Spreckelsville, Maui, Hawaii

Smoothed Erosion Rates

The Spreckelsville study area extends from Papaula Point west to Wawau Point. The shoreline in this area is comprised of sandy beach broken by exposed basalt boulders and headland structures. The large sancy shoreline dominating the western portion of the study area is known as Spreckelsville Beach. Sections of this beach are known by other names. Exposed headlands at transects 18, 55 and 70 divide the area in three sections for description purposes.

The area as a whole has experienced moderate to high erosion since 1912 with an average AEHR of -1.7 ft/yr. The western portion (transects 0 - 17) contains a section of Spreckelsville Beach refered to as Stables Beach. This region has experienced moderate to high erosion over time with an average AEHR of -1.5 ft/yr. Moving east is a large section of Spreckelsville Beach with an offshore beach rock platform at its center. This section of shoreline (transects 33 - 39) has an average AEHR of -1.7 ft/yr. Sugar Cove (transects 55 - 68) is the eastern most sandy beach in this area. It exhibits the highest average AEHR (-1.8 ft/yr) over time.

Average Beach width, the average horizontal distance from the vegetation line to the low water mark, within the Spreckelsville area has remained relatively stable (2% decrease) between 1960 and 2002. At Stables Beach, average beach width has decreased 12% between 1960 and 2002. Moving east, average beach width for the section of Spreckelsville Beach between transects 18 and 54 has decreased 10% between 1960 and 2002 while the average beach width at Sugar Cove has increased 37% for the same time period.

EROSION RATES

Annual Erosion Hazard Rates (AEHR)

Erosion rates are measured every 20 m along the shoreline. These sites are denoted by yellow shore normal transects. The Annual Erosion Hazard Rate (red), is a spatially smoothed center weighted average of calculated erosion rates. Five contiguous transects are incorporated in the smoothing process. The transects are weighted: 1-3-5-3-1 with the smoothed rate assigned to the center transect. The AEHRs are shown on the shore-parallel histogram graph. Colored bars on the graph correspond to shore-normal transects; approximately every fifth transect and bar are numbered. Where necessary, some transects have been purposely deleted during data processing; as a result, transect numbering is not consecutive everywhere. Where complete beach loss has occurred, erosion rate calculations apply only to the time period when a beach existed.

Despite some scatter, shorelines between 1912 and 2002 show a reasonably consistent trend and are used to calculate AEHRs within the Spreckelsville study area.

HISTORICAL SHORELINES

- 1912
- Oct 1960
- Mar 1975
- Aug 1987
- Mar 1988
- May 1997
- Feb 2002
- Erosion rate measurement locations (shore normal transects)

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

For situations in which there is coastal armoring or rocky shoreline seaward of any vegetation, the vegetation line is drawn along the seaward side of the rock or armoring. If there is no sandy beach in these areas, both the vegetation line and the SCRF are delineated along the mean high water line.

Movement of the SCRF is used to calculate erosion rates along shore-normal transects spaced every 20 m (65 ft) along the shoreline. The 1987 SCRF is not used in the calculation of the AEHR, however it provides a gauge of seasonal uncertainty.

Annual Erosion Hazard Rates (ft/yr)

Spreckelsville

Maui

Papaula Point

Stables Beach

Spreckelsville Beach

Sugar Cove

Wawau Point

Hana Highway

Scale 1:3000

100 0 100 200 300 400 Meters

300 0 300 600 900 1200 Feet

743000m E UTM coordinates

156°39'50" W latitude/longitude coordinates

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768000 mE 770000 mE

2315500 mN 2313500 mN

156°25'20" W 10" 156°25' W 50" 40" 30" 156°24'20" W

20°55'10" N 20°54'10" N