

SQUIBNOCKET PROJECT
SUMMARY OF USGS COASTAL AND MARINE SCIENCE CENTER
REPORT AND MEETING

The report principally addressed a list of questions submitted to the USGS regarding probable future coastal conditions, the impact of the revetment removal, and the effects of a manmade dune.

Probable Future Coastal Conditions. The report provides a table of potential local sea level changes; most probable estimated rise in 25 years is 0.63 to 1.08 feet, and in 50 years is 1.11 to 2.16 feet. The highest estimate is 1.60 feet in 25 years and 3.36 feet in 50 years. It is noted, however, that the understanding of the changes in specific locations “is poor”.

Squibnocket Pond will probably rise at the same rate as the nearby ocean. The erosion rates used by the proponents were developed by a team led by Dr. Thieler, the author of the Squibnocket report. At the meeting, Dr. Thieler noted that using these rates to predict conditions decades in the future was inappropriate as erosion rates are likely to change.

Revetment Removal, After removal of the revetment the shoreline will retreat and probably be at a similar location as shown in Greg Berman’s earlier report. This will occur relatively quickly, perhaps within a year. The area behind the existing parking lot will tend to increase in height as sand, gravel and cobble are washed over it. The beach in front of the existing parking lot should improve.

The Dune. if the dune is built in the proper place, it will have little effect on the erosion rate. However, the manmade dune should not be constructed until the beach retreat has reached equilibrium after the revetment removal. If the dune is built at the shoreline before equilibrium, the beach retreat will be delayed and a portion of dune will wash away. As confirmed at the meeting, with a dune solution there will be a period after the revetment removal and prior to the dune construction, when the access roadway is unprotected. After the beach reaches equilibrium, it is likely that a natural dune, similar to the adjacent areas, will develop.

Summary. USGS’s clear preference is for a flexible solution that can adjust to future conditions, rather than a fixed protection that requires a substantial financial investment. This view, which was emphasized at the meeting, does not consider potential impacts on wetlands or other non-coastal impacts, nor does it prioritize the need for access to Squibnocket Point.

In response to a question as to how high a causeway near Squibnocket Pond would have to be to provide reasonable reliable service without a dune, USGS stated that a more complete study of storm surge and water levels would be required to estimate the vulnerability of the road. At the meeting there was a discussion about the potential of a low causeway near the Pond, noting that a dune could be constructed at a later time if washovers occurred more frequently than acceptable. Dr. Thieler mentioned that a “sacrificial dune” might be appropriate, one that provided protection but could be occasionally overwashed and require repair after a major storm and wave surge,

The report was prepared by Dr. Robert Thieler, and reviewed by Dr. Walter Barnhardt, Director of the USGS Coastal and Marine Science Center.