Kanahā Beach Park

Maui County Department of Parks and Recreation
Vulnerability and Adaptation Study 2022
Prepared by Tetra Tech, Inc.

Med Park Adaptation Potential

Park has medium potential to withstand impacts of sea level rise based on five indicators of vulnerability.

Adaptation Strategy: Restore dunes and/or preserve wetlands

Dune restoration will provide natural protection of coastal development from coastal hazards such as erosion, high waves, and storm surge. Existing and emerging wetlands mitigate flood hazards. Both sand dunes and wetlands provide habitat for native plants and wildlife. Some parks may support both dune restoration and wetland preservation. Alternative: None, any future park development should support open space/habitat restoration

Example Actions *Scientists project that sea level is likely to rise a minimum of 2 feet between 2050 - 2070 and 3.2 feet between 2070-2100. All of Maui County's beach parks will experience a loss of acreage with 2.0 feet of sea-level rise. Thus, the impacts of sea-level rise could be significant for most beach parks at an earlier point (around 2050) in the projected ranges and/or from a severe storm event.*	**2025** **5 years**	**2030** **10 years**	**2035** **15 years**	**2040** **20 years**	**2045** **25 years**	**2050** **30 years**
Coordinate with relevant county and state entities to understand how sea level rise vulnerabilities outside park boundaries, to development, roads, and other critical infrastructure, will be addressed	■					
Remove park structures and other obstructions that disrupt the natural movement of sand	■	■				
Rebuild/restore primary sand dunes and stabilize using native vegetation	■	■				
Preserve existing and emerging wetlands	■	■				
Designate access paths to minimize the impacts of human foot traffic to dunes and wetlands	■	■				
Install signs to build awareness of value of dune restoration and wetland preservation	■	■				
Proactively remove remaining structures and other obstructions in SLRXA-2.0			■	■		
Monitor and reevaluate park adaptation potential and strategy		■		■		■
Remove any park structure in the SLRXA-3.2 partially or fully damaged by severe coastal flood events and storms	■	■	■	■	■	■
Coordinate with relevant state and county entities and cultural descendants to apply district-specific cultural protocols/vetted actions for adaptation activities and/or storm impacted park areas	■	■	■	■	■	■

Med

Park Adaptation Potential

Park has medium potential to withstand impacts of sea level rise based on five indicators of vulnerability.

Park Adaptation Potential based on Five Vulnerability Indicators

Percent of park area in SLRXA-3.2 (~2070): **61%**

Adaptation Potential: **Low**

A measure of park area exposed to chronic coastal flooding and land loss with 3.2 feet of sea level rise. The Sea Level Rise Exposure Area (SLRXA) is based on projections of passive inundation, erosion, and annual high wave run-up with sea level rise. The higher the percent area exposed the lower the adaptation potential.

Number of structures in SLRXA-2.0 (~2050): **4**

Adaptation Potential: **Med**

A measure of the number of structures, parking lots and major upright structures, in the park such as pavilions and restrooms exposed in the SLRXA with 2.0 feet of sea level rise. The higher the number of structures exposed the lower the adaptation potential.

Miles of road in SLRXA-3.2 within a 0.5 mile-park buffer: **0.8**

Adaptation Potential: **Med**

A measure of the miles of highway and roads exposed to chronic coastal flooding and land loss with 3.2 feet of sea level rise. The higher the number of miles of road exposed the lower the adaptation potential.

Percent of park area with sand and dunes: **94%**

Adaptation Potential: **High**

A measure of the availability of sand and dune material to facilitate landward beach migration and sustainability with sea level rise and provide coastal protection services. The higher the percentage of park area with sand and dunes the higher adaptation potential.

Difference in percent of area in SLRXA-3.2 and SLRXA-2.0: **23%**

Adaptation Potential: **Med**

A measure of the timing of exposure of the park to two sea level rise projections. The lower the difference in % area between the two projections the lower the adaptation potential rating as sea level rise impacts are projected to occur earlier (~2050).

Additional Indicators to Support Planning and Decision-Making

Percent of the park area within the 1%CFZ-3.2: **95%**

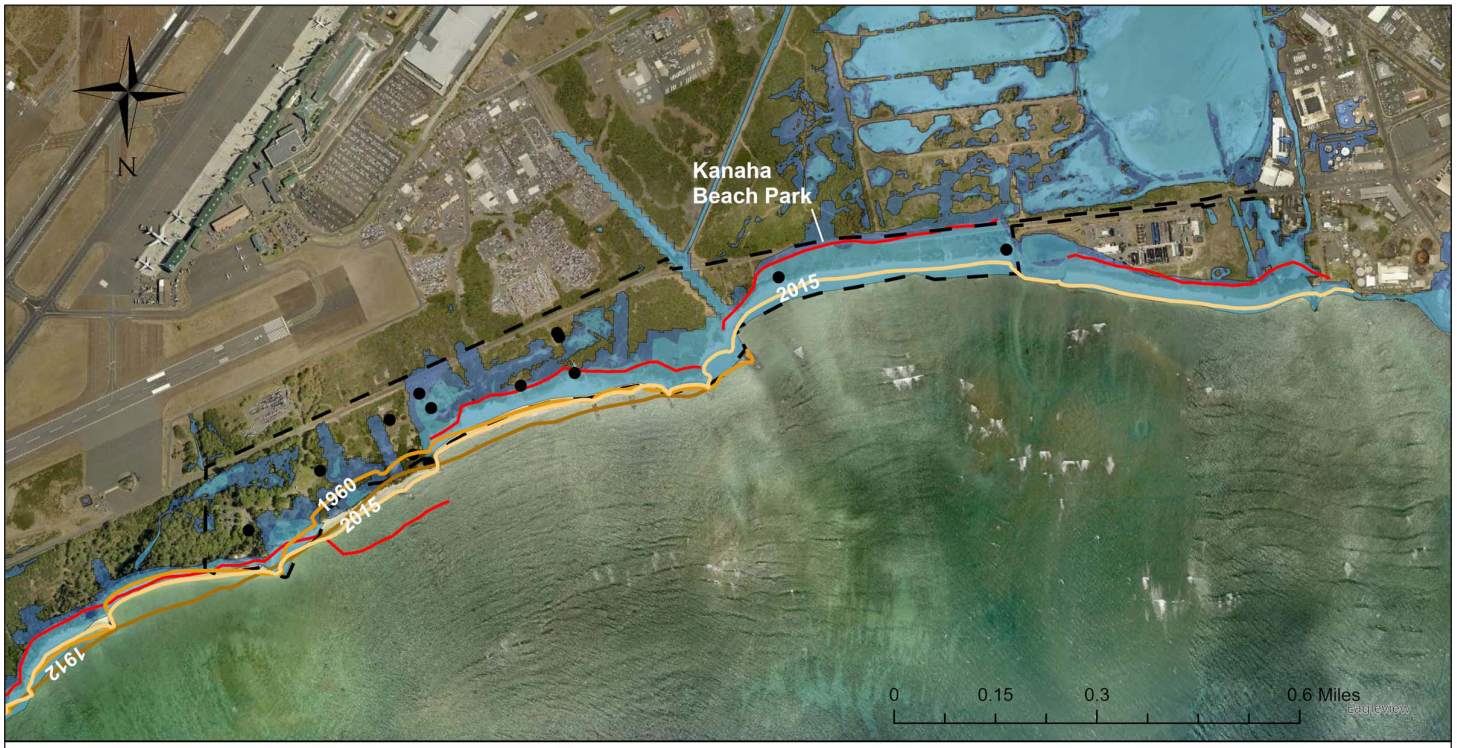
Measures of park exposure to severe event-based flooding:
- *Storm surge: 1%-Annual-Chance Coastal Flood Zone (1%CFZ) modeled with 3.2 feet of sea level rise*

Percent of park area in FIRM Flood Zone A: **5%**

Measures of park exposure to severe event-based flooding:
- *Riverine flooding: 1%-Annual-Chance Flood Zone based on historical data (Flood Insurance Rate Map (FIRM) Zone A).*

Is park adjacent to federally designated critical terrestrial habitat for monk seals? **No**

The critical terrestrial habitat for the Hawaiian monk seal extends 5 m inland from the shoreline. This habitat is expected to migrate landward as sea level rise.



- Park Facilities
- SLRXA-2.0
- SLRXA-3.2
- SLR Coastal Erosion Line - 3.2
- 1912 Historical Shoreline
- 1960 Historical Shoreline
- 2015 Historical Shoreline
- Park Boundary

DATA DESCRIPTION

Sea Level Rise Exposure Area (SLRXA): Chronic flooding from passive inundation, coastal erosion, and annual high wave runup with sea level rise. Modeled for two scenarios: 2.0 feet of sea level rise: SLRXA-2.0 (~2050-2070) and 3.2 feet of sea level rise: SLRXA-3.2 (~2070-2100). Data Source: Tetra Tech, Inc. and University of Hawai'i Coastal Geology Group.

Sea Level Rise (SLR) Coastal Erosion (Line) - 3.2 Ft Scenario: This layer depicts future coastal erosion (landward shoreline retreat using the 3.2-ft sea level rise scenario. Data Source: This layer was updated in 2020 by the University of Hawai'i Coastal Geology Group.

Historical Shoreline: The low water mark or toe of the beach is digitized from the corresponding historical orthophoto mosaic. It is used as the shoreline change reference feature in the historical shoreline change analysis of the island. Data Source: University of Hawai'i at Mānoa. School of Ocean and Earth Science and Technology.

0
0.13
0.25
0.5 Miles
N
Kanaha
Beach Park
Eagleview