



Algae turns bay waters brown

■ Brown tide returns to Great South Bay for first time since 2001; prompts concerns for clam population

BY JENNIFER SMITH

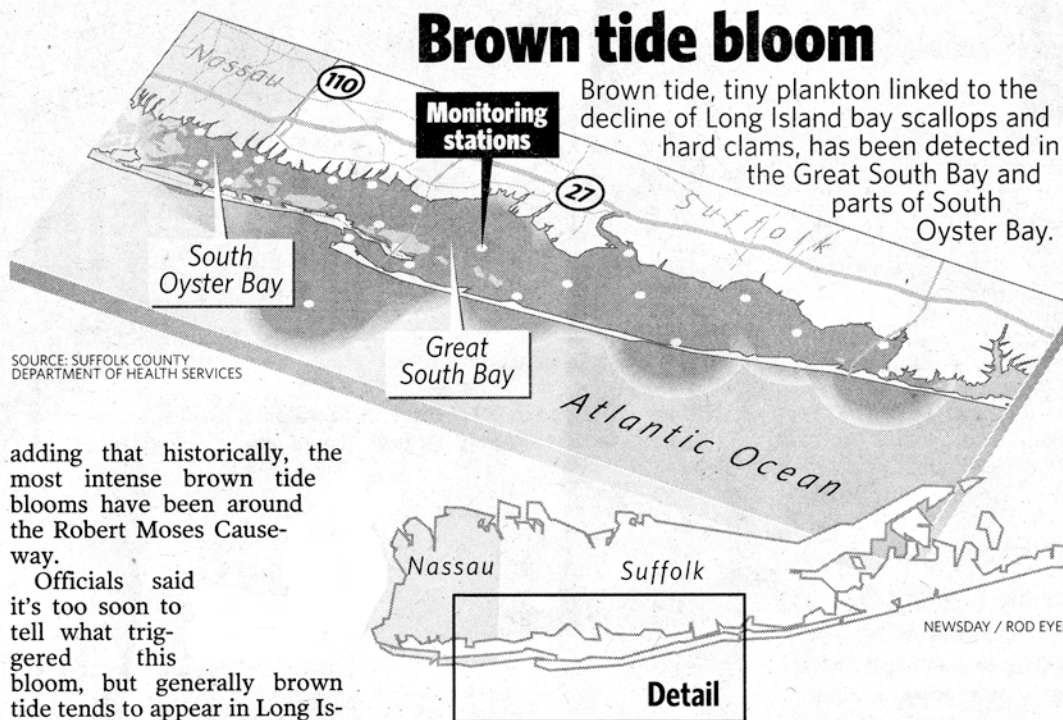
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Brown tide, the algae that triggered the collapse of Long Island's scallop fishery, has reappeared in the Great South Bay for the first time since 2001 and spread farther west than ever before.

The blooming algae has turned water from Patchogue to Massapequa Park a cloudy brown, Suffolk County health officials said. It has not been found farther east, nor in the Peconic or Shinnecock Bays.

Aureococcus anophagefferens, the tiny plankton that causes brown tide, poses no known human health risks to those eating shellfish from affected areas. But researchers say it could harm what remains of the bay's hard clam population because it produces a chemical that, in high concentrations, makes it hard for clams and other bivalves to feed. Shade from the blooms could also kill off eelgrass beds — crucial nurseries for juvenile fish and other marine life — by blocking light needed for photosynthesis.

"It's somewhat of a surprise," said Christopher Gobler, an associate professor at Stony Brook University's school of marine and atmospheric sciences who specializes in brown tide. "There hasn't been a bloom in the Great South Bay since 2001, and even that wasn't very big," Gobler said,



SOURCE: SUFFOLK COUNTY DEPARTMENT OF HEALTH SERVICES

adding that historically, the most intense brown tide blooms have been around the Robert Moses Causeway.

Officials said it's too soon to tell what triggered this bloom, but generally brown tide tends to appear in Long Island waters when levels of dissolved inorganic nutrients such as nitrate, which is found in fertilizer, are low.

Most algae use inorganic nitrogen to grow. Scientists think brown tide is sometimes able to out-compete other algae because it can also use organic nitrogen, which comes from decaying marine plants and animals in the water column and from other organic matter in bay bottom sediments. When sediments in shallow waters such as the Great South Bay release nitrogen, it can influence water chemistry and a favorable environment for brown tide is created.

This year, concentrations appear highest in waters off West Babylon. Samples taken there last week by the Suffolk County health department showed

about 1 million *A. anophagefferens* cells per milliliter, said Robert Waters, supervisor of the department's bureau of marine resources.

"That's enough to affect the shellfish," said Cornelia Schlenk, acting director of New York Sea Grant, which has funded research on brown tide.

Studies show growth of larvae and juvenile clams stops when cell abundance exceeds 150,000 per milliliter; beyond 400,000, and they begin to die.

"An adult clam can weather brown tide — they don't grow during that period, but it doesn't necessarily kill them," Schlenk said. "But it can affect their larval stages and their re-

Brown tide bloom

Brown tide, tiny plankton linked to the decline of Long Island bay scallops and hard clams, has been detected in the Great South Bay and parts of South Oyster Bay.

A LONG ISLAND BROWN TIDE TIMELINE

1985 — Brown tide first appears in Peconic and South Shore bays, triggering the collapse of scallop populations in Peconic bays and Gardiners Bay.

1986-1994 — Blooms recur intermittently in the Great South Bay (where hard clams were already in serious decline), Peconic and East End bays on the South Shore.

1995 — Last major brown tide event in the Peconic Estuary; also found in West Neck and South Shore bays.

1998-2000 — Blooms form in East End and Moriches bays; longer and multiple blooms emerge in 1999 in Great South Bay.

2001 — Brown tide blooms in Great South Bay, most intensely under the Robert Moses Causeway.

2002-2007 — Sporadic blooms show up in South Shore bays.

2008 — Current bloom detected in Great South Bay, extends over Nassau County line for the first time.

Source: New York Sea Grant brown tide research initiative

production."

That's a concern for the Nature Conservancy on Long Island, which has been trying to revive the Great South Bay's dwindling hard clam population at a 13,400-acre bay bottom preserve off West Sayville. The group has sowed more than 2.8 million "seed" clams there in hopes that greater density will boost reproductive success.

"We're hoping this doesn't have an impact on the seed clams," said Carl LoBue, a Nature Conservancy marine biologist who heads the project.

Another worry is the bloom's duration. Brown tide appears to decline when the water gets above 78 degrees, but it often returns in the fall

and can linger for months, Waters said. Last year a brown tide bloom farther east, in Moriches and Quantuck Bays, declined in August but blossomed again in September.