

BROWN
TIDE
PRIMER

THE CAUSE

A tiny plankton known as *Aureococcus anophagefferens* blooms when waters warm, turning local bays and estuaries brown.

THE PROBLEM

In high concentrations, brown tide makes it hard for clams and scallops to filter-feed and can kill off young bivalves. Intense blooms can block the light that marine plants need for photosynthesis. This inhibits growth of eelgrass, which provides vital nursery habitat for finfish and shellfish.

THE HISTORY

Dense blooms of brown tide in 1985 have been blamed for the near-collapse of the Peconic Bay scallop fishery. Repeated brown tides may be preventing clams in the Great South Bay from rebounding after steep declines in the late 1970s.

Source: New York Sea Grant's Brown Tide Research Initiative

The brown tide is not harmful to humans, but can make it harder for bivalves to feed. It can also block the light that plants need.



RETURN OF THE BROWN TIDE

Experts say harmful
algae more intense
than in recent years

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Southampton bayman Ed Warner Jr. was out netting baitfish last month when he noticed a suspiciously dark tint in the waters of western Shinnecock Bay. It was an early sign of brown tide, the harmful algae that has plagued Long Island bays since 1985, when it nearly wiped out the local bay scallop population. Be-

sides shellfish, high concentrations of the algae also threaten marine plants.

Over the past four weeks, this year's baby bloom has darkened and spread to become what Suffolk health officials said is one of the most intense — though localized — brown tides in recent years.

Brown tide has clouded normally clear waters from western Shinnecock Bay to eastern Moriches Bay, with the highest concentrations found off Quogue, in Quantuck Bay. "Quantuck, it looks like you put 2 ounces of cream in

a 20-ounce cup of coffee," said Warner, a Southampton Town trustee. "It's a very, very significant discoloration . . . The bay water is a brownish color, and 10 feet over the ocean water is clear."

Brown tide typically occurs in late spring and early summer, when warming waters spur blooms of a tiny marine organism known as *Aureococcus anophagefferens*. Some scientists link the uptick of brown tide and other harmful algae blooms in the Great South Bay — where it last bloomed in 2008 — are hampering efforts to restore the decimated clam population.

Stony Brook University associate professor Chris Gobler says brown tide has an edge over rival microscopic organisms because brown tide's genes allow it to thrive in shallow estuaries.

While not harmful to humans, concentrated brown tide blooms make it harder for bivalves to feed and can kill juvenile clams and scallops. Scientists suspect repeated brown tides in the Great South Bay — where it last bloomed in 2008 — are hampering efforts to restore the decimated clam population.

Farther east, it's not yet clear if the blooms have harmed shellfish in the estuaries along the South Shore. Few population surveys have been done here, so estimates are based mostly on anecdotal reports from fishermen.

"This particular area, this now marks the fifth consecutive year of a bloom of over 1 million cells per milliliter," Gobler said. Research shows hard clams stop feeding when brown tide cell counts reach 35,000 per milliliter of water, and most juvenile shellfish die.

Water samples taken from the affected bays showed cell concentrations that exceeded 2.7 million cells per milliliter in Moriches Bay, 2.1 million cells per milliliter in Quantuck Bay, according to the Suffolk health department.

"These numbers are the highest they've been in years," Michael Jensen of the department's bureau of marine resources wrote in an email. "The good news is that it seems very localized to those areas."

Brown tide is also bad news for eelgrass, the under-

PHOTO BY DOUG LANGE