

Paiko Peninsula

Paiko Peninsula is the most unstable coastal feature on Oahu. A Hawaiian government survey map taken of the Maunaula Bay area in 1884 indicate that this feature did not exist. Over the past century the peninsula has grown approximately 2,000 feet to the east.

Geomorphologists would classify Paiko Peninsula as a barrier spit, an elongate sand body that extends from the coastline in a roughly parallel trend and is separated from the land by a lagoon. The peninsula changes in the following manner. Wave action transports sand from the fringing reef to the beach along two distinct sand plumes. One is located to the east of Niu Peninsula and the other is near transect 1 (Photomap 33).

Once on the beach, the sand is carried from west to east by longshore currents. As the sand passes the tip of Paiko, two results may occur that are dependent on the relative amounts of wave energy. If the wave action is strong, sand is deposited in a fork-shaped washover fan extending into Paiko Lagoon. When the wave energy is low, the spit grows to the east.

Between 1928 and 1949, the tip of Paiko Peninsula grew eastward about 550 feet (Table 33, Plate 12). This extension to the east occurred at an average rate of over 25 feet per year. Meanwhile, the arm of the spit thinned considerably. If not for a rock wall built along the shoreline, the eastern end of the peninsula might have separated and become a barrier island.

From 1949 to 1961, Paiko Peninsula grew an additional 350 feet to the east. Since then, the shape of Paiko has been influenced by a nearby artificial channel and extensive dredging operations. In the early 1970's, several channels were dredged within Paiko Lagoon to increase water circulation. Dredged material was deposited in the lagoon to create islands for wildlife habitation.

Paiko Peninsula is an extremely unstable geomorphic feature. Therefore, it may be wise to keep the eastern portion of Paiko a wildlife preserve before additional interference with natural processes occurs.

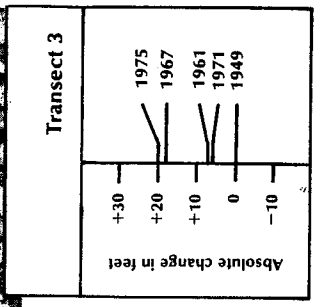
Table 33 - Paiko Peninsula. Changes in the Vegetation Line in Feet.

Observation Period	Transect Number		
	1	2	3
1928 - Oct 29, 1949	+554	*	*
Oct 29, 1949 - Jan 20, 1961	+359	+18	+7
Jan 20, 1961 - Aug 29, 1967	*	-2	+11
Aug 29, 1967 - Jan 04, 1971	*	-2	-12
Jan 04, 1971 - Apr 13, 1975	*	+4	+14
Net Change - Vegetation Line	+913	+18	+20
Range - Vegetation Line	913	18	20
Net Change - Water Line	+865	+2	+34
Range - Water Line	865	19	34

* No data

Net change is the total change in the position of a beach index line between the earliest and most recent observation year.

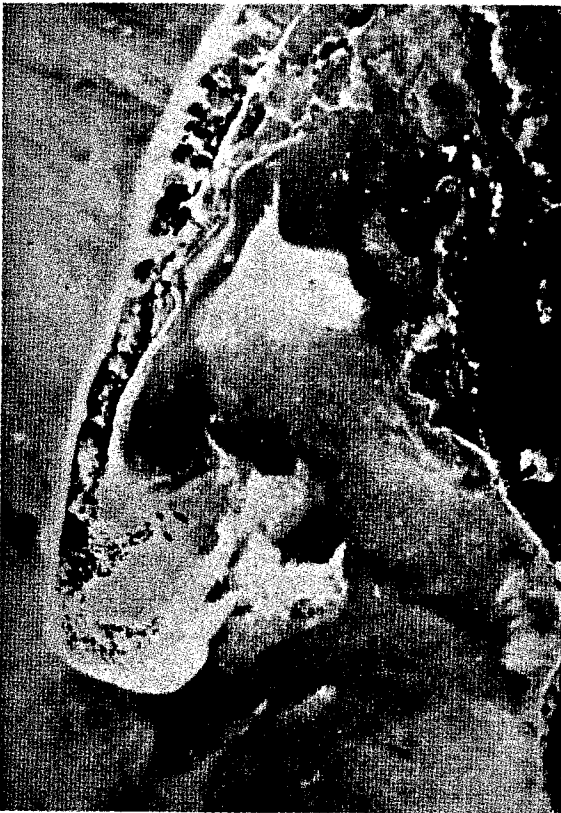
Range is the difference between the observed extremes in the position of a beach index line.



Photomap 33. Paiko Peninsula

Photographs by Air Survey Hawaii: January 1971

Absolute change is the change in the position of the vegetation line compared to the earliest or base year.



1928



1975



1961

Plate 12. Paiko Peninsula. During the 1928 to 1961 interval, Paiko Peninsula grew over 900 feet to the east (left). Since 1961, the shape of the peninsula has been modified artificially.

Along the residential section of Paiko, the vegetation line grew seaward about 20 feet during the 1949 to 1975 period. Accretion predominated over the 26-year interval, although the vegetation line at transect 3 receded 12 feet between 1967 and 1971. This erosion is concurrent with the losses recorded at Sandy Beach Park and Hanauma Bay.