in the future. However, because there is room for retreat, the beach in front of the bluff will survive and rebuild itself. The coastal trail though will fall inside the erosion zone by the end of the century and will require adjustment. For this reach, it is recommended to execute managed retreat, while monitoring the retreat pattern regularly to ensure the functionality of the coastal trail and beach access.

Anticipated Costs of Sea Level Rise (millions)*

	Current	2030 (9.8 in.)	2050 (19.7 in.)	2100 (29–39 in.)
Assets at Risk or Repair and Replacement Costs		**$0.15–$0.2**	**$0.21**	**$1.60**
Losses in Non-Market Value		**$0.26–$0.59**	**$0.98–$2.18**	**$2.49–$5.50**
Cost of Adaptation	**$0.11–$0.19**	**$0.14–$0.24**	**$0.16–$0.28**	**$0.22–$0.37**

* Repair/Replacement Costs from Table 4, p. 5; Losses in NMV from Table 3, p.4; Beach Nourishment Costs from Table 5.1, p. 77.