



Scenario A: Can We Save Smith Island

Scientific and Historical Background Information



Smith Island straddles the border between Maryland and Virginia in the lower Chesapeake Bay and is the last inhabited island remaining in Maryland with no road connection to the mainland. The only access is provided by ferries and private boats. Smith Island is actually a collection of several smaller islands separated by expanding guts or water-filled ditches. Main points of interest on the island include the Martin National Wildlife Refuge, which occupies the northern half of Smith Island, and three small towns on the southern half of the island. Ewell and Rhodes Point are connected by the only road; Tylerton must be accessed by boat. The island has an elevation of 1.22 m (4ft.) or less above sea level. Only 3.64 km² (900 acres) of the island's 32.38 km² (8,000 acres) area is habitable, with the remainder classified as low salt marsh or open water.¹

Discovered by John Smith in 1608, Smith Island was named for Henry Smith, one of several English and Welsh farmers who settled there in the late 1600s. With the passing years, the farmers' pastures eroded more each year, with a loss of 4.86 km² (1,200 acres) in the past century.¹ As their island home disappeared into the Bay, descendants of the early farmers became watermen. Today, some of the remaining residents lead historical tours of the island for the tourists who visit from the mainland. The island's maximum population in the early 1900's of 800 – 900 has dwindled in recent years to about 210.²

Since climate scientists estimate that average global sea level rise is 1.8 mm (0.07 inches) per year, we can expect that many of the world's low islands and coastal areas will disappear in the next century. The Chesapeake Bay averages a sea level rise of 3 mm (0.12 inches) per year, the result of a warming climate with melting glaciers combined with post-glacial subsidence of the land in the region south of the last advance of the glaciers that ended 12,500 years ago.³ Until 1900, the water in the Bay rose at a rate of one meter (3 ft.) every thousand years. That rate is accelerating, with a change of 30 cm (1 ft.) just in the twentieth century. Once-thriving communities on islands such as James, Holland and Barren Islands have disappeared as the rising water has covered them.

The Army Corps of Engineers authorized a plan in 2007 to protect the town of Tylerton and the northwestern side of Smith Island from additional erosion and storm surges. Bulkheads were added to the edge of shoreline properties in Tylerton to reduce erosion. As of 2013, work continues on the Smith Island Restoration Project adjacent to the Martin National Wildlife Refuge. In this living shoreline project, stone breakwaters are built parallel to the shoreline with fill added behind the breakwaters, followed by the planting of native submerged aquatic vegetation (SAVs). The goal of the project is to reclaim tens of thousands of square meters of wetland habitat which is expected to reduce erosion, dampen the effects of storm surges and restore nursery habitat for juvenile crabs and fish.³



Climate scientists from the University of Maryland, NOAA and EPA predict that continued global sea level rise combined with post-glacial subsidence means trouble for what remains of Smith Island. In the aftermath of Hurricane Sandy in 2012, most owners of damaged homes and businesses on mainland Somerset County, MD received financial help for rebuilding. All applicants from Smith Island were denied financial assistance for rebuilding; however, federal funds were offered to buy Smith Island residents out if they agreed to certain conditions⁴. When the island residents refused to move the buyout offer was rescinded.⁵

Citations:

¹ *Smith Island, MD* (n.d.). Retrieved from www.nefsc.noaa.gov/read/socialsci/pdf/MD/smithisland_md.pdf

² *Smith Island Cultural Center*. (n.d.). Retrieved from www.smithisland.org

³ *Smith Island Environmental Restoration, Somerset Co. MD* (n.d.). Retrieved from www.nab.usace.army.mil/Media/FactShets/FactSheetArticleView/tabid/10470/Article/9250/smith

⁴ Holland, L. (2013, April 24). *Delmarva Now*. Retrieved from www.delmarvanow.com/apps/pbcs.dll/article?AID=2013304240081

⁵ Wheeler, T. (2013, May 15). *Somerset drops buyout of Smith Island homes*. *The Baltimore Sun*. Retrieved from www.baltimoresun.com/features/green/blog/bs-gr-smith.island-buyout-dropped-20130515-story.html.





Additional Resources

- www.geography.unt.edu/~rice/geog3100/3100handouts/chesapeakecasestudy.doc
- www.us/history.htm
- www.nefsc.noaa.gov/read/smithisland/socialsci/pdf/MD/smithisland-md.pdf
- www.csc.noaa.gov/cz2003/proceedings/pdf_files/belanus.pdf
- www.epa.gov/climatechange/
- www.charts.noaa.gov/OnLineViewer/12230shtml (up-to-date nautical chart)
- Shoreline change maps: Smith Island sits in four quadrangles.
 - www.mgs.md.gov/coastal/maps/schangepdf.html (maps site)
 - www.mgs.md.gov/coastal/maps/slmapdf/EWEL_PF.pdf
 - www.mgs.md.gov/coastal/maps/slmapdf/KEDGE_PF.pdf
 - www.mgs.md.gov/coastal/maps/slmapdf/TERRA_PF.pdf
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- Horton, T. (1996). *An island out of time: A memoir of Smith Island in the Chesapeake*. New York: Vintage.

