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On Long Island Coast, An Unexpected Gift From Hurricane Sandy

Will James Nov 13 2013, 9:20 AM ET



An aerial photograph of the inlet taken on September 15, 2013. ([Charles Flagg](#))

In the mid-1980s, Long Island's Great South Bay turned the color of Earl Grey tea. It was the first outbreak of an algal bloom known as the brown tide, and it would return year after year, fueled by pollution from the island's septic systems. Over three decades, it would wipe out thousands of acres of underwater grass, contribute to the demise of a once-booming shellfish industry and make the shallow, 45-mile lagoon a symbol of the suburban island's troubled relationship with water.

Then, a year ago, Hurricane Sandy blasted a new inlet through Fire Island, the slender barrier island separating the Great South Bay from the Atlantic Ocean. Fishermen began to spot river herring, fluke, weakfish, sea turtles—even a seal that popped its head up alongside a dock—in a formerly stagnant, eastern swathe of the bay. Scientists watched water there grow clearer and the brown tide weaken and dissipate more quickly. As the year passed, parts of the Great South Bay started to look a bit more like the body of water many Long Islanders remember swimming in as children and scouring for shellfish in young adulthood.

It's now a year since Hurricane Sandy made landfall, and the new waterway remains a fiercely debated piece of

the storm's legacy in New York State. Teams of scientists putter around it in skiffs. Residents pack high-school auditoriums to argue over whether it represents a blessing or a threat. Anglers flock to the scattered shoals at its mouth, and beachgoers walk a mile down the shore to bathe in it. A trio of governmental agencies continue to consider plugging it with sand.

Some fear the breach—now roughly the width of two football fields laid end-to-end—will magnify the power of the next superstorm, allowing more water to fill the bay and crash along the coast. “It’s a giant hole,” said Aram Terchunian, a Long Island coastal geologist who has worked as a consultant on other breach-closure projects. “What do you think is going to happen? You’re going to get a storm surge, water’s going to come flooding in through the inlet and it’s going to fill up the Great South Bay. It’s not rocket science.”

Others see a positive development and symbol of nature’s power of self-renewal—an instance of the ocean breaking through a barrier of land to rescue a bay that overfishing and overdevelopment had rendered all but unrecognizable. The blueness of the water around the inlet forms a stark line against the brown tide, reminding some residents of just how far Long Island’s waterways had fallen.



Ryan Wallace, a Stony Brook University doctoral student, analyzes water quality data in Long Island's Great South Bay in October 2013. (Will James)

“The bill came due in a lot of ways,” Marshall Brown said, “with Sandy and what it uncovered.”

Brown remembers the Great South Bay before the brown tide came. He was a kid growing up in Sayville, a Long Island hamlet that sits at the water’s edge. Native eelgrass grew so thick, he said, that boaters would have to reverse their outboard motors to spin slimy strands off their propellers. In the mid-1970s, when Brown was a teenager, baymen raked and dredged more than half the hard clams eaten in the country off the bay’s floor. Black-and-white photographs from that era show clam boats stretching to the horizon.

When Brown returned to Sayville for a high school reunion 35 years after he left for college, he walked his son down to the beach and found something entirely different. The water looked “disgusting,” he said —“dark, dirty,

lifeless.” Fields of eelgrass were gone. So were the baymen. Just a handful still eked out a living off what was left on the bay’s floor.

What happened in between is one of Long Island’s most storied environmental collapses. Scientists blame, in part, overharvesting by the shellfish industry. But blame has fallen increasingly on the brown tide, which blocks sunlight and kills the eelgrass beds that shellfish use as nurseries. It also causes shellfish to close up and stop feeding, although scientists don’t know exactly why.

In recent years, studies have traced the brown tide to nitrogen pollution flowing from the island’s buried backyard septic systems. Long Island is home to 2.8 million people and part of the most populous metropolitan area in the country, but huge swaths of it aren’t connected to sewers, relying instead on septic tanks that allow wastewater to collect underground and leach into the earth. From there, nitrogen—a nutrient found in human waste—winds its way through the groundwater and into the bays, where it feeds the algal blooms.

Nitrogen pollution is emerging as a major environmental threat in many spots on the East Coast—like parts of Massachusetts, Rhode Island and Florida—where houses have sprouted up along the shoreline. Long Island, though, stands out. Christopher Gobler, a Stony Brook University marine biologist, calculates that nitrogen levels doubled in one Long Island aquifer and rose 40 percent in another between 1987 and 2005. New York State in 2010 added the Great South Bay to a federal list of impaired water bodies, citing the nitrogen problem.

This is what Brown found when he moved back to Long Island after a career building Wi-Fi networks in New York City parks. When he founded Save the Great South Bay, a conservation group, with some high school friends the summer before Hurricane Sandy, he planned to organize beach cleanups and advocate for stricter environmental controls. He didn’t anticipate becoming one of the loudest advocates of an inlet carved by a hurricane. “It’s been very much a battle,” he said, against “bureaucratic momentum and, let’s say, the misplaced desire to make people feel safe.”



An aerial view of the new inlet in Fire Island as it was on April 18, 2013. ([John Vahey](#))

The ocean bored through Fire Island sometime on October 29, 2012. It swept away a dock, a boardwalk and untold quantities of sand. Long Islanders dubbed it “New Inlet,” but it wasn’t exactly new – it came through at a low-lying stretch of beach where an older waterway once allowed oceangoing ships to cross through Fire Island and enter the Great South Bay. Some historical accounts say it closed in the 19th century, after a brig wrecked at its mouth.

Storms often carve new inlets in the barrier islands along the East Coast and the Gulf of Mexico. The breaches tend to last a while, changing shape, until sand chokes them off. As a series of nor’easters battered Long Island the winter and spring after Hurricane Sandy, the inlet stretched and narrowed and slid into a diagonal orientation. An ever-shifting array of sand islands and channels sprouted at its mouth. Last month, it had stretched to 1,302 feet—roughly the length of the Empire State Building laid on its side.

Charles Flagg, a Stony Brook oceanographer, said the inlet has evolved into something of “a stable system” in recent months, but, like all inlets, it will eventually “squeeze itself off.” “It gets long and skinny and vulnerable, and then something happens and that’s it,” he said. “When that’s likely to happen, god only knows.”

Some don’t care to wait. Opposition to the inlet has evolved over the past year, but a common theme unites it: The breach may be flushing out the bay, but it is dangerous, and cleaner water isn’t worth sacrificing more homes.

Fire Island residents see the breach as a disruption in the barrier island’s already scant infrastructure. The narrow tract of land—32 miles long and about a half-mile wide—is a national park where thousands of people have summer homes but only about 400 live year-round. One of them is Mary Parker, one of two people who live out the winter in Davis Park, an outpost of bungalows and twisted trees about five miles west of the inlet.

Like most of Fire Island's 17 communities, Davis Park has no roads. Its infrastructure consists mostly of boardwalks stretching from the bay to the ocean. Parker, a retired Wall Street stocks-and-bonds researcher, said she once could drive her aging Jeep Grand Cherokee east along the shore, over the Smith Point Bridge and onto the mainland in a few minutes. Now that the inlet lies in her path, she has to drive west to another bridge, an hour away. "It made a big difference for me. I would drive off and get groceries and do laundry, go to meetings," said Parker, president of the Davis Park Association, a civic group. "Now, it's a major undertaking for me to leave the island in the winter."

Parker, who also serves as a volunteer firefighter, fears the breach could prove more than an inconvenience if Davis Park's wooden bungalows went up in flames. The Great South Bay sometimes freezes in the winter, blocking passage by boat. Mainland emergency responders used to be able to speed over the Smith Point Bridge and down the barrier island's shore. Now that the inlet blocks their path, they could take an hour longer. "There are people who live here and there are people who have homes here – and they're not inexpensive homes – who don't have protection during the winter," Parker said. "You'd have to sit and watch them burn."

Chris Soller, the superintendent of the Fire Island National Seashore, the National Park Service unit that oversees the island, doesn't share those fears. Soller, who lives on Fire Island part-time, said high tides often block the shore route, inlet or no. "I hear them," he said, referring to residents like Parker, but closing the breach is "not a guarantee that they'll have emergency services. They're vulnerable because they live five miles out in the ocean on a barrier island, and there are fewer and fewer emergency personnel living there than there ever was."

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The safety concerns pit concerned residents against environmentalists—a change from the alliances of the past, according to Lawrence Levy, the executive dean of the National Center for Suburban Studies at Hofstra University and an expert on Long Island politics. "A lot of people who live on the south shore of the main island would normally be part of the environmental movement, because they have interest in protecting the values of their properties," he said. "Superstorm Sandy changed their calculation of what is a threat."

Long Islanders on the mainland fear the inlet could whip the bay into a destructive force when the next hurricane strikes. "The amount of water going into the basin is going to increase," said Terchunian, the coastal geologist. "It has to flood. There's no other way. Where is the water going to go? It's not like there's a force field

keeping water away from the developed areas.”

And Terchunian, like others in his camp, said leaving the breach open is a cheap and irresponsible way to cleanse the Great South Bay – it ignores the pollution at the heart of the problem. “We have a water quality issue,” he said, “and we need to address the water quality issue.”



Florian Koch, of Stony Brook University, prepares a net he uses to gather scientific samples from Long Island's Great South Bay. (Will James)

Many scientists studying Long Island's dying waterways have turned their attention to the inlet over the past year. On a freezing morning about a week before Hurricane Sandy's anniversary, Florian Koch and Ryan Wallace, two Stony Brook researchers, crisscrossed the Great South Bay in a skiff, leaving behind a trail of wake that looked vaguely like watered-down whiskey. The brown tide had struck earlier in the fall, giving the choppy bay the appearance of dried mud stretching from Long Island's southern coastline to Fire Island in the distance.

Koch, a postdoctoral researcher, said nitrogen is natural – living things need it, and it makes plant fertilizer work – but it can over-nourish some life.

“Food's not bad for the human body, but obesity is, you know?” said Koch. “You can almost think of nitrogen pollution like we're making the bays fat. It's like the obesity epidemic of the bay, right? Because we're feeding it to death.”

They sped closer to the inlet and, in an instant, the water changed. It turned a granite color and sandy ripples came into view on the bottom. The two scientists measured upswings in water clarity and salinity – an indication that ocean water was flowing in – and a drop in chlorophyll, indicating the brown tide had thinned out.

Gobler, the marine biologist, has found that average water clarity near the inlet increased 35 percent this year over historical averages, meaning that, for perhaps the first time in decades, part of the bay meets state standards for swimming. The brown tide's density near the breach last month was just 2 percent the density in

an adjacent section of the bay.

Gobler admits the inlet's cleansing power is limited to an eastern swathe of the Great South Bay, but said that area has changed so much it's now operating almost like "a totally different system." And he sees an opening there for marine life to get a foothold again. "A lesson from the inlet is that if water quality is addressed," he said, "the ecosystem can improve."

Many environmentalists want policymakers to let the inlet live out its natural lifespan, allowing those improvements to continue. Brown wants to go further, and plant eelgrass and shellfish near the breach. Maybe, he said, the clams' tiny filters will cleanse a greater swathe of the bay and spark a feedback loop. "I think it's a good idea in theory," he said, "and I'd like to hear a counter-argument."

The inlet's fate, though, will be determined by three governmental entities: The Army Corps of Engineers, the Fire Island National Seashore, and the New York State Department of Environmental Conservation. The Army Corps of Engineers said it is waiting on a decision by the other two. The Fire Island National Seashore, a branch of the National Park Service, said it would like to study the inlet's environmental effects before making a decision, but has so far failed to obtain funding to do so. The New York State Department of Environmental Conservation has been silent, and has not returned calls seeking comment on the issue for several weeks. Terchunian estimated the job would cost \$20 million and require more than a million cubic yards of sand.

If policymakers are waiting for the public to settle on one perception of the inlet, they may have to wait a long time. The debate over the breach has grown to encompass many of the issues facing Long Island at this point in its history: the downsides of suburban development, the degradation of its water, the question of whether movements of sand should be viewed as natural or as damage in need of repair, and, of course, the looming danger of the next superstorm.

"We're talking about balancing the benefits of cleaner bay water, which you can see every single day," said Levy, the political expert, "versus the need to protect yourself from something that may not come for many, many years."



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Will James is a writer in Long Island.