

# City of Redondo Beach (King Harbor)

Los Angeles County

## Site Description

Located at the south end of the densely populated Santa Monica Bay area, the City of Redondo Beach's King Harbor is a man-made facility and a unique urban harbor complex that is one of the most valuable assets of the city. The mixture of sheltered mooring basins, commercial businesses, park and open space, and direct water access supports a variety of recreational opportunities that provide enjoyment for millions of residents and non-local visitors annually. As such, the harbor is an important source of income to the local economy.

King Harbor today is approximately 175 acres. Of that area, the total water footprint is about 99 acres and consists of three mooring basins for wet storage of small craft, an outer harbor navigation channel and transient mooring area, and a turning basin that is offset from the main channel near the harbor entrance. Approximately 40 acres of the development is inland of the 1935 mean high water line.

The public trust grant for the offshore area was given to the city from the state in 1915 to yield the right, title, and interest in all state lands within the city limits seaward of the mean high tide line. At that time, the dedicated lands were intended to be repurposed for harbor development. The grant was later amended in 1971 to release four small parcels areas totaling about 8 acres from future navigation, commerce, or fisheries purposes.

### Coastal Hazards considered:

tidal inundation, wave run-up, storms (1-, 10-, 25-, 50-, and 100-year)

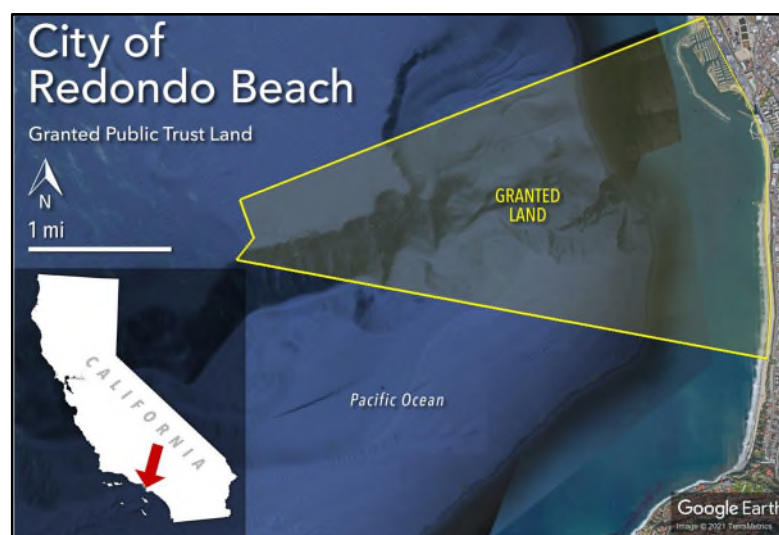


**Granted Land Type:**  
Smaller Harbor/Marina  
with Recreational  
Amenities or Natural  
Assets

## Public Trust Uses

*Primary Uses:* Recreation

*Secondary Uses:* Commerce, Safety & Navigation, Environmental Stewardship



**Modeling system used for mapping:**  
CoSMoS

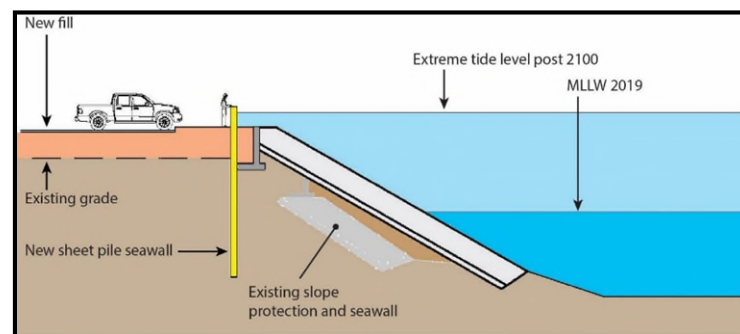
**Sea level rise scenarios/elevations**  
[LINK TO FULL ASSESSMENT](#)

## Vulnerable Public Trust Resources

<b>Built Facilities</b>	Marinas, recreational facilities, hotels, restaurants, harbor businesses, roads, South Breakwater, North Breakwater, pier, Moles A-D, stormwater catch basins (57 by 2100) pump stations (4 by 2100), sewer gravity main lines (55 lines, 9,051 ft by 2100), sewer pressurized mains (3 lines, 948 ft by 2100), sewer service lines (129 lines, 2,991 ft), traffic signals (7 by 2100), street lights (143 by 2100), signs (95 by 2100), curb gutters (12,818 ft by 2100), impervious surfaces (73,274 sq ft by 2100), pavement (321,122 sq ft by 2100)
<b>Natural Assets</b>	Trees (48 by 2100), tidelands around King Harbor

## Other Economic Vulnerabilities

Economic costs for non-market values were not provided. Sea level rise adaptation is an estimated order of magnitude cost in 2019 dollars. These estimates do not include various improvements that may be required within existing leaseholds nor any costs that may be incurred by other agencies to improve the outer break wall. Cost of adaptation for 2030, 2050, and 2100 correspond directly to the strategies described below. The costs for 2100 include those for “long-term” protection and beyond 2100. The City of Redondo Beach assessed projected upland impacts.



## Proposed Adaptation and Mitigation Measures

### Protect

**Short-Term to 2030 (sea level rise less than 1.0 foot):** Raise the seawall crest around Basins 1 and 2, the low-lying portion of Basin 3 perimeter, along east and south ends, and portions of Mole A adjacent to the North Breakwater. Consider addition of a short parapet wall to prevent flooding of the accessways during extreme high tides.

**Mid-Term 2030 to 2050 (sea level rise between 1 and 2 feet):** Add a perimeter retaining wall to protect existing development and infrastructure from flooding.

**Long Term Period 2050 to 2100 (sea level rise of 5.5 feet):** Extend the crest elevation of the landward retaining wall and increase perimeter protection via construction of extended basin slope protection that would extend into Basins 1 and 2. **Post-2100:** Build a perimeter sheet pile seawall to reinforce inundation protection supplemented with adjustment of landward finished grades by fill placement.

### Accommodate

**Post-2100:** Raise base floor elevations to protect entire harbor footprint. Develop a debris management plan.

### Retreat

**Post-2100:** Relocate utilities.

### Storm Wave Effects

The western portions of Mole A, B, C, and D will be further affected by an increased exposure to storm wave run-up by 2100. Residual sea and swell that propagates into King Harbor will impact those sections of shoreline immediately adjacent to the outer Harbor. The problem will be exacerbated by the fact that the 5.5 foot increase in sea level by 2100 will effectively lower the outer breakwaters by that elevation rendering them similar in crest height to conditions that existed during the destructive January 1988 storm. The wave energy that propagated into the outer Harbor during that benchmark storm event, destroyed much of the shoreline development at Moles C and D.

## Anticipated Costs of Sea Level Rise (millions)\*

	Current	2030 (9.6 in.)	2050 (22.8 in.)	2100 (66 in.)
<b>Assets at Risk or Repair and Replacement Costs</b>				<b>\$46</b>
<b>Losses in Non-Market Value</b>			<b>\$3</b>	<b>\$21</b>
<b>Cost of Adaptation</b>		<b>\$5</b>	<b>\$6</b>	<b>\$280</b>

\* Costs are from Tables 4, 5, and 6 on pgs. 13-15.