

MĀLAEKAHANA AND LĀ'IE AREA DESCRIPTION

The beach at Mālaekahana and Lā'ie Bays (transects 0 - 189) are located on the northeast coast of O'ahu between Makahoa and Lā'ie Points of O'ahu. Moku'auia (Goat Island, transects 190 - 196) is located 700 ft offshore of Kalanai Point. The beaches are composed of calcareous sand. Headlands and offshore islets are composed of lime² stone. The area is exposed to refracted north swells during winter months and easterly tradewind waves throughout the year.

The beach from Makahoa Point through Kalanai Point (transects 0 - 19) has experienced little long-term change since 1928, with most rates under 0.1 ft/yr. Historical shorelines and biannual beach profile surveys (near transect 77) indicate this beach is prone to shorter-term change (interannual - seasonal) with varying portions of the beach eroding or accreting. Though long-term rates are low, short-term erosion can still pose a serious hazard to beach-front property. The beach at Kalanai Point is particularly unstable related to wave refraction around Moku'auia.

The remainder of the beach at Lā'ie Bay (transects 120 - 189) has experienced moderate to high rates of accretion since 1928 (>1ft/yr at some transects). Lā'ie Point is a barrier to southerly sediment transport causing sand to accumulate on its northern side.

A small beach on the leeward side of Moku'auia (Goat Island, transects 190 -196) has experienced low rates of erosion (< -0.5 ft/yr) since 1928. Much of the erosion occurred between 1995 and 2011.

Hwang (1981) found the shoreline at Malaekahana and Lā'ie was approximately stable or accreting from 1949 - 1975, except at Kalanai Point which experienced erosion. A follow-up study by Sea Engineering (1988) found accretion throughout the study area and recovery of the shoreline at Kalanai Point Both studies note instability of the beach at Kalanai Point due to complicated wave refraction around Moku'auia.

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; Mālaekahana Bay; Lā'ie Bay; Makahoa Point; Lā'ie Point