Pilaa, Kauai, Hawaii

SHORELINE CHANGE RATES

Historical shoreline positions are measured every 66 ft along the shoreline. These sites are delineated by yellow shore-perpendicular 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 shore-parallel graph. Red bars on the graph indicate a trend of beach erosion, while blue bars indicate a trend of accretion. Approximately every 9th transect and bar of the graph is numbered. Where necessary, transects have been purposely deleted to maintain consistent shoreline spacing. As a result, transect numbering is not consecutive everywhere. The rates are smoothed alongshore using a 1-3-5-3-1 technique to normalize rates.

Shoreline Change Rate (ft/yr)

HISTORICAL SHORELINES

Historical beach positions, color coded by year, are determined using orthorectified and georeferenced aerial photographs and National Ocean Survey (NOS) biographic survey charts. The low water mark is used as the historical shoreline, or shoreline change reference feature (SCRF).

Movement of the SCRF along shore-normal transects (spaced every 66 ft) is used to calculate erosion rates.

AREA DESCRIPTION

The Pilaa study area (transect 44 - 97) is located on the northeast coastline of Kauai. The shoreline is composed of calcareous sand beach interrupted by basalt headlands with a fringing reef offshore.

Overall, the area is eroding at an average rate of -0.6 ft/yr. The area lends itself to division into four portions. The Waiakea Nui Beach (transects 44 – 51) is a large pocket sand beach located to the north of Kakei Point. This section of the study area is experiencing erosion at an average rate of -0.6 ft/yr. Waiakea hi Beach (transects 52 – 60) has experienced erosion at an average rate of -0.7 ft/yr. Pilaa Beach (transects 71 – 97) is separated by a low, rocky point. The western portion (transects 71 – 85) is eroding at an average rate of -0.8 ft/yr. The eastern portion (transects 86 – 97) has experienced erosion at an average rate of -0.3 ft/yr. Previous studies did not analyze the Pilaa study area shoreline.