

PŌKA‘Ī AREA DESCRIPTION

Pōka‘ī Beach (transects 0 - 57) is located in Pōka‘ī Bay between Wai‘anae Boat Harbor and the breakwall at Kāne‘īlio Point. The shoreline is composed of carbonate sand and limestone rock. The area is exposed to southerly swells in summer months, northerly swells in winter months, and southerly to westerly waves from Kona storms throughout the year but most often in the winter. The breakwaters in the north and south and shallow reef near the middle of the beach protect the shoreline from the full force of open ocean waves.

The breakwater at the southern end of the bay was constructed in the early 1950's (Clark 2005). The beach began accreting at its southern end soon thereafter. The accretion is evident in the seaward movement of the historical shorelines in the south between 1949 and 1960. Four stone jetties were constructed in the middle of the beach and at Kaupuni Channel mouth in the early to mid-1960's. Wai‘anae Boat Harbor was constructed in 1983. Seawalls line the back of the beach between Pōka‘ī Bay Beach Park and Kaupuni Channel.

Shoreline change rates are calculated for years with the modern shoreline configuration (e.g., breakwaters, jetties), 1967 - 2015. The stone jetties divide the beach into four beach segments. Averaged along all four segments Pōka‘ī Beach has eroded at 0.2 ft/yr since 1967. The southernmost segment (transects 0 - 21) has experience accretion at its south end with the highest rates, up to 1.4 ft/yr, against the breakwater while the remainder of this segment has remained approximately stable. The three northern cells have experienced erosion along most of their lengths with erosion rates exceeding -1 ft/yr at some transects. Portions of the narrow beach in the middle of the bay may be unusable at high tide as waves run up to the base of the seawalls. The pattern of shoreline change indicates that sand is being transported to the south and impounded against the southern breakwater.

Previous studies (Hwang, 1981; Sea Engineering, 1988) found accretion in the south and erosion in the north of Pōka‘ī Beach since construction of the southern breakwater. These studies note that sand was occasionally artificially moved from the accreting southern portion to eroded portions in the north. Dates and quantity of sand for these artificial changes is unknown.

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; Waianae Boat Harbor; Kaneilio Point; Kaupuni Channel; Pokai Bay Beach Park