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From the Baltimore Sun

Algae bloom worries experts

Limiting nitrogen in bay could help

By Rona Kobell
Sun reporter

June 10, 2007



To the tourists pushing strollers around the Inner Harbor, the water looks fine -- a little green and murky, but nothing like a few days before, when thousands of dead fish floated on the surface after a huge algae bloom.

Allen R. Place knows better. A biochemist who spends much of his time studying the waters that flow in front of Baltimore's premier tourist attractions, Place paces the dock, looking nervous.

The water is too green, he says, bending over near Houlihan's Restaurant at one of his makeshift water-quality monitoring stations. It could be nothing -- after all, a cormorant is diving for fish, and the bird wouldn't be down there if the oxygen levels were low. But right next to the Taney, a Coast Guard cutter-turned- tourist attraction, a dead menhaden floats alone, next to a Reese's peanut butter cup wrapper.

Place isn't sure what the water's green hue means. But he'll keep studying it, just as he has for the past decade at his Columbus Center offices, conveniently located in front of what has become an outdoor laboratory for his research on harmful algae.

"There are a lot of interesting things that live in this water," said Place, who works at the University of Maryland's Biotechnology Institute. "The harbor is one big culture flask for growing things."

Algae blooms occur frequently in the harbor and in the bay, especially in the spring and summer. Algae live in the systems naturally and can help marine life by giving off oxygen. But when large amounts of the pollution that algae feed on are in a waterway, the plants indulge as if at a Thanksgiving dinner.

When they're finished gorging, they die off and decompose -- leaving behind bacteria that suck up the oxygen in the water. This lack of oxygen is what killed at least 7,000 fish recently.

Often, the algae blooms occur in shallower waters and the fish can swim away, Place said. But the species that caused last week's bloom, *Prorocentrum minimum*, caused such a huge and deep bloom that it ensnared all of the menhaden and croaker in the water.

"The harbor is pretty deep. So the fish can swim above or below the blooms," he said. "This was such a big bloom that when it crashed, the whole water went anoxic. There was nowhere to escape."

Place, 56, often finds himself walking among the tourists in his lab coat, carrying a large cylindrical device that he sticks in the water to sample algae. His particular interest is in *karlodinium veneficum*, a toxic species that he

believes was responsible for the fish kills attributed to Pfiesteria in 1998. He also relies on data from the [Maryland Department of Natural Resources](#)' monitoring site, Eyes on the Bay. DNR's Fort McHenry station analyzes the harbor water for chlorophyll, salinity and dissolved oxygen.

In his lab, Place opens a refrigerator-sized incubator filled with bottles of clear liquid. As Italian opera plays in the background, Place adjusts his cap and peers into the microscope to check out a sample of proroentrum minimum. He sees small beige dots moving slowly.

"They're not very impressive," he said. "You wouldn't think that they cause the issues that they cause."

On May 16, Place noticed a mahogany tide in the harbor. He took out his sampling device and was relieved that he found no traces of veneficum. About a week later, the Fort McHenry station showed a spike in the chlorophyll levels to about 170 micrograms per liter -- values at 100 mpl are considered to be a severe bloom.

A few days later, on May 27, the chlorophyll level skyrocketed again to 331 mpl, what Place calls "a very, very impressive chlorophyll value." A week of gluttony for the plants ensued, and officials began investigating the fish kill by June 3.

But for those who visited the harbor Friday, there was scarcely a trace of the devastation left. And that's how life is at the harbor, said Laura Bankey, who manages the conservation department at the [National Aquarium](#) in Baltimore and, like Place, frequently takes her own water samples.

On May 20, just as the chlorophyll readings were climbing, Bankey participated in a wade-in a little south of the harbor, in the Patapsco River at Fort Smallwood Park in Anne Arundel County. The water was far clearer than it had been in years, and the crowd was ecstatic.

"I personally went out and took a reading on May 21, and it was clear up to 8 feet. That's incredible water quality for this area," Bankey said. "This came all of a sudden."

Beach closures and swimming warnings because of algae blooms have long been a part of summers in Maryland. Beaches at Sandy Point and Betterton in Kent County have been closed in recent years because of algae.

In 2000, a large bloom stretched from the harbor south to the Choptank, West and Rhode rivers. That one lasted for two months, said Bruce Michael, DNR's director of tidewater ecosystem assessment. It blocked the light essential for underwater grasses, and many of them died.

The only way to stop algae blooms is to control the amount of nitrogen and phosphorus flowing into the Chesapeake Bay and its tributaries. But with thousands more people moving into the watershed every year, the state and federal agencies working on pollution feel as though they're just treading water, Michael said.

"The more people we have, the more pollution they produce," he said. "They're eating more, they're flushing the toilet, they're washing their cars, they're fertilizing their lawns, they're driving more cars. All of this adds to the sources of nitrogen."

Place, who has studied algae from the coast of Australia to the Adriatic Sea, agrees.

"There's only one thing we can do and it's what we already know -- let's stop putting nitrogen in the bay," he said. "If you limit nitrogen and phosphorus, [algae are] not going to be able to get to those densities."

rona.kobell@baltsun.com

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