

Rising sea levels threaten the existence of Coatue

Loss of barrier beach would mean an unprotected Nantucket Harbor

By Brian Bushard

bbushard@inkym.com For seven years, Neil Foley watched from his ranger cabin on Coatue, as the barrier beach protecting Nantucket Harbor and 10 miles of harborfront properties from Brant Point to Wauwinet slowly started thinning out.

“It’s the speed that it’s happening that’s really concerning,” said Foley, a ranger with the Nantucket Conservation Foundation.

If Coatue erodes away, conservationists argue Nantucket Harbor will be left without a protective barrier beach to keep the scallop habitat in place and to buffer the intense waves of winter storms from pounding properties along the south side of the harbor.

National Oceanic and Atmospheric Administration sea-level-rise maps predict the ocean will rise anywhere from four to six feet by the end of the century, and anywhere from 1.4-1.7 feet by 2040. The highest point on Coatue is six feet above sea level.

“That knocks out a lot of Coatue,” Foley said. “And that’s just 20 years. This isn’t a big, nebulous, down-the-road thing. That’s the immediacy of the problem. If Coatue breaches and any of those drastic changes happen, we won’t be able to respond to it in any way that makes timely sense.”

Projections from Boston-based Climate Central predict that by 2050, nearly half of Coatue and Coskata will be submerged by rising seas, and almost entirely wiped out by the end of the century.

The question for conservation-ists, town officials and harborfront property owners now is what can be done to prepare for sea-level rise of anywhere from four to six feet.

So far there have been no erosion-control proposals for Coatue. There has been some site analysis and potential planning work done by the Conservation Foundation and the Woods Hole Group.

There is also a sand transport study commissioned by the town to see if dredged sand could potentially be placed on the eroding beach as mitigation.

Sea-level rise is going to erode the beach, but at the same time, it is also accreting with sand moving counter-clockwise from Great Point. That movement of sand could counteract the effects of sea-level rise and might seal up a potential breach, Rosen said.

An accurate sea-level-rise model would account for the dynamics of sand movement, in addition to measuring rising seas over the topography of the landscape. Otherwise, the bigger picture could be missed, he said.

“I think it is going to happen a lot more slowly and non-catastrophically. It may even, based on the history, be able to restore itself based on the giant amount of sand coming from Great Point. The answer from the models is devastating. But from a dynamic standpoint, the end of days is further off than the models suggest,” Rosen said.

But several island conservationists and shoreline property owners say there’s more urgency.

Several years ago, Harbor and Shellfish Advisory Board (SHAB) chair Andy Lowell had to move the driveway to his cottage on the third point of Coatue back after the beach started encroaching on it.

The beach itself had eroded about 50 feet over the past two decades.

He worries what could happen if erosion escalates on both sides of the harbor, filling it with sand and covering former eelgrass beds, contributing to the loss of the commercial-scalloping industry if the erosion continues and the protection Coatue provides is lost.

“I truly feel that a hydraulic dredging project in a fashion that does as little damage to the environment as possible, which is done around the Gulf of Mexico as beach replenishment, would bolster Coatue,” Lowell said. “Protect the barrier beach, which will protect properties inland.”

Sea-level rise often plays out in two ways, depending on the land- COATUE, PAGE 2A

“It’s the speed that it’s happening that’s really concerning.”

“The idea of Coatue becoming diminished means we would have more erosion on the south part of the harbor, and that concerns me,” University of Massachusetts Nantucket Field Station director Yvonne Vaillancourt said.

The bluff by the field station in Quaise has been eroding at a rate of seven inches to a foot a year, putting a dorm 29 feet from the edge of the bluff in jeopardy of collapse unless it’s moved over the next couple decades.

“Anything we can do to support our barrier beach would be a wise investment,” Vaillancourt said.

Peter Rosen doesn’t see it as such a doomsday situation. Rosen is a retired professor of marine and environmental sciences at Northeastern University, who studied the effects of erosion on Coatue between the 1980s and early 2000s.

The constant flow of sand makes Coatue something called a dynamic beach, he said.

– Neil Foley Ranger Conservation Foundation



The majority of Coatue is open-space Nantucket Conservation Foundation land, consisting of beach, marsh and sandy dunes.

Courtesy of Neil Foley

Coatue: Sea-level rise threatens barrier beach

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scape. Low-lying areas, like downtown and Brant Point, face flooding, while areas with bluffs, like Pocomo and Quaise face erosion.

A barrier beach can prevent erosion by buffering waves in a storm. Flooding, on the other hand, is coming with or without a barrier beach, Foley said.

In some cases, adapting to erosion means retreating. Two years ago, the 8,450-square-foot Gamble house in Pocomo was moved about 80 feet northeast. It was the biggest house Toscana Corp. had ever undertaken.

On other north-shore properties, it has meant fencing and hard-armoring along the beach. Real-estate agent and Select Board chair Dawn Holdgate acknowledged the issue and worries about another consequence of erosion and sea-level rise.

“You have a property assessed at \$25 million on the waterfront and now it’s going to be under water,” she said. “That affects our whole tax base if the \$25 million goes to \$2 million. There’s a guessing game on what can be done and what should be done and there

properties lost approximately \$100 million in combined value as the bluff eroded and houses were moved, decreasing property taxes to the town by about \$350,000.

Climate Central CEO and chief scientist Ben Strauss believes the effect of sea-level rise across the island and on the harbor is one of the biggest issues town officials and property owners are going to have to contend with over the next 100 years.

The best solution on Coatue is one that allows the beach to erode and recede further into the harbor, he said. He doubts a project designed to hold it in place would work.

“This is not the Outer Banks. It’s not built up the same way,” he said. “This is as good a situation as any to let the barrier island move, to let it be free and dynamic. That would probably give it the best chance. At the end of the day, the ocean always wins.”

Foley agreed. Coatue might be naturally accreting, he said, but it’s also eroding faster than ever.

are a lot of variables, but I do notice general fearfulness of buyers.”

She said the property value loss along the harbor has been marginal. But she thinks it will escalate in the same way it has on Baxter Road in Sconset. According to the Sconset Beach Preservation Fund, 50 Baxter Road

“Coatue is the reason we have a harbor, and part of the reason why the harbor has been so healthy for so long,” he said.

“It took 5,000-8,000 years for Coatue to build up, and it’s still building. Sand is still accreting from Great Point going east to west along the north shore of Coatue, but it can’t compete with the level of sea-level rise.”

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