

## KAWAILOA AREA DESCRIPTION

Kawailoa (transects 0 - 130) is located on the north shore of O‘ahu. The shoreline is composed of carbonate sand, limestone, and basalt. The shoreline from Papa‘iloa Beach to Pua‘ena Point (south of transect 0) is mostly fronted by limestone outcrops. Long-term (1910 - 2015) shoreline change rates at Kawailoa are low on average ( $< 0.5$  ft/yr). Rates at Kawailoa have high uncertainty due to short-term (seasonal to daily) variations in shoreline position caused by large winter swells from the north and northwest and persistent easterly tradewind waves year-round. Though long-term rates are low, short-term erosion is a significant hazard to beach-front homes, especially in winter with run-up from large waves.

Papa‘iloa - Laniakea Beach (transects 0 - 60) has been approximately stable since 1910 at an average  $-0.1$  ft/yr. High seasonal variability is visible in the shoreline positions. It was suspected that some long-term erosion may have been occurring at Laniakea Beach, yet data from 2015 suggest that the beach might have recovered. It is unclear whether this beach recovery is transient or more permanent (see transect 45). This section of shoreline remains a potential erosion hazard, as Kamehameha Highway is occasionally over-washed at Laniakea during large winter surf.

Chun's and Leftovers Beaches (transects 61 - 113) have been approximately stable since 1910 at an average  $0.1$  ft/yr. Some long-term accretion may be occurring in the south of Chun's Beach (see transect 65) but uncertainty with these rates is high, and may be influenced by seasonal variability.

Alligators Beach (transects 114 - 130) has been approximately stable since 1910 at an average  $-0.2$  ft/yr. Seawalls front most homes on this narrow beach to protect from temporary erosion and run-up from large winter surf.

Previous studies by Hwang (1981) and Sea Engineering (1988) found little net change in the vegetation line at Kawailoa 1949 - 1988 but Hwang found the water line varied by over 100 feet.

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

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

<sup>2</sup> Sea Engineering, Inc. (1988) "O‘ahu shoreline study", City and County of Honolulu, Department of Land Utilization.

Keywords:

O‘ahu; Kawailoa; Papailoa Beach; Puaena Point; Laniakea Beach; Chun's Beach; Leftovers Beach; Alligators Beach