

MOKULĒ'IA AREA DESCRIPTION

This map shows a central portion of Mokulē'ia Beach (transects 274 - 481), including Mokulē'ia Polo Field and Makaleha Beach Park. This shoreline is a portion of a continuous 7-mile-long beach on O'ahu's north shore. The shoreline is composed of carbonate sand and limestone, and the area is exposed to north and west swells in winter months and persistent easterly tradewind waves year-round.

The western half of the beach has experienced chronic erosion since 1924 with the highest erosion rates centered at transects 284 (more than -1.6 ft/yr) and 329 (more than -1.1 ft/yr). Beach profile surveys have shown that little or no beach remains at high tide in front of much of Camp Mokuleia (transect 285). The shoreline near the end of Auku'u (transect 410) has also eroded up to about -0.7 ft/yr. The remainder of the shoreline has been relatively stable with erosion rates less than -0.7 ft/yr.

The sinuous shape of the beach is due to variations in the depth of the nearshore reef. Accreted forelands have formed behind shallow portions and embayments have formed adjacent to channels. However, many of the highest erosion rates are found at former forelands (see transects 284 and 329) indicating these pose significant erosion hazards. Limestone beach rock may act as a natural revetment in some areas (see transect 280) temporarily protecting the upland. Offshore outcrops of beach rock mark former shoreline positions (date unknown) and provide further evidence of chronic retreat.

Previous studies (Hwang, 1981; Sea Engineering, 1988) found net long-term erosion to the vegetation line around Mokulē'ia Polo Field.

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; Mokulē'ia Beach; Makaleha Beach Park; Polo Field;