Historical Coastline Changes of Cape Henlopen, Delaware

Coastlines are not static features. They are shaped by the daily effects of wind, current, and wave activity. Over time, a coastline may move landward due to relative sea-level rise or low sediment supply, or seaward due to relative sea-level fall or an overabundance of sediment. Perhaps the most striking example of shoreline movement (in Delaware) is at Cape Henlopen which has moved northward approximately one mile in the last 160 years. Maps and aerial photographs show these changes.

The background photograph shows Cape Henlopen and the lighthouse in 1955. The lighthouse was built in 1797 at least 1,500 feet from the shoreline. It collapsed due to undermining by erosion erosion to drift of SSW. Breakwaters are offshore at the edge of the photograph.

The map shows the Cape since 1926 before the background picture was taken. The location of the lighthouse is shown on the edge of a topographic map known as the Great Plains.

The aerial photographs before show the elongation of the Cape from 1926 through 1947. Note how there is a distinct line on the western shore that of the Cape that developed after 1947 parallel the breakwater. This was the result of erosion by wave and tide currents moving between the breakwater and the Cape. The former location of the lighthouse is shown by the red star.

The shorelines of 1892 and 1918 (above right) were digitized from U.S. Coast and Geodetic Survey topographic maps. Note the movement of the Cape from a land feature in the 18th century (1731 and 1733) to a wave-eroded feature in the early 20th century (1918).

The shorelines from 1914 to 1937 were digitized from U.S. Geological Survey topographic maps. The Cape size appears to have increased and remained approximately the same size between 1992 and 1997 and has been relatively stable since 2013. The former location of the lighthouse is shown by the red star. It is now approximately 100 feet offshore.