



A less intense bloom of rust tide in Flanders Bay in 2013. *Courtesy photo: Auxiliary Coast Guard*

## Toxic rust tide spreads across entire Peconic estuary, could be lethal to estuary's fish, marine life

by Katie Blasl Aug 23, 2016, 10:50 am

**Tweet** A dangerous algal bloom has spread across the Peconic Bay and all of its waterways at densities that have not been seen since 2012, when a similar bloom triggered a large die-off of scallops.

Rust tide has spread from East Hampton to Riverhead waterways over the past week, posing a threat to marine life in the Peconic, according to the Gobler Laboratory at Stony Brook University.

Rust tide algae, known as *Cochlodinium*, is more toxic and more dangerous to marine life than the red tide algae that triggered the historic bunker fish and turtle kills last summer. Those kills were caused by extremely low levels of oxygen driven by the algal bloom, not the algae itself.

But thick densities of rust tide can actually kill fish and other marine life on its own.

Rust tide in the Peconic estuary is currently being reported at densities exceeding 3,000 cells per milliliter, according to the Gobler Laboratory. Densities of rust tide above 500 cells per milliliter poses a lethal threat to marine life.

This particular algae can kill fish in just a matter of hours, and shellfish in a matter of days, as demonstrated by experiments conducted at the Gobler Lab.

No large kills have been reported yet this year, but rust tides in years past have triggered kills of both natural and caged, aqua-cultured populations of fish and shellfish on the East End, according to the Gobler Laboratory. Bay scallop levels in particular have trended with rust tide intensity in the Peconic Estuary.

Christopher Gobler, director of the Gobler Laboratory, believes that the high temperatures of the past several weeks have driven the spread of the rust tide.

“When we have extended summer heat as we have seen this summer, a heavy rust tide often follows,” he said.

He added that his lab has identified climate change as a major factor in the frequency of harmful algal blooms in local waterways.

“In the twentieth century, summer water temperatures were significantly cooler than there are today,” he said. “We have identified climate change and specifically warm summer temperatures as a trigger for these large, widespread rust tides.”

High levels of nitrogen in local waterways is a “second, equally important driving factor,” Gobler says. Excessive nitrogen makes rust tides both more intense and more toxic to marine life, a major finding in his laboratory’s 2012 study on the topic, which was published in the international, peer-reviewed journal *Harmful Algae*.

“The links between these toxic blooms and excessive nitrogen loading are now well-established and are playing out again this year,” said Gobler. “Near-shore regions on the east end experience intense nitrogen loadings from wastewater and farms and get these events first, after which they are transported to open water regions.”

Last weekend’s intense rainfall and flooding will likely intensify the rust tide this week, Gobler added.

Though rust tide has bloomed in the Peconic Estuary in 2013 and 2014, the blooms were “very mild,” and scallop harvests went up dramatically.

The duration of this year’s rust tide, along with its coverage and intensity, will determine its impact on the estuary and its marine life.

“Blooms typically persist into the fall or until water temperatures drop below 60 degrees,” said Gobler. “We anticipate the rust tide will intensify in the Peconics and spread to Shinnecock Bay in the coming weeks.”