

KA'ENA AREA DESCRIPTION

The Ka'ena shoreline study area (transects 1 - 137) is at the west end of Mokulē'ia Beach, a continuous 7-mile-long beach on the north shore of O'ahu. The shoreline is composed of carbonate sand, limestone, and basalt. West of transect 1, toward Ka'ena Point, the shoreline is comprised primarily of outcropping limestone and basalt (no beach). The area is exposed to winter swells from the north and west, and persistent easterly tradewind waves year-round.

This section of beach has experienced chronic erosion along the entire length since 1928. The beach has eroded an average of -0.8 ft/yr. The highest erosion rates, over -1.4 ft/yr at some transects, have occurred on the western two-thirds of the beach.

The sinuous shape of this beach appears to be due to variations in the depth of the nearshore reef. Until the latest data in 2015, accreted forelands had evolved shoreward of shallow portions and erosional embayments had formed adjacent to channels. However, erosion at these locations in the most recent data suggests that these forelands are destabilizing and present an erosion hazard. This latest destabilization is consistent with the highest rates of erosion being found around former forelands (e.g., transects 42 and 57).

Previous studies (Hwang, 1981 and Sea Engineering) found long-term erosion to the vegetation and water line from 1949 – 1988 within the section of west Mokuleia Beach.

For more information see: <http://www.soest.hawaii.edu/asp/coasts/oahu/index.asp>

¹ Hwang, D. (1981) "Beach changes on O'ahu as revealed by aerial photographs", State of Hawaii, Department of Planning and Economic Development.

² Sea Engineering, Inc. (1988) "O'ahu shoreline study", City and County of Honolulu, Department of Land Utilization.

Keywords:

O'ahu; Camp Erdman; Mokulē'ia Beach; Ka'ena Point; Kaiona Beach Park; Inaole Stream