SHORELINE CHANGE RATES

Historical shoreline positions are measured every 66 ft along the shoreline. These sites are denoted 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 fifth transect and bar of the graph is numbered. Where necessary, transects have been purposely deleted to maintain consistent alongshore 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 rate differences on adjacent transects.

AREA DESCRIPTION

The Papaa Bay study area (transects 0 - 44) is located on the east coast of Kauai. The area is bounded by Papaa Bay to the north and Alomana Beach to the south. 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 -0.5 ft/yr. The area lends itself to division into two portions. Papaa Bay (transects 0 – 12) is a small pocket beach located to the north of the study area. This section of the study area is experiencing erosion at an average rate of -1.0 ft/yr. The next beach (transects 13 – 44) to the south of Alomana Beach has experienced erosion at an average rate of -0.4 ft/yr. Previous studies found both beaches in this study area are stable or slightly accreting. These diverging results might be due to the use of different methodologies and the extended time series of shoreline positions used in this study.