

## LANIKAI AREA DESCRIPTION

The Ka'ōhāo shoreline, also known as Lanikai, (transects 0 - 126) is a slightly embayed 1.2-mile-wide headland between basalt Alāla and Wailea Points of O'ahu. Lanikai Beach (transects 16 - 67) is a narrow half-mile long stretch of sand in the north-central portion of the Ka'ōhāo shoreline. The remainder of the Ka'ōhāo shoreline has no beach at high tide, except for a small pocket of sand (transects 124 - 126) stabilized by a jetty in the far south. Waves break against seawalls in areas without beach. The coast in this area is exposed to easterly tradewind waves year-round and refracted northerly swell in winter. The beach is protected from the full energy of open-ocean waves by a shallow fringing reef and two small islands (Mokulua, not shown).

In all, 4000 ft of beach has been lost at Ka'ōhāo in the time span of this study (1911 - 2015). The beach at north Ka'ōhāo (transects 0 - 14) was lost to erosion between 1975 and 1982. Rates are calculated for north Ka'ōhāo up to and including the first historical shoreline with no beach (1982) and show the speed at which the beach disappeared. Shoreline position is now fixed by seawalls.

The shoreline at south Ka'ōhāo (transects 68 - 124) advanced seaward between 1949 and 1975. Erosion began in the late 1970's and the beach at south Ka'ōhāo disappeared between 1988 and 2005. Like north Ka'ōhāo, the rates indicate the speed at which the beach disappeared since 1911. In reality, the beach loss was much more rapid as all the erosion occurred in the last few decades (-0.5 ft/yr).

The remainder of Ka'ōhāo (Lanikai Beach, transects 16 - 67) is accreting at up to 2.8 ft/yr (around transect 33). However, aerial photographs and recent beach profile surveys show that the extent of beach loss at south Lanikai continues to expand to the north threatening the remainder of Lanikai Beach.

Study results generally agree with those of previous studies (Hwang, 1981; Sea Engineering, 1988), which found net accretion for the remaining portion of Lanikai Beach.

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; Lanikai; Alala Point; Wailea Point