

What's up at Herring Cove?

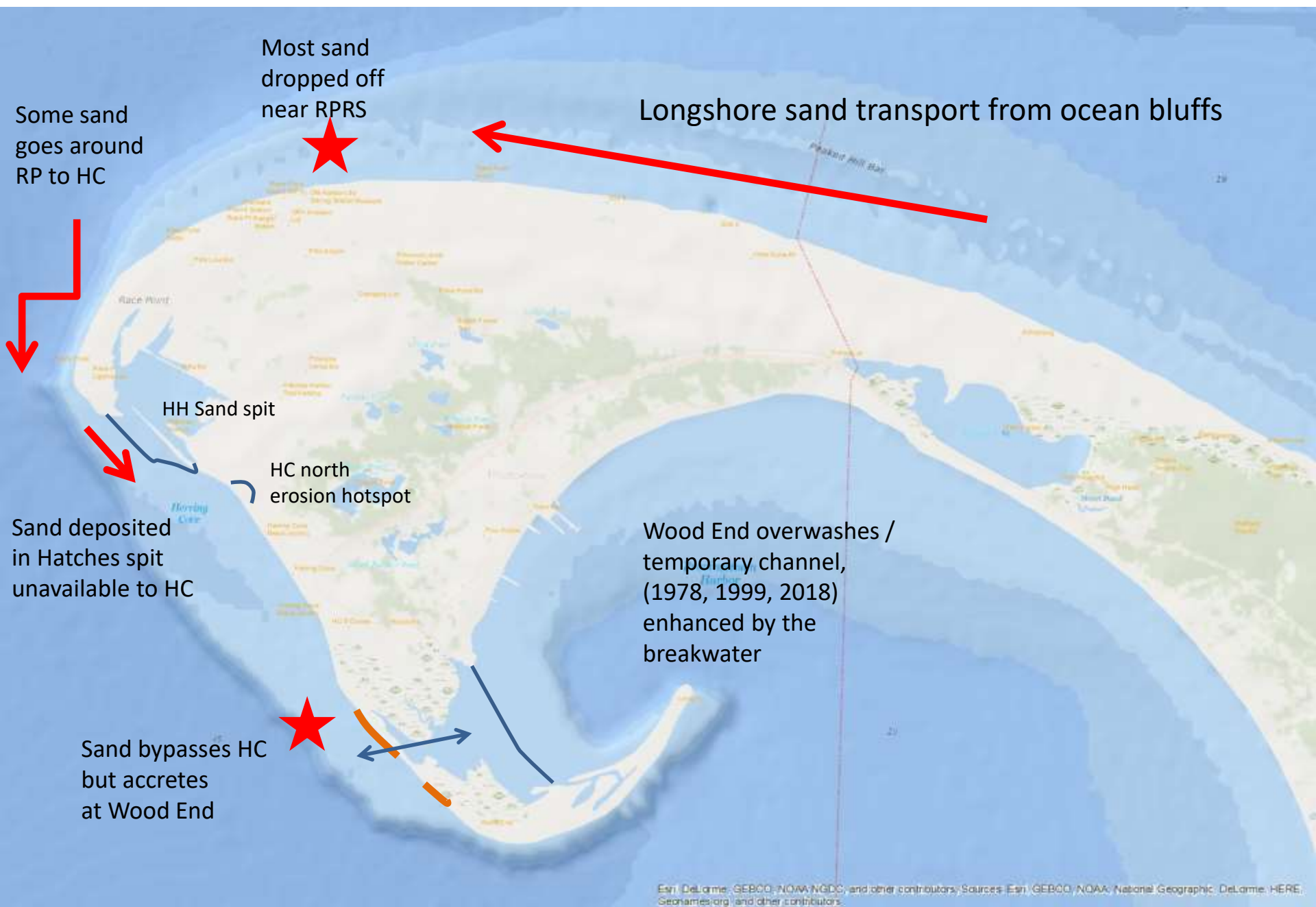
(The changes started a long time ago... zoom to about 6000 years BP)



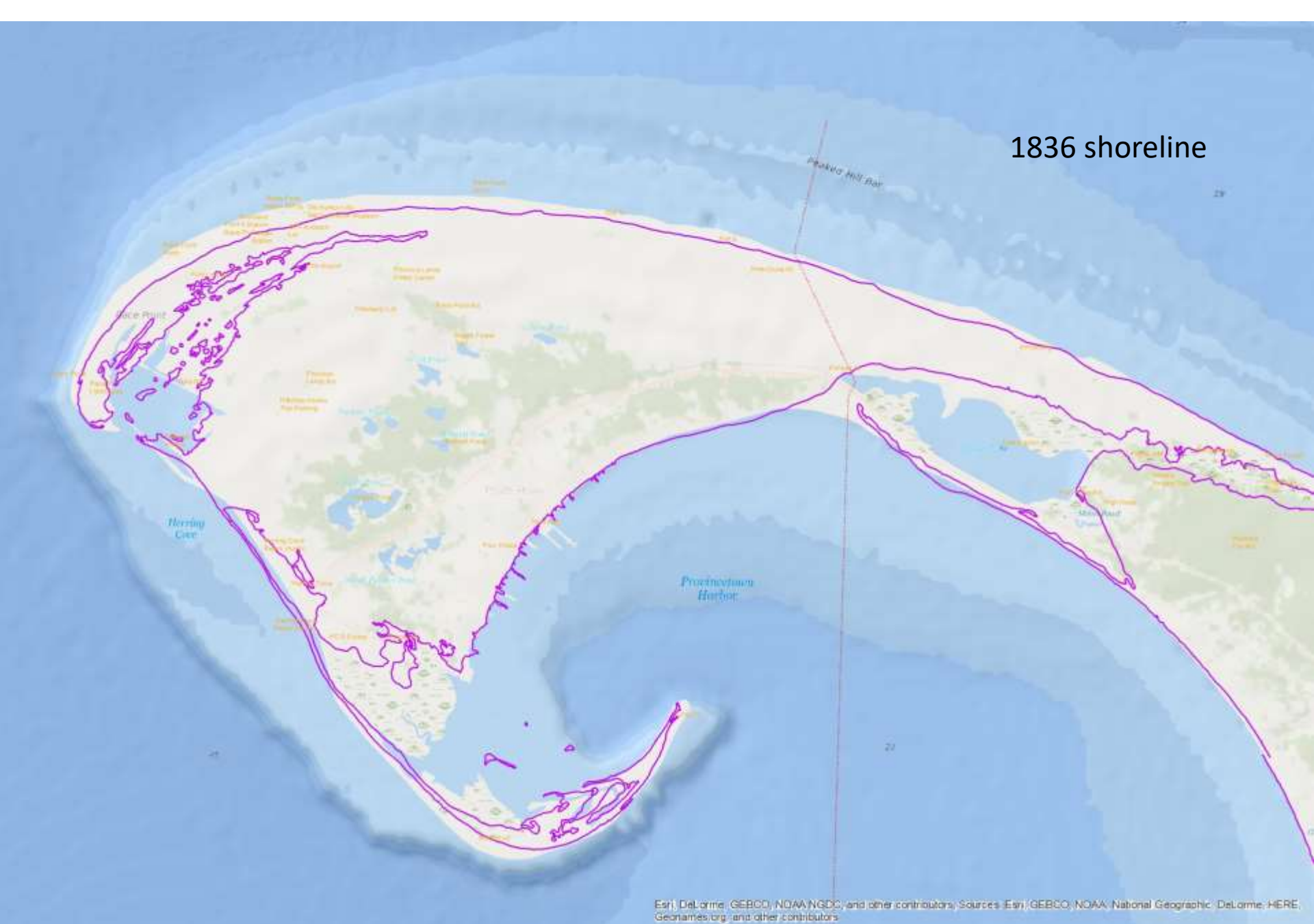
Coastal Science, History and Planning.

Esri, DeLorme, GEBCO, NOAA/NGDC, and other contributors. Sources: Esri, GEBCO, NOAA, National Geographic, DeLorme, HERE, Geonames.org, and other contributors.

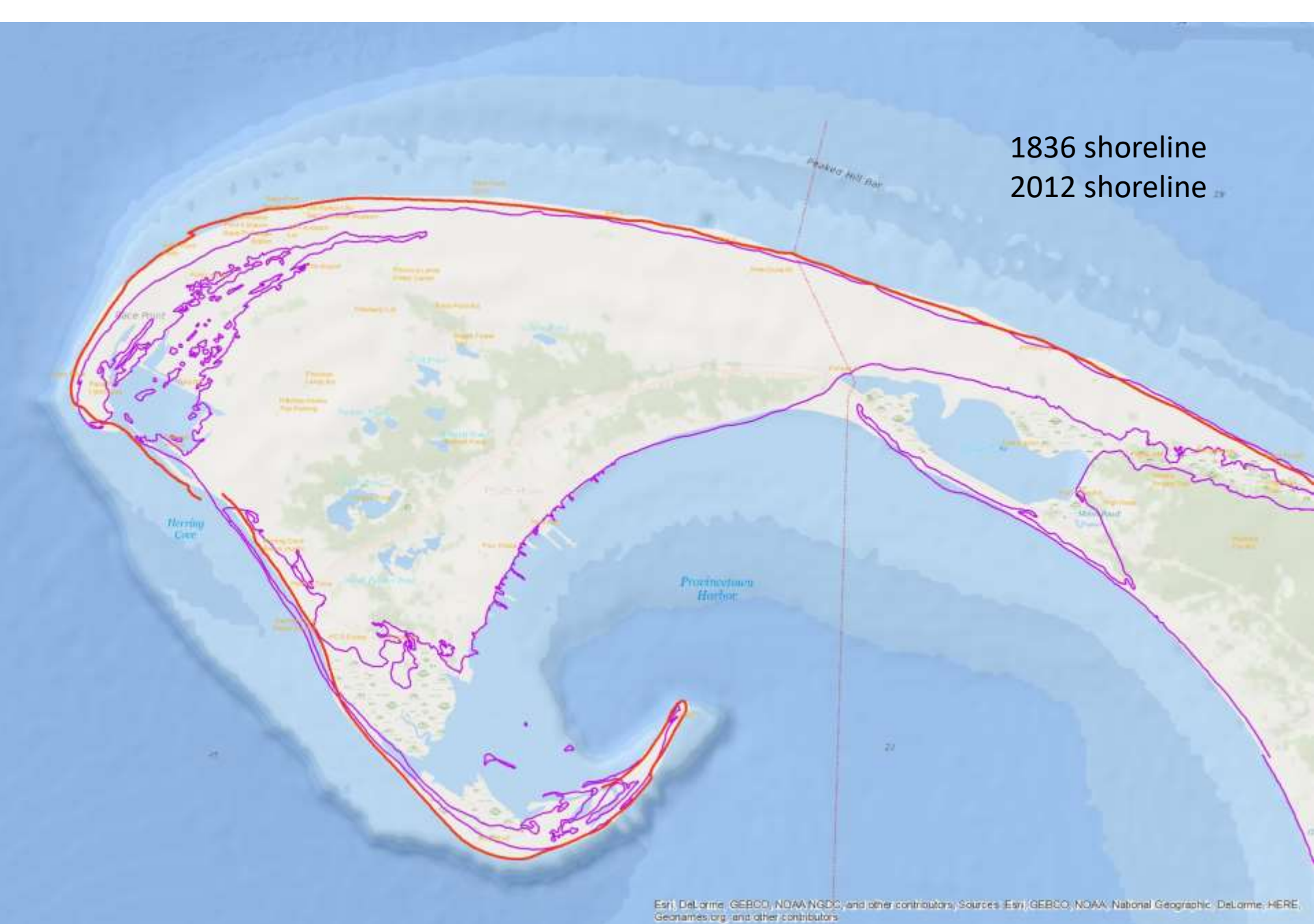
Mark Adams and staff from many NPS divisions

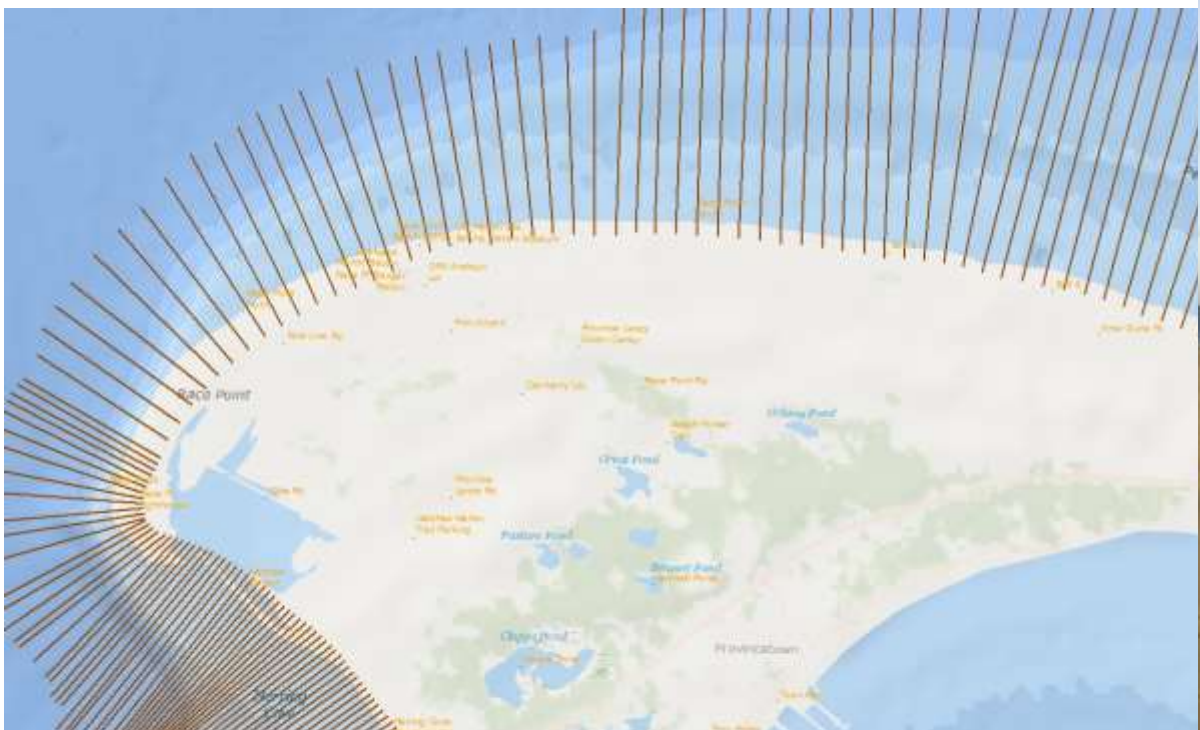


1836 shoreline



1836 shoreline
2012 shoreline





Henry Marindin, US Coastal Surveys 1889-1890
 Graham Giese, WHOI/CCS Surveys 1955-2018



1840



1964



Circa 1920



Making new beach road

Then and now: maintaining the revetment until it was inundated.



2015

1960's



Adaptive design for a new bathhouse.

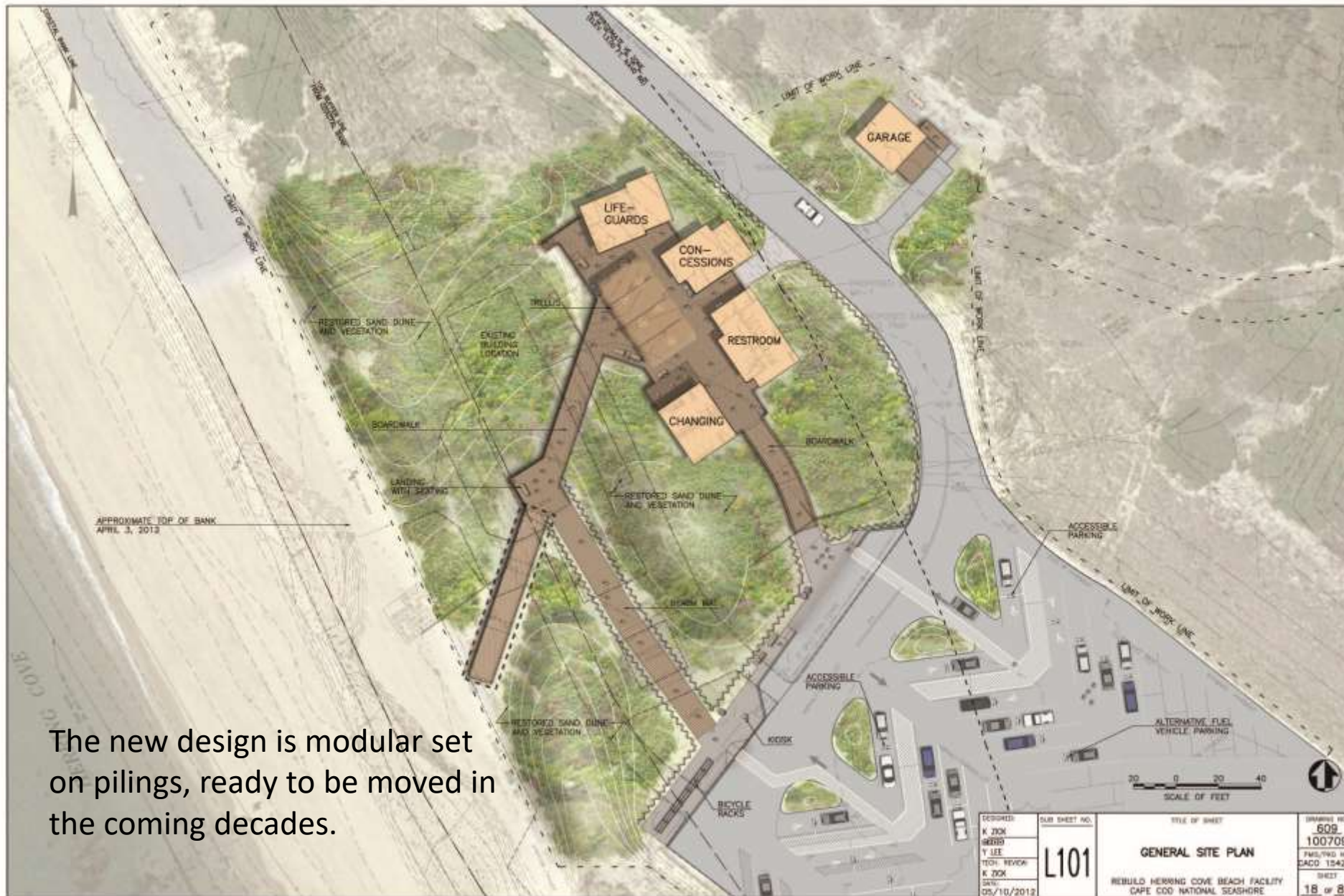
The 1940s bathhouse was a concrete bunker built in response to the 1938 hurricane. It was structurally unsound, rusted and in the path of coastal retreat when it was removed.





2014

Google Earth



The new design is modular set on pilings, ready to be moved in the coming decades.

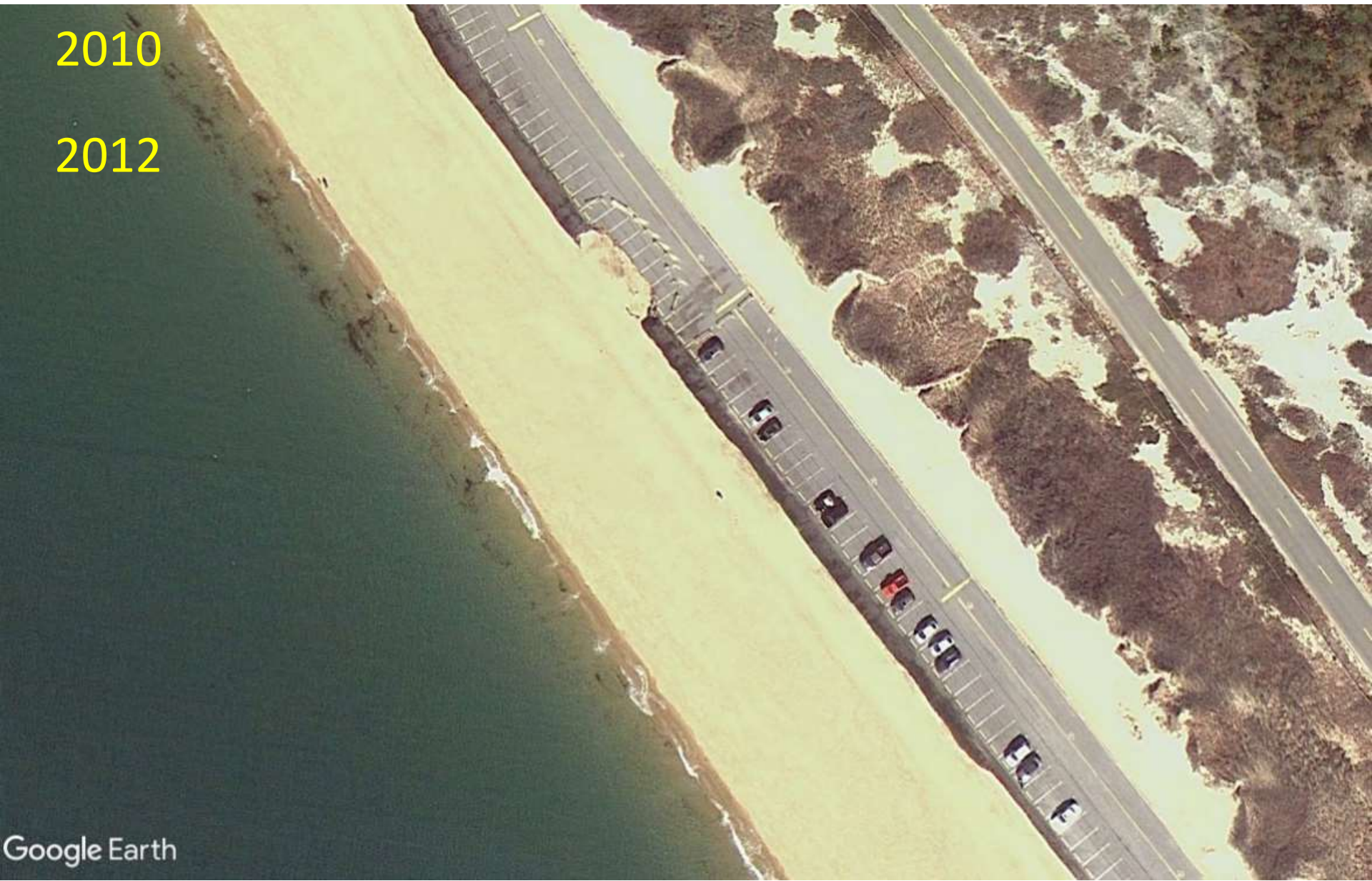


North Parking Lot



2010

2012



Planning a new parking lot

Expected shoreline retreat (2.5 feet/year)

2012 

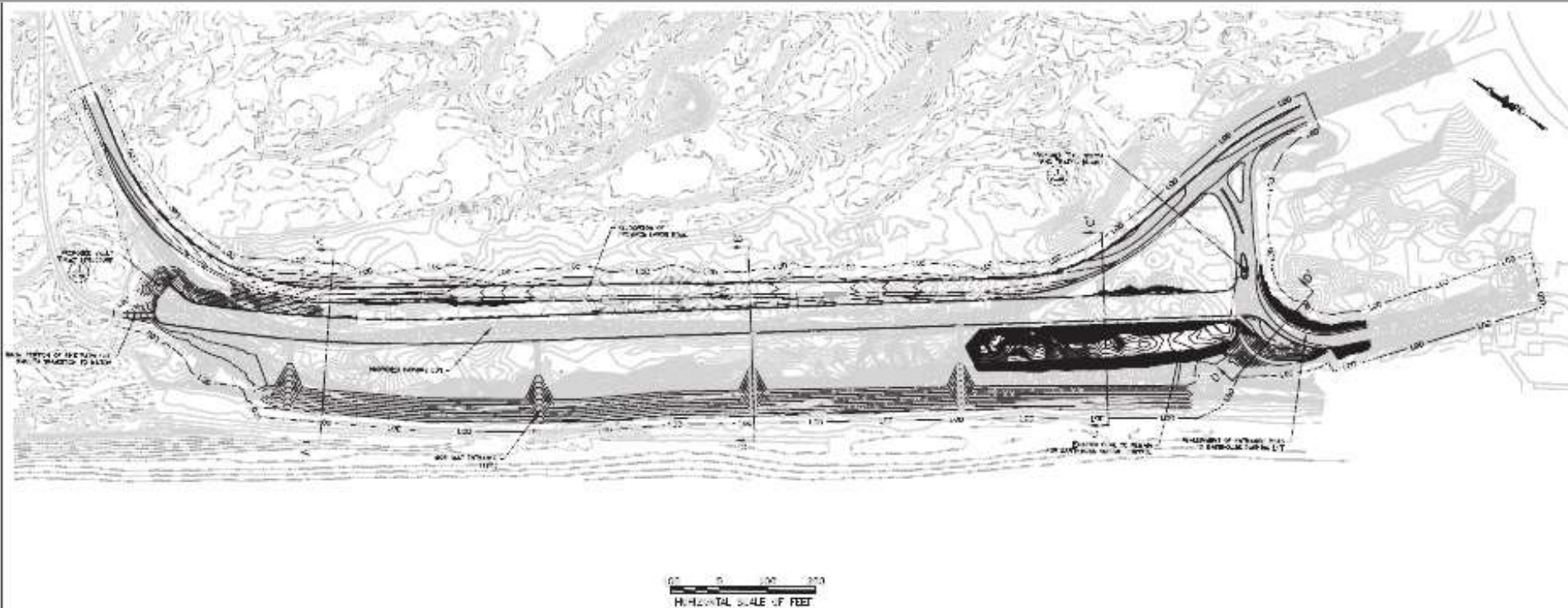
2022 

2032 

north parking lot

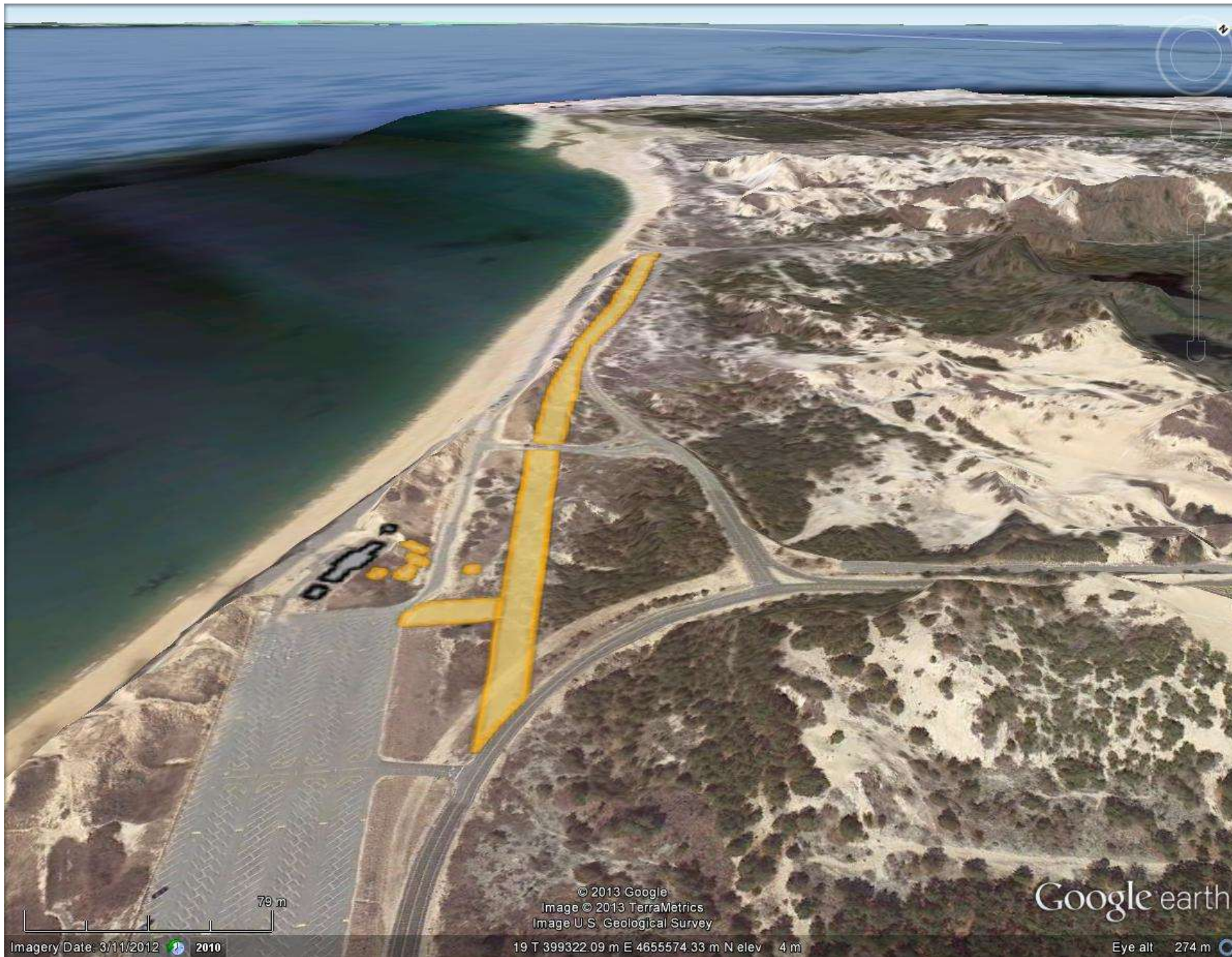


Herring Cove north parking lot (existing - projected) designed for 3-5 feet/year of coastal retreat.



Parking lot to be moved 140 feet inland from previous location
(on the current road layout – with the road rerouted inland).
Contracting has been rapid for a Federal project but coastal retreat has outpaced planning.
New lot will be partially paved with permeable materials.





© 2013 Google
Image © 2013 TerraMetrics
Image U.S. Geological Survey

Google earth

Imagery Date: 3/11/2012 2010

19 T 399322.09 m E 4655574.33 m N elev 4 m

Eye alt 274 m

2010

2012

2014

2015

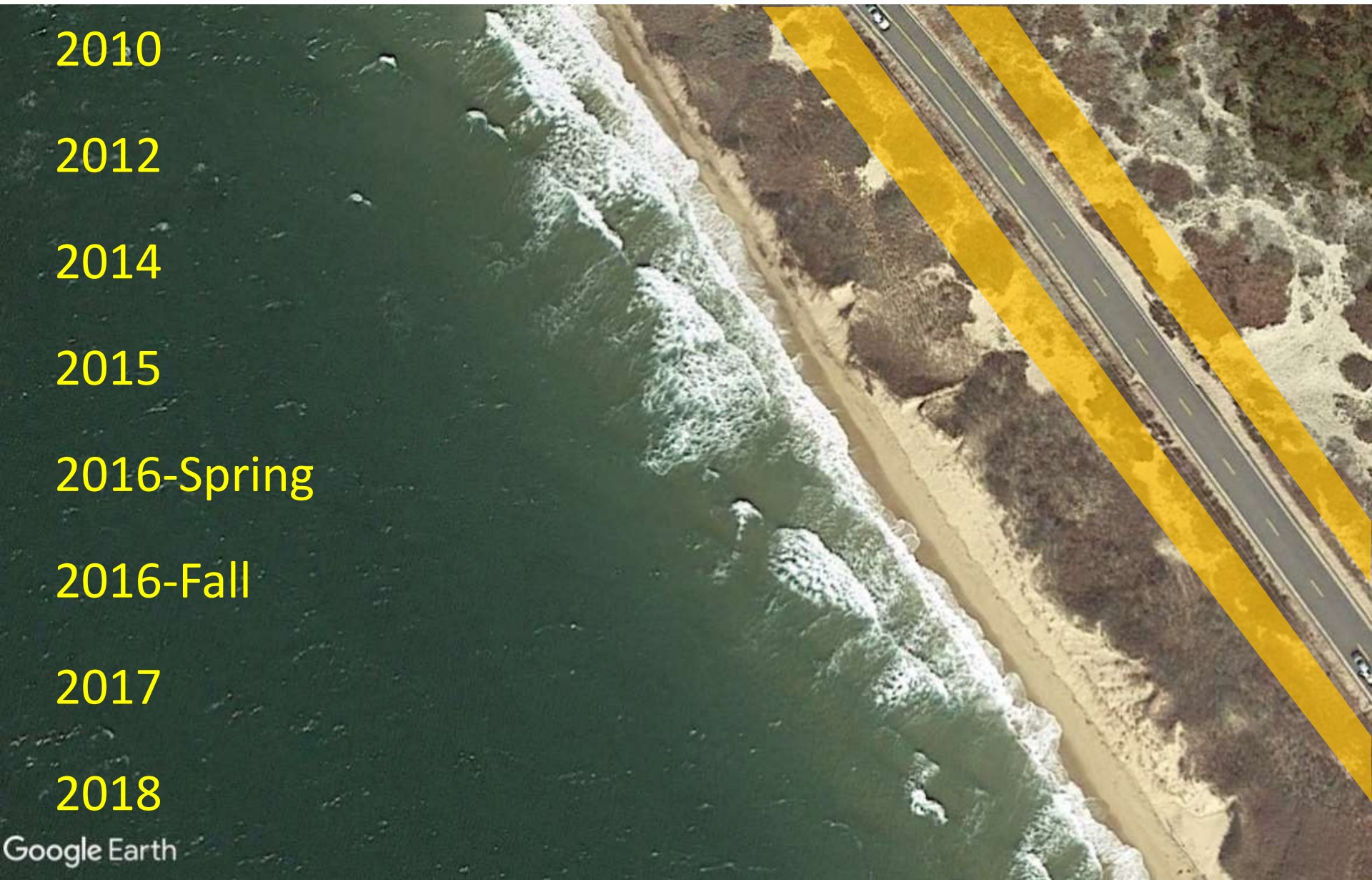
2016-Spring

2016-Fall

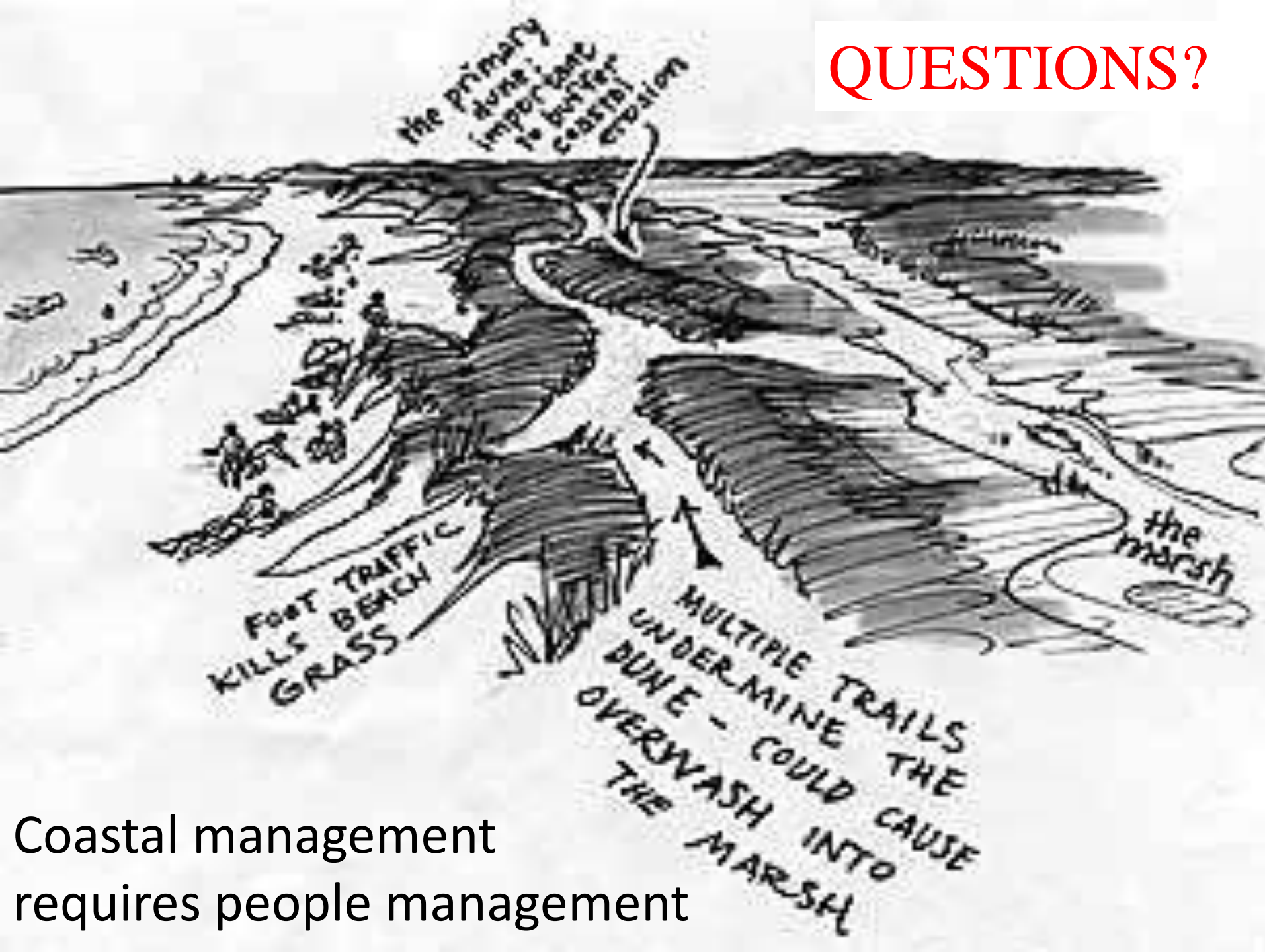
2017

2018

Google Earth



QUESTIONS?




Coastal management
requires people management



Herring Cove

Google Earth

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2018 Overwash/Breach
at Wood End – survey
locations

The image is an aerial photograph of a coastal region. A bright cyan line is drawn on the map, starting from the top left, following the coastline, and then turning inland towards the center. A cyan arrow points from the bottom of this line towards the bottom right, indicating a specific survey location. The map shows a mix of green vegetation, brownish sandy areas, and a dark blue body of water. A road or path runs along the coastline, and there are some buildings and structures visible in the upper right area.



and channel

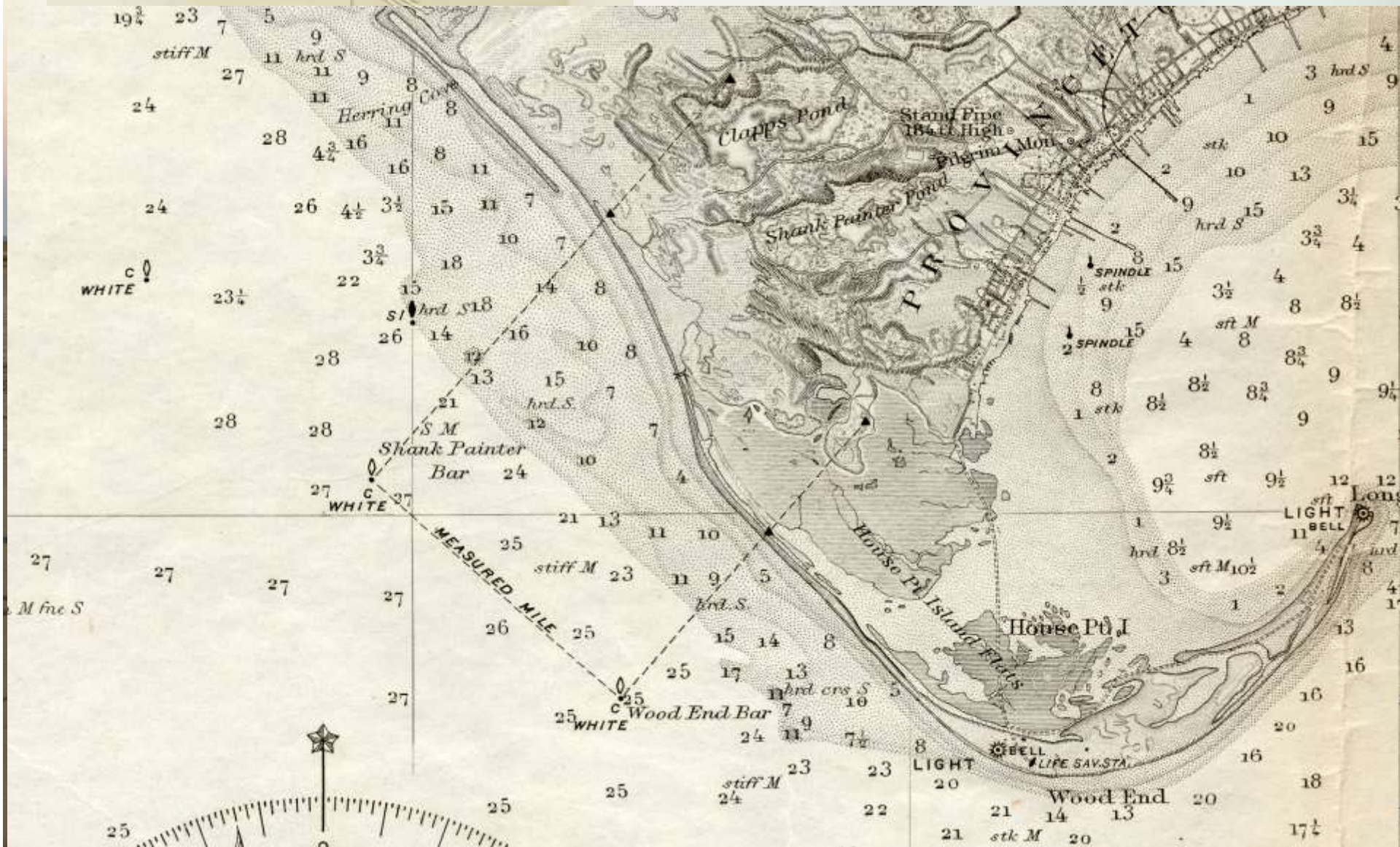
2014

1987

1981



The overwash removed the primary dune revealing historical artifacts.



F.B.-S.E.-Range. (1906)

This station marks the
beacon of the Southeast range
The Provincetown, Mass. Speed
Course. The beacon was set

during the latter part of 1906.
beginning of 1907. The beacon

of a tripod surmounted by a
and flagstaff - The tripod is
high - The pole extends 25 feet
the top of the tripod and the top
flagstaff is 12 feet above the
the pole. The legs of the tripod

on concrete piers, which extend
below the surface of the ground.

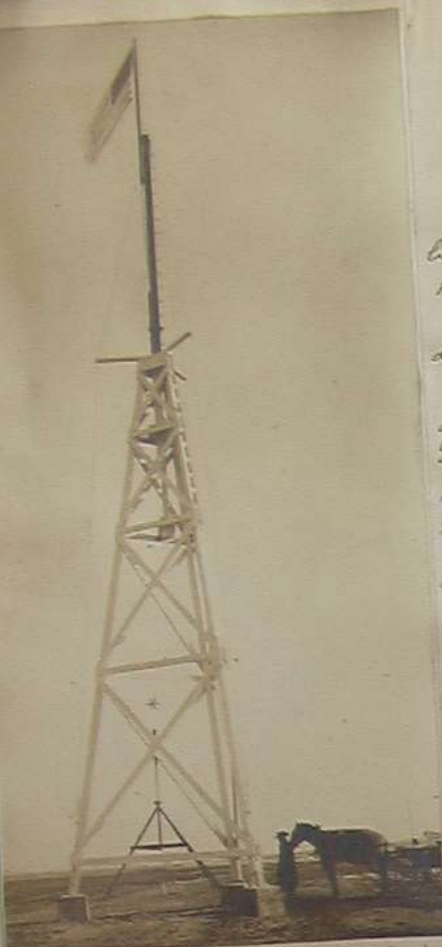
Each leg is bolted to 3 heavy
irons which extend in and
bottom of the pier.

Station Mark

Directly under the center of
is a station mark which consists
a piece of 4 inch terracotta sewer
pipes long incased in a
of concrete 20 inches in diam
perpendicular. The top level
the surface. The pipe is filled

concrete and in the top of the pipe is set a 60th wire
(lead down). The point of this nail projects 1/2 inch above
the point of this nail which is identical with the center
pipe is the station mark. The distance from the station
mark to center of each concrete pier is 884 feet.

C.B. French, 1909. Standing in good view



F.B.-S.E.-Range 1906. (Side view)

* Δ Third Center (1902) distant
21.36 meters from center of F.B.



Providence, Mass. Speed Trial Course
Rear Beacon, S.E. Range.

+ Cont. Me. Ch. Sp.

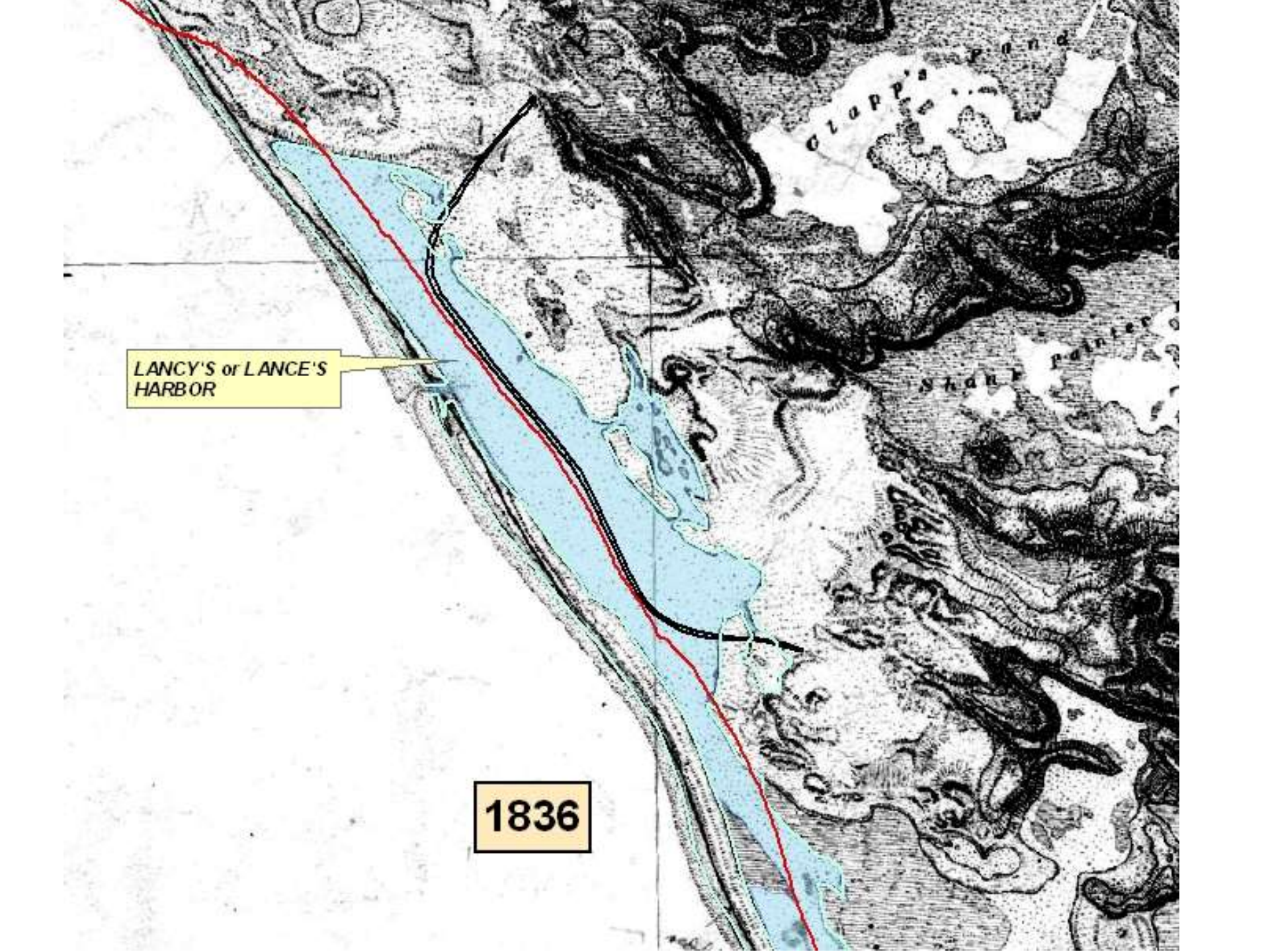
* Δ Telegr. Hill 1902

November 1909
(689)



Overwashed beaches tend to rebuild in quiet weather. Long shore sediment deposition will build a platform. Wind and beach grass will build dunes (subject to pedestrian trampling). The timeframe can be months or years depending on weather, sediment supply and disturbances.

Thank you



A historical map of a coastal region, likely from the mid-19th century. The map shows a large body of water, possibly a bay or harbor, shaded in light blue. A prominent red line runs along the coastline, and a black line follows a path or boundary within the water. The land is depicted with detailed topographical features, including hills and mountains. Labels for 'Glappa Pond' and 'Shant Pointe' are visible. A yellow callout box points to a specific location in the harbor, and a yellow box at the bottom indicates the year 1836.

LANCY'S or LANCE'S
HARBOR

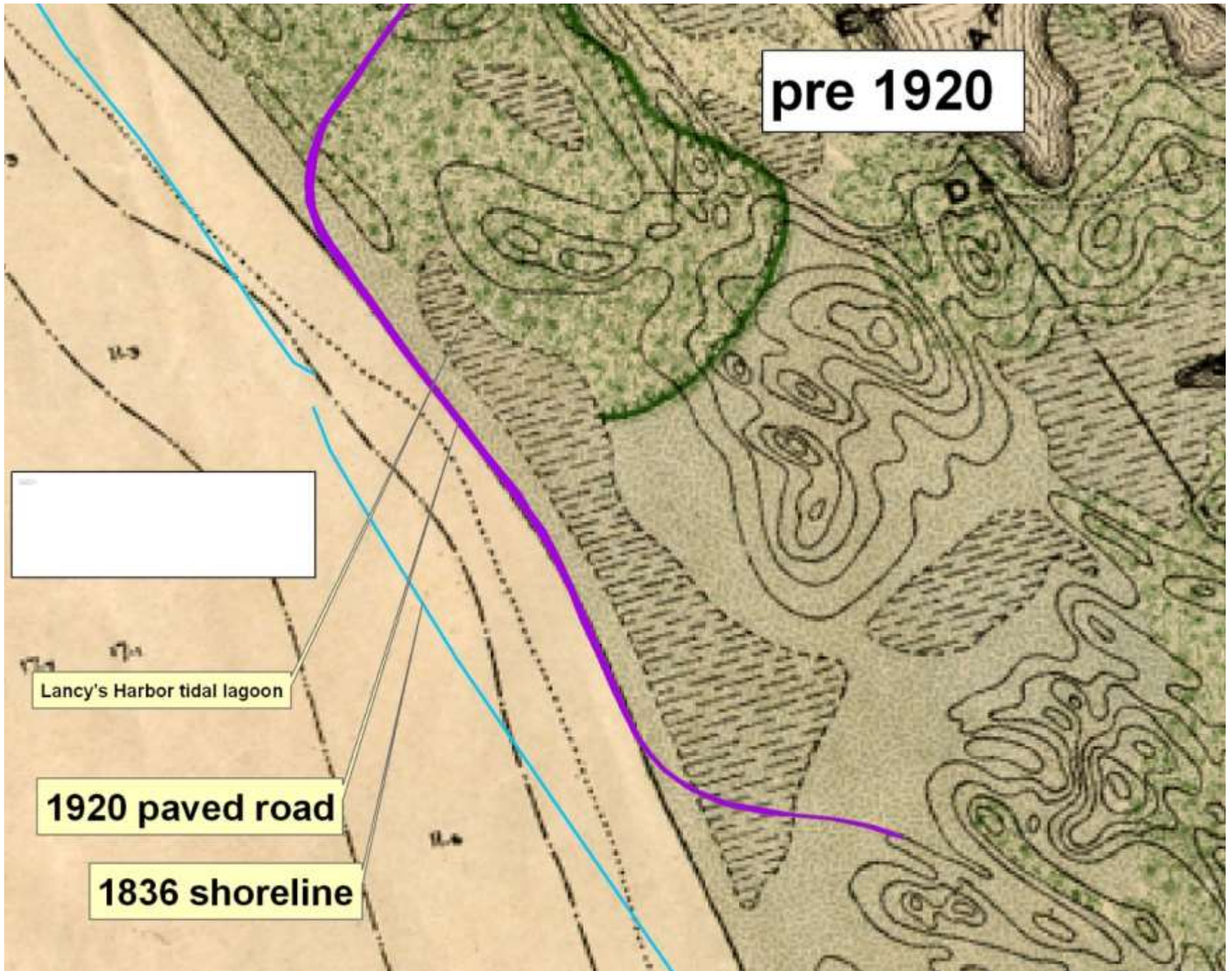
1836

pre 1920

Lancy's Harbor tidal lagoon

1920 paved road

1836 shoreline



1836 shoreline

"New Road "

future bathhouse

1947

aerial photo





1960

aerial photo



Google Earth

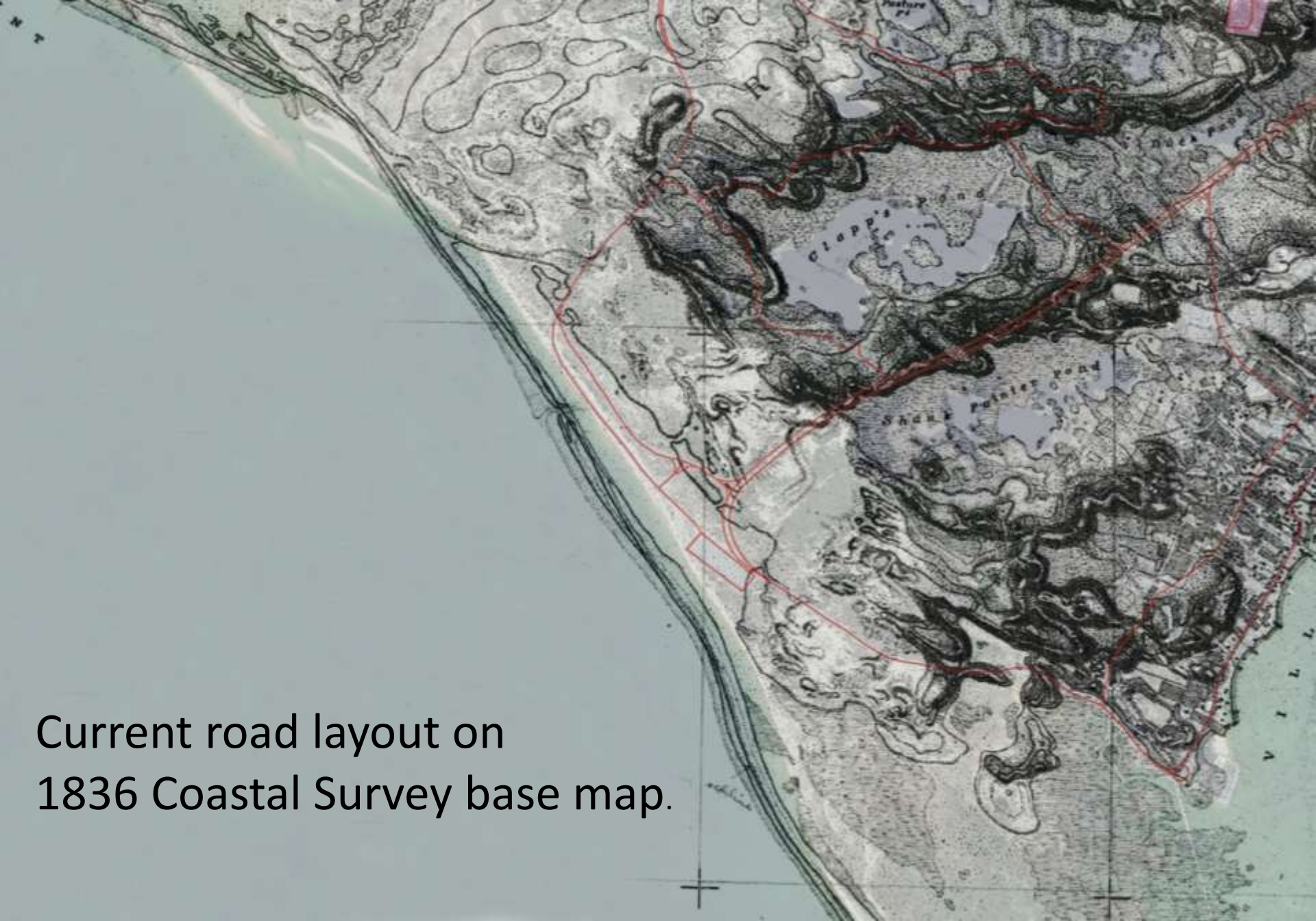
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

1764



North Inlet
2018





Current road layout on
1836 Coastal Survey base map.