

2016 COMMUNITY UPDATE



Sand-covered geotubes protect the toe of the bluff. Newly planted vegetation (foreground) and one-year-old vegetation (background) stabilize the face of the bluff. May 2016

News from the Bluff

I am pleased to report that our effort to stabilize the base of 'Sconset Bluff in an environmentally responsible manner is working. This is the third year in a row, since the installation of the geotubes that there has been no erosion at the base of the bluff. Because of this success, Baxter Road has not needed to be closed as some thought necessary just three years ago and access to Sankaty Lighthouse and homes in that area continues unimpeded.

This winter we were finally allowed to install the fourth and final layer of geotubes and construct a drainage system on the side of Baxter Road, redirecting surface runoff so it is no longer causing erosion from the top of the bluff. In addition, the annual sand delivery covering the geotubes took place in December. Most of that sand washes away during storms just as it is designed to do, feeding adjacent beaches in a manner that mimics natural erosion.

We have begun an expanded program of scientific monitoring, developed together with the Nantucket Conservation Commission. A series of scheduled monitoring activities will allow us to present more data on actual performance. Our hope is that Nantucket's largest science project can teach us all something about how to adapt in this era of rising sea levels and climate change. In the future, in order to protect the entire historic 'Sconset neighborhood from advancing erosion we need to extend the length of the protection, something we have agreed to postpone until 2018 to allow further study.

We hope you will visit our project viewing area at 87 Baxter Road this season to see for yourself.

Josh Posner
President of SBPF

QUICK FACTS

- Erosion has been moving south from Sankaty Light at the rate of 70-80 feet/year on average for the last 30 plus years.
- At its closest point, the top of 'Sconset Bluff is only 29 feet from the public Baxter Road.
- Eight homes have been moved or demolished leaving vacant lots and 12 more have been moved back toward the roadway.
- The town's tax base has been reduced by tens of millions in previously taxable assessed value as the bluff erodes away. The process continues costing taxpayers as taxes (approximately \$300,000 in lost tax revenue in 2014 alone) are shifted from properties along Baxter Road to all other island properties.
- Geotubes, measuring seven feet tall with a circumference of 45 feet, are sand-filled sleeves of geotextile fabric, layered in four, step tiers at the base of the bluff.
- The geotubes are covered by sand in the amount equal to approximately 1.5 times the volume that would naturally wash away so nearby beaches are not harmed.
- The project is monitored after every major storm and 'Sconset Beach has been professionally surveyed several times a year since 1994 to track changes from the 'Sconset sewer beds to Wauwinet.
- Front page story in *Inquirer and Mirror* about large February storm reported: "On the island's east end, the 'Sconset Bluff and the geotextile tubes at its base, which are intended to protect against erosion, appeared to weather the storm without incident."

One Family's Story

For many years, Margaret and Larry McQuade were not threatened by what appeared to be the normal rate of erosion of their property on 97 Baxter Road.

"At first, it was fairly incremental," said Margaret. "Then we had a couple of super storm years, with wind and water that hit directly on our part of the bluff. We lost more land than the properties up near the lighthouse. After one storm season we lost 30 feet."

Over the years, the McQuades lost 100 feet of land and were forced to move their house, a quintessential 'Sconset home, inland.

The house was cut into five sections and three were moved to Plainfield Road to form a new house.

Yet, the McQuades were not ready to give up their foothold on the bluff.

Two sections were joined together to form a 700-sq. ft. cottage that remains at 97 Baxter Road. The small, two-room cottage is tucked behind a tiny hedge, inches from both Baxter Road and a 100-foot drop into the Atlantic.

We thought we would be OK on the bluff for the extent of our lives," said Margaret. "The views of the ocean are my soul food."

There is nothing that equals the beauty and the serenity of the ocean's edge."

The section of the bluff where the McQuades keep their cottage is also the most vulnerable to being breached and having the road to Sankaty Light washed away.

"It was half practical — thinking the cottage on the bluff would be good for my son — and half emotional for not wanting to leave," said Margaret.

The McQuades are hopeful that their cottage and the road can be saved. They've supported SBPF's efforts to stabilize the beach and the base of the bluff for more than two decades and are seeing significant success with the geotube project.

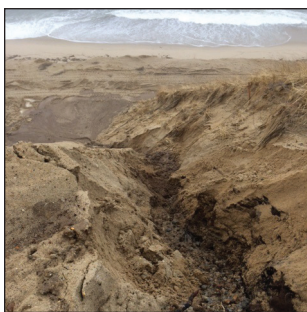
"Certainly, the bluff's much more stable since the geotubes went in three years ago," said Margaret. "I still hope we can be protected, but what is even more important is for the other threatened areas to get protection before it gets to the extreme point that we have reached. Twenty more homes are now threatened by erosion and we should not wait until it is too late to expand this effective project and protect them. I am hoping the facts might change people's minds."



TOP: The McQuades house on 97 Baxter Road before a series of winter superstorms eroded more than 30 feet in one year. Overall the family lost more than 100 feet of property before the house was eventually cut up into five pieces and moved to another location on island.

ABOVE: After their home was cut into five sections to be moved, the McQuades joined together two of the older sections to form this 700 sq. ft. cottage that is still in use on their property. The geotubes are protecting the most vulnerable section of the bluff, yet, if the project were expanded beyond the emergency measure, it could prevent further loss of property and potentially save 20 more homes along Baxter Road.

Baxter Road Drainage System Installed



ABOVE LEFT: This photo clearly illustrates the need for the drainage system that was installed near the Observation Area this winter. Runoff coming down Baxter Road created a gully on the face of the bluff contributing to its erosion.

ABOVE MIDDLE: Runoff was pooling along the roadway. This section of Baxter Road, closest to the edge of the bluff, is critical to maintain access to homes north of the area and Sankaty Lighthouse.

ABOVE RIGHT: Newly planted and more mature vegetation on the face of the bluff help stabilize it, while the sand-covered geotubes (darker sand) protect the toe from erosion.

LEFT: Now that the geotubes are protecting the toe of the bluff, the catch basin and drainage system on Baxter Road are helping with run off and erosion from the top of the bluff.

SEE FOR YOURSELF

Visit our Observation Area at 'Sconset Bluff

Each year, 'Sconset Beach and bluff are at risk for further erosion — in some recent difficult storm years, up to 30 feet or more have been lost from the bluff. Visit our observation area at 87 Baxter Road to learn more about our efforts to protect and preserve this special place.

- Chat with our summer interns (see page 4), who can answer questions and point out project highlights.
- Listen to our audio tour at 508-443-6443.
- Schedule an information session on the bluff for your group.
- Follow us on Facebook (www.facebook.com/sconsetbeach) and Twitter (@SconsetBeach) for regular updates and announcements about events.



Monitoring the Bluff Protection Project

Why was it important to add the fourth tier of geotubes?

In October and November of 2015, the fourth tier of geotubes was installed in the project area. The fourth installed tier provides added protection to the bluff during very large storm surges that would otherwise undercut and erode the geotube system and force the natural bluff to collapse.

Has the installation of angled returns at the two ends of the geotubes had any adverse impact on the beach?

The angled returns on the geotubes were installed in late fall to prevent scour, or erosion, that could occur on the ends of the geotubes or behind the geotubes. The angled returns have been successful and there is no sign of scour on the beach to date.

Has the large volume of sand — almost 1,000 dump truck loads of sand each year — changed the beach?

For every linear foot of protected bluff,

SBPF is required to provide 22 cubic yards of sand for mitigation. Since the project area is 947 feet long, that is nearly 1,000 dump truck loads worth of sand. During a storm, waves remove the sand covering the front of the geotubes, causing sand from above to slide down and replace the sand that washes away. In this way, the sand removed by the waves mimics the natural course of erosion of the bluff, providing a continued source of sand to the “river of sand” that constantly circulates on our beaches and shoals.

Is the bluff protection (geotube) project working?

There has been zero erosion from the base of the bluff since the installation of the geotube system three storm seasons ago. With the installation of a storm water drain at the edge of Baxter Road, erosion from the top of the bluff has now also been stopped. We are very pleased by the results to date.

How do you determine if the project is being properly maintained?

The project is monitored after every large storm to check the geotubes, the sand coverage on the geotubes and the unprotected beach. This monitoring ensures that the geotubes are protecting the bluff haven't been damaged and are working the way they should.

What type of project monitoring is done to determine if the project is impacting others?

'Sconset Beach has been professionally surveyed annually since 1994 to track changes along a six-mile stretch of beach and adjacent bluff area from the 'Sconset sewer beds to Wauwinet. The results are documented in a series of public reports from experts at the Woods Hole Group. Report #67 was distributed in March 2016.

Project monitoring is done in close cooperation with the Nantucket Conservation Commission to whom we report our findings throughout the year.

Check www.sconsetbeach.org for updates on our project monitoring.



Geotubes Doing Their Job

BELOW: The geotubes are doing their job. The waves crash against the toe, exposing parts of the sand-covered geotubes.

RIGHT: The first tier is below grade and serves as the "foundation" of the project. The second and third tiers are partially exposed. The newly installed fourth tier is above the third. You can see how the wide beach has returned. There is some sand loss as designed and as expected, yet, zero bluff erosion and no threat to the geotube protection.

BELOW RIGHT: After the storm, the geotubes were covered with sand stored at the top of the template.



ABOUT SBPF

Siasconset Beach Preservation Fund is a 501 (c) (3) organization that was formed by a group of 'Sconset homeowners concerned about erosion and the threat it poses to the village of 'Sconset. Since the early 1990s, SBPF has worked to research and install, on an experimental basis, a series of measures that might control the erosion of the 'Sconset Beach from south of Sesachacha Pond to south of the 'Sconset sewer beds. The goal has been to find an effective, environmentally benign and economically feasible approach. Virtually all funding has been provided from private, non-governmental sources.

FUNDING

Funding for the efforts of SBPF is provided by our members, local community organizations, and the general public.

PUBLIC PRIVATE PARTNERSHIP

SBPF seeks opportunities to partner with the Town of Nantucket, local organizations, community members and agencies that share our goal of limiting the impact of erosion on 'Sconset Beach and Bluff. We thank the Town of Nantucket for its time and expertise.

CONTACT US

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MEET THE INTERNS

AUSTIN BENTLEY is a senior studying environmental science at the University of Texas. This is his second season as an SBPF intern. He has spent every summer in 'Sconset. He enjoys surfing, biking, classical guitar, and his job as a beach lifeguard.



RACHEL AFSHARI graduated from UMass Amherst with a degree in biology including coursework in climate change and ecology. She is looking forward to pursuing a career in the sciences. Rachel is also a young entrepreneur as co-owner of Nantucket's Lemon Press on Center Street.



IAN SINGER, a junior at the Potomac School in McLean, VA was one of 13 students chosen for its Global Perspectives and Citizenship Academic Program. Last summer he spent time teaching soccer to inner city children in Chile. He has grown up spending his summers in 'Sconset.

