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CORRECTION TO THIS ARTICLE

This article misspelled the last name of Augie Pasquale, a resident of Manhattan Beach, Md.

Eco-Bills Come Due at Bay's Beaches

Region Pays Dearly For Climate Change In Erosion, Abatement

By David A. Fahrenthold
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While the nation debates the cost of climate change -- whether the price of electricity and gasoline should increase because of their greenhouse gas emissions -- the problem already has a price tag on the Chesapeake Bay.

Sea levels are rising almost twice as fast in the Chesapeake region as in most of the world, and waterside communities are spending millions to keep the water from eroding yards, marshes and sandy beaches.

The area's beaches are dealing with the same bad luck: The land is dropping, climate change is altering currents and the oceans are inching up. The impact is slow, but it's real. Beachgoers won't notice it at major ocean resorts. But for small beaches on the bay, the result is often death by bulkhead.

At the Calvert County shore resort of North Beach, the beach created the town. Now, as the waters of the bay rise an eighth of an inch every year, it's the other way around.

"This is it. This is what we're trying to preserve," said Mayor Michael Bojokles. He was looking at a beach three blocks long and so skinny that a Frisbee could be thrown clear over it -- the remains of the wide sandy strip that first drew vacationers in the 1890s.

The town spends \$25,000 a year to build and rebuild this beach with trucked-in sand. But Bojokles said he knows the waves that eat it away will only grow higher and stronger. "It's a money pit," he said, but crucial to the town's tourist economy. "That has to be said: It's absolutely necessary."

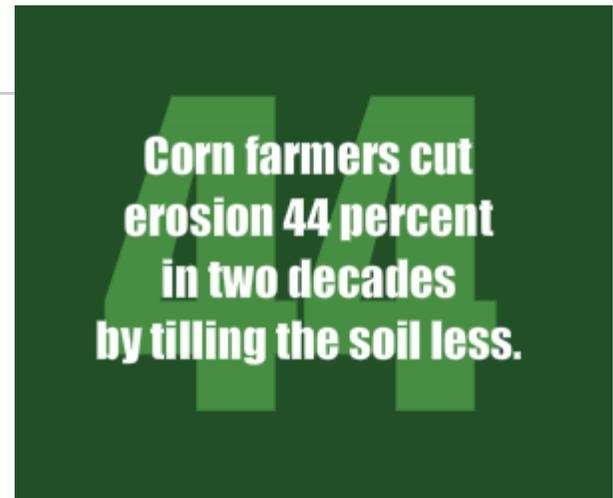
The battle against the water is especially worrisome in spots such as this one, with "beach" in their names and warm sand in their civic hearts. In a few places, the name has become a lie.

"The bills are coming due" at beaches in Virginia and Maryland, said Michael Kearney, a geography professor at the University of Maryland. "If some intervention is not done, they're going to die."

The region's beaches range from the busy Atlantic shores of Ocean City to thin sand crescents on the Chesapeake frequented more by diamondback terrapins than by tourists. They are a long way from disappearing altogether: Erosion moves too slowly, and the economic value of many beaches is too high.

Two natural phenomena mean that sea levels will rise faster along the mid-Atlantic than almost

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anywhere else in the world.

First, the mid-Atlantic is sinking. It is an echo of the last ice age, when huge glaciers pushed down on the Earth's crust to the north. The land here was lifted like the other end of a seesaw, and now it's slowly dropping. Second, research presented last weekend shows that climate change will alter the dynamics of the ocean, weakening a system of currents that pulls water away from shore here.

At the same time, the world's oceans are inching up -- fed by melting polar ice and swelled as warmer water expands in volume. The U.S. Environmental Protection Agency, echoing a United Nations science panel, said it is "very likely" that man-made greenhouse gases are primarily to blame.

In this area, the local problem accelerates the global one: As the sea rises, the land falls. In the District, for example, the EPA found last month that the water level is rising at .12 inches a year. That's almost double the global average of .066 inches.

To keep higher waves from washing away waterside property, homeowners and government agencies have spent millions to make the Chesapeake look like a high-sided swimming pool. About a quarter of Maryland's shoreline has been "armored" with man-made sea walls or rock piles. A Virginia official could not provide a comparable estimate but said about 20 new miles are armored every year.

For small beaches, the result is often death by bulkhead. In normal conditions, they would have just moved backward as waves ate into upland dunes and replaced the sand they pulled out to sea.

But not now.

"The beach just continues to erode right up to the wall," said James Titus, a lead author of a massive EPA study of sea-level rise in the mid-Atlantic released this year. "The shore is moving. You put a wall in the way, and you have a wall and the water."

The result is obvious in Manhattan Beach, a 1920s riverside resort turned suburb in Anne Arundel County. The bulkheads there went up decades ago. Now, the place resembles a beach almost as little as it resembles Manhattan.

"When you write the word 'beach,' you have to put quotes around it," said resident Augie Pascuale. Four tiny pockets of sand are left, each one barely deep enough for a blanket. The civic association unsuccessfully applied for a \$35,000 grant from a nonprofit group to rebuild one.

The association says the beaches, however small, provide a gathering place and an average \$30,000 boost in house values.

"You pay now, or you pay later," said Mike Frye, the association president. "This is the cost of ignoring something."

Scientists say the loss of beaches could also threaten animals that depend on them. The recent EPA study found that Calvert's rare northeastern beach tiger beetles could lose habitat and that the diamondback terrapin, which lays its eggs on bay beaches, could be wiped out in some areas.

"Unless you're a barnacle," a bulkhead is no place to live, said Titus, the report's author.

A survey of places with "beach" in their names shows they are facing a special and difficult variant of

the region's problem. Even though it can be more expensive, they want to stop the water -- and keep the beach.

On the Atlantic coast, the big resorts do this with brute force. For decades, Virginia Beach has dumped millions of tons of sand onto its beach to replenish what erodes. In Ocean City, state, federal and local authorities spent \$7 million in 2006 to deposit 100,000 dump trucks' worth of sand on its beach. And they say they believe it will need more sand next year.

But around the Chesapeake, smaller beaches -- often the places that vacationers stopped visiting when the Chesapeake Bay Bridge opened the way to Ocean City in mid-century -- need cheaper fixes.

In Highland Beach, just south of Annapolis, residents got a \$22,000 grant to install a "living shoreline" where sand-loving plants anchor the beach. Maryland changed its laws last year to encourage more communities to build this kind of project instead of bulkheads and awards \$1.5 million in no-interest loans for the projects every year.

In a few places, it's too late: They are civic misnomers, where the only beach in town is in their name. Leonard Larese-Casanova, chief of shoreline conservation and management for Maryland, counted at least five: Dares Beach, in Calvert; Columbia Beach, Mason's Beach and North Beach Park (also called Holland Point) in Anne Arundel; and Scotland Beach in St. Mary's County.

"It wasn't a terrific beach, but it was a sand beach," said George Stringer, 88, who lives in Mason's Beach, south of Annapolis. He has an old photo of his mother, pregnant with him, standing on the sand. As a child, he and friends would scoop out the stinging sea nettles so they could swim on summer weekends.

But that scene vanished decades ago. Today, Stringer has a view of a seawall, with Herring Bay rolling up against it.

"Now, it could be called Mason's Bulkhead," Stringer said.

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