

## SOUTHERN WAIMĀNALO AND MAKAPU‘U AREA DESCRIPTION

The South Waimānalo and Makapu‘u study area (transects 0 - 62) is located on the southeast shore of O‘ahu. Between Pāhonu Fish Pond and Kaupō Beach Park (transects 0- 62) are a series of narrow “peeker” beaches separated by natural and engineered shoreline. The beaches in this section are protected from the full energy of easterly tradewind waves and refracted northerly swells by a shallow fringing reef. In contrast to beaches in the north of the study area, Makapu‘u Beach (transects 63 -74) typically has powerful shore-breaking waves as the result of deeper fringing reef in the south of the study area. In addition, Makapu‘u Beach is wider and steeper and shoreline position is more variable than beaches to the north.

Rates are generally low ( $< 0.5$  ft/yr) in the study area, except in the north around transect 11 where erosion is as high as  $-0.7$  ft/yr. Seawalls and a low rock scarp line the narrow beaches between Pāhonu Fish Pond and Kaupō Beach Park. Even low rates of long-term or temporary erosion can lead to beach loss. Coastal erosion around Makai Research Pier has threatened to undermine the coastal highway. Stone revetments and pilings were installed in the last couple years to armor the road bed. Historical shorelines indicate low rates of accretion or approximately stable shoreline at Makapu‘u. Seasonal beach profile surveys at Makapu‘u record high variability in shoreline position.

Previous studies looked at shoreline change at the beach south of Pāhonu Fish Pond, finding accretion in this area (Hwang, 1981; Sea Engineering, 1988). The remaining beaches in this study area were not analyzed in the previous studies.

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; Waimānalo; Makapu‘u; Pāhonu Fish Pond; Kaupo Beach Park