**HISTORICAL SHORELINES**

- 1927 T-sheet
- May 1950
- Nov 1961
- May 1962
- May 1963
- Apr 1966
- Jul 1969
- Mar 1975
- Oct 1987
- Sept 1988
- May 1997
- Nov 1999
- May 2002
- Sept 2006
- Jan 2008

Erosion rate measurement locations (shore-normal transects)

**SHORELINE CHANGE RATES**

- **Accretion Rate**
- **Erosion Rate**

Historical shoreline positions are measured every 65 ft along the shoreline. These rates are denoted by yellow shore-parallel transects. Changes in the position of the shorelines through time are used to calculate shoreline change rates (ft/yr) at each transect location.

Annual shoreline change rates are shown on the alongshore spacing. As a result, transect numbering is not consecutive everywhere. The rates are smoothed alongshore using a 3-3-3-1 technique to normalize rate differences on adjacent transects.

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**AREA DESCRIPTION**

The Hanalei study area (transects 60 - 241) is located on the north shore of Kauai. The study area is bounded to the east by Hanalei River and to the west by Maluhia Point. The bay is exposed to large seasonal swell during the winter months and is relatively calm during the summer. The sandy shoreline is composed of carbonate sand and terrigenous sediment.

Overall, the average of all rates is accretional at 0.5 ft/yr. The bay tends itself in division into three portions. The western portion (transects 60 - 136), which has experienced the red trend of erosion at the mouth of Hanalei River, contains Hanalei Beach Park (transects 80 - 94) and is experiencing accretion at an average rate of 0.5 ft/yr. The central portion of Hanalei Bay (transects 140 - 194) is experiencing accretion at an average rate of 0.1 ft/yr. This section of the study area contains Waioli Beach Park (transects 153 - 171), which is accreting at an average rate of 0.2 ft/yr. The eastern portion of the area (transects 197 - 241) is experiencing accretion at an average rate of 0.3 ft/yr. This section contains Black Point Beach Park (transects 234 - 241), which lies at the mouth of Hanalei River. The park is eroding at an average rate of -0.5 ft/yr. Previous studies have not analyzed the Hanalei Bay study area shoreline.

Hanalei Bay, Kauai, Hawaii

Malaekahana Beach

Maluhia Point

Hanalei River