

Shellfish Gourmets Shudder When Red Tide's On The Rise

BY DONALD J. FREDERICK
National Geographic News Service

The red tide, a mysterious phenomenon that kills fish and makes shellfish poisonous, has again appeared in some areas off the east and west coasts.

This is, of course, bad news for seafood lovers. Red tide also bodes ill for mice, which are used in tests for the presence of the malady.

Actually, red tide is a misnomer. It is caused not by tides but by a usually colorless accumulation of tiny marine algae called dinoflagellates. Certain species of these one-celled organisms are toxic and when they "bloom"—multiply rapidly into large concentrations—they become especially menacing.

The tide occasionally lives up to its color, especially around Florida, tinting the water a rusty hue. It takes about a million cells to color a liter of seawater, and Florida's blooms sometimes cover many square miles. One such bloom killed an estimated 80 million pounds of fish.

Pack A Lethal Punch

Shellfish such as mussels, clams and oysters can grow and thrive on a red tide diet, and gradually rid themselves of the poison when clean waters return. But people who eat the bivalves while they're still

tampered run the risk of a nasty case of paralytic shellfish poisoning (PSP), which in extreme cases can cause death.

In the last few years, the toxic organisms have apparently spread from the coast of Nova Scotia as far south as Connecticut.

"A hurricane that slammed into New England in 1972 might have helped trigger the trend," speculates Donald M. Anderson, a marine biologist at Woods Hole Oceanographic Institute in Massachusetts. Storms like that can stir up bottom sediments, flush out estuaries, and change the basic chemistry of the water.

A few days after the hurricane, a massive bloom appeared, invading waters as far west as Maine in Massachusetts. It was a bloom, in fact, as the bloom itself that hadn't been detected in the area before.

Although it doesn't make sick as often as paralytic poisoning, the organism does cause "bore" in the shellfish, making

Causes Mysterios

Shellfish are at least 80 percent annually to Maine's economy, so the state has to have the most complete surveillance system in the country. Shellfish are collected in test sites from 18 sites

along the coast every week. If a severe outbreak is suspected, as many as 200 additional sites are sampled. The toxin can appear at any time of the year, but the greatest threat occurs during warm months.

To test for the toxin, liquid is extracted from the shellfish and injected into mice. The quicker a mouse dies, the more lethal the poison present. Last year Maine tested 10,000 laboratory mice.

John W. Hurst, director of resource services at Maine's Department of Marine Resources, points out that officials have only two choices:

"We can either carefully monitor toxicity levels and close only dangerous areas to shellfishing, or shut down the entire coastline for weeks or months at a time," says Hurst.

Along the west coast, where red tide strikes all the way from California to Alaska, the state of Washington has perhaps the strongest testing program. It, too, has important interests to protect. Clam and oyster aquaculture is big business in the Puget Sound area.

Public health officials monitor the beaches and waters from April to October each year. As in Maine, warnings on the locations of danger areas are widely published. A toll-free hotline even carries timely reports on beach closures.

Turning The Tide

These defensive measures haven't deterred scientists on both coasts from trying to take the offensive against the marine menace.

Louisa A. Nishitani, a biologist with the University of Washington's School of Fisheries, is trying to pinpoint the conditions under which the organism thrives and to find ways to inhibit its growth.

Her current investigation centers on a parasitic dinoflagellate that attacks and destroys the nucleus of the toxic one. "It might be effective if introduced into sheltered bays, where the troublesome cells seem to flourish," she says.

In Florida, researchers are working on a chemical that would destroy the culprit without harming fish.

Anderson of Woods Hole is studying the life cycle of the cells in New England for clues on how to control them. "We're still trying to figure out the fundamental processes that make these things bloom," he says.

The poor mice haven't been forgotten, either. Other scientists are trying to come up with chemical testing kits that would replace the current mouse bioassays, which are expensive, time-consuming and, to say the least, unpleasant for the animals.

'Red Tide' Stays North

BY DOUG RUTTER

A "red tide" which caused state health officials to ban shellfishing along a 100-mile stretch of coastline last week remained north of Brunswick County waters Tuesday.

According to Robert J. Benton, supervisor of the Shellfish Sanitation Program at the N.C. Division of Health Services, there is no need for any new controls or advisories about possible contamination of shellfish.

"I don't see any reason to worry," he said. "There's something about the way the tide moves farther south, the people down there shouldn't have any problems with it."

Benton said that water samples taken from Lockwood Folly Inlet last Friday showed no signs of the algae.

He added that the state's first-ever recorded "red tide" has not been detected below Snow's Cut at Carolina Beach.

Benton said that water samples taken from the mouth of the Cape Fear River and at Corneale Inlet north of Bald Head Island have been found not to contain any algae.

Shellfish were banned from Marshallberg in Carteret County to Carolina Beach in New Hanover County last week when scientists identified the yellowish slick of algae.

The algae has been identified as dinoflagellates, a neurologically toxic organism which can infest shellfish and cause sickness in humans.

The zone banned of shellfishing ex-

tends one testing station beyond where water was tested and found to be contaminated. Waters are con-

sidered contaminated when the algae's concentration reaches 5,000 parts per liter.

Benton said. The overall picture is not that much different from when we first named the area. We're just hoping the conditions will change and it will die.

He said the algae cannot survive in water temperatures less than 52 degrees and that a cold snap and high winds could help break it up as well. Water temperatures are currently in the mid-60s.

Shellfishing was banned primarily because of the potential contamination of oysters, clams and mussels.

These are considered filter feeders because they take in water and filter out their food. When they ingest the water, however, the toxic algae is not filtered out and actually poisons the shellfish. Humans who eat the shellfish can become seriously ill or even die. Humans who enter waters where the algae is concentrated also complain of their skin stinging and itching.

The shellfish can recover when the algae is no longer present, but the process takes time, as much as six or more weeks.

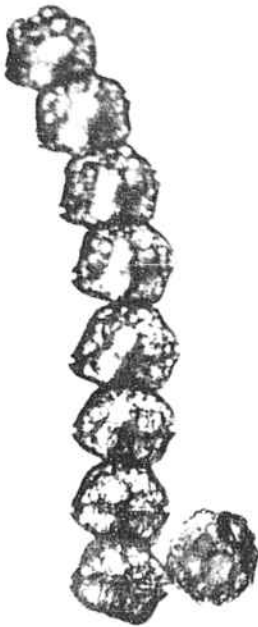


PHOTO BY M. WOODBRIDGE WILLIAMS
National Geographic Society

ALGAE CELLS causing red tide, shown enlarged 300 times, divide into a chain. Large concentrations affect shellfish, making them poisonous to humans.

County To Follow State Lead With King Holiday

BY RAHN ADAMS

Employees of Brunswick County—like state employees—will receive a paid holiday in observance of Martin Luther King Jr.'s birthday starting this year, but will lose a Christmas holiday in other years as a result.

At the board's Feb. 18 meeting, Brunswick County Commissioners officially recognized the third Monday in January as a holiday. However, commissioners voted not to observe it as a paid county holiday until done so by the state.

According to Drake Maynard, with the N.C. Office of State Personnel in Raleigh, the State Personnel Commission adopted a 1988 holiday schedule Oct. 20 that gives state employees 11 paid holidays a year, including the King holiday as approved this year by the N.C. General Assembly.

But to accommodate the new paid holiday, state employees will no longer get three holidays at Christmas whenever Dec. 25 falls on a Tuesday, Wednesday or Thursday, as previous policy allowed, Maynard said. Instead, they will get two days

off each Christmas.

County Attorney David Clegg said last Thursday that no further action by county commissioners apparently is needed concerning the King holiday.

"I think that provision in the minutes (of the Feb. 18 commissioners meeting) made it a paid holiday," Clegg said.

But another holiday change made last month by the State Personnel Commission may require action by the board of commissioners.

According to Maynard, the state board switched its Easter holiday from Easter Monday to Good Friday.

Clegg said commissioners would need to approve the change themselves, if the county wishes to continue tracking the state holiday schedule.

Paid state holidays in 1988 include: New Year's Day, the King holiday on Jan. 18, Good Friday on April 1, Memorial Day of May 30, Independence Day on July 4, Labor Day on Sept. 5, Veterans Day on Nov. 11, Thanksgiving holidays on Nov. 24 and 25, and Christmas holidays on Dec. 23 and 26 (Friday and Monday).



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Transportation Board To Consider Funding Plan

Approval of a nine-year plan for funding highway projects across the state heads the agenda for the State Board of Transportation when it meets 9 a.m. Friday in Raleigh in the Highway Building. The agenda also includes several items relating to the four-lane U.S. 17 in Brunswick County and the Shallotte bypass.

The plan represents the major part of a \$1.2 billion list of transportation priorities included in the DOT's Transportation Improvement Program or TIP. In addition to roadways, TIP includes multi-year funding for aviation, public transportation, rail and bicycle programs.

The transportation department's right-of-way branch is seeking approval to acquire buildings owned by Haddock Enterprises Inc., Letties Grove Pentecostal Freewill Baptist Church, Collier Enterprises and a house owned by Hubert H. Blanton, all located partially within the right-of-way of the U.S. 17 Shallotte bypass north of town.

The board will also be asked to approve:

- Utility cost adjustments on U.S. 17 from just east of S.R. 1136 (Red Bug Road S.E.) to N.C. 211 at Supply, a distance of 5.18 miles. Cost is an estimated \$52,000, of which \$39,000 would be federal and \$13,000 state;
- Construction on U.S. 17/N.C. 133 and U.S. 421 Bridge No. 107, 108 and 7 over Old Alligator Creek and interchange structure;
- Additional funds of \$250,000 for preliminary engineering on U.S. 17 from N.C. 211 at Supply to the South Carolina state line, a distance of 21.3 miles. Previously \$350,000 was approved. The department is seeking another \$187,500 in federal and \$62,500 in state funds;
- Addition of S.R. 1411 (Rock Creek Road), increase countywide spot stabilization funds by \$5,000.

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