

The Red Tide Controversy: Is it Fueled by Man? Or Are Scientists Becoming Activists?

Lia Martin
Associate Editor

Red tide scientists seem to be taking opposite views on what causes red tide. As the summer heats up, so do their debates.

The red tide summit hosted by Mote Marine in July brought authorities from a wide range of backgrounds. Biologists and residents alike were hoping that a plan of attack could be formed as a result of the meeting of scientific minds and process.

What happened at the summit, and at other symposiums around the state, is an increasing variance between two forms of thought on red tide.

State biologists and scientists said they thought increased population growth in Florida with nutrients flowing into the Gulf did not cause red tide.

On the other side there are biologists and scientists, who think that the development of coastal regions because of an increasing population may be contributing toward an increased level of red tide.

They are marked as either troublemakers, or inept, in spite of their credentials.

Residents, who attended the summit, went away feeling that scientists are no closer to finding out what is causing red tide or how to solve the problems, than they were 10 years ago.

What we call red tide along the Florida Gulf Coast is a microorganism known as *Karenia brevis*. Each *Karenia* cell pumps out brevetoxin.

During red tides, brevetoxin can be absorbed into the food chain by scallops, oysters and other popular seafood and can cause neurotoxic shellfish poisoning. The effects range from gastrointestinal illness to seizures, loss of muscle control and unconsciousness.

Brevetoxin also gets into the air. It collects on the surface of bubbles and concentrates in sea foam and on dead fish. When the bubbles burst, brevetoxin is flung into the air and carried by the wind. If inhaled, most particles lodge in the nose and throat, but some are drawn deep into the lungs.

Residents or tourists think they have a cold or an allergy. But researchers reported last year that red tides coin-



Courtesy Photo

The Gulf of is constantly sampled for levels of red tide. The information is entered into a database, which serves the tourism, fishing and scientific community.

cided with outbreaks of severe respiratory ailments.

It is only in the last several years that red tide became considered more of a health hazard. The controversy is becoming so heated, that a reporter for the Los Angeles Times interviewed Florida Gulf-coast residents about their reaction to red tide. His article came out on Tuesday morning this week.

Jim Patterson, who is a local resident, former mayor of Longboat Key, and founder of environmental group Solutions to Avoid Red Tide (START) told the reporter he would have been satisfied just to rid the beach of the stench of dead fish. He had hired a boat and crew and set out to chop up the carcasses with a fish shredder before they could reach the shore. Unfortunately, the pieces still found the shore. Longboat Key was littered with decaying fish chunks.

The Times reporter wrote that Ruth DeLynn, a 79-year-old retired biologist and volunteer curator at Mote Marine Laboratory, was hospitalized for five days last year with respiratory distress during a particularly virulent red tide.

He said DeLynn also experienced numbness and a burning sensation in her legs that made it difficult to walk. She and her doctor believe the toxin triggered a resurgence of peripheral neuropathy that had been dormant for 15 years, according to the Times article.

He wrote that Susan and Richard Leydon came from Massachusetts and moved to a barrier island, which you can only access by boat. They had been in search of their tropical paradise, and thought they had found it. Suddenly, Richard Leydon, a contractor, says he feels bad when he works. His chest constricts, his eyes burn and his head throbs when there is red tide. But, it is their son, Richard, who they are worried about. Richard has asthma and recurring sinus infections. Some times he coughs till he vomits when red tide is offshore.

What are the state experts saying?

Drs. Mary Christman and Linda Young, who are statisticians at the University of Florida, were recently asked to conduct an independent evaluation of the Institute's red tide database on behalf of the Florida Fish and Wildlife Conservation Commission.

This database is said to contain more than 64,053 records of concentrations of the red tide dinoflagellate *Karenia brevis* of Florida waters in a time span of 52 years beginning in 1954 to 2006 — an historic record, so to speak.

The collection of data comes from nearly 80 different agencies. Christman and Young were asked to follow a simple set of criteria, including questions like: Is red tide

Red Tide Story Missed Facts

Dear Editor:

I am writing you to request that you will publish a correction to the article in the July 21 Longboat Key News titled "Summit Seeking to turn Red Tide" by Lia Martin. This is a sensationalist article that grossly distorts the facts. As a retired research engineer, I am appalled by the distortions of fact that were published. I attended the meeting and, along with many others, know that the panel of experts categorically stated several times that there is no scientific evidence that nitrogen from run off is responsible for the red tide blooms!

The article, as written, reports in the second paragraph that "nitrogen-based fertilizer...exacerbating the red tied blooms." This is in direct contradiction to what the panel reported! In paragraphs five, six, seven and eight more visibility is given to a theory that is not supported by the data than was the positions reported by the summit presenters! Very poor reporting.

On page 9A the headline states "Fertilizer Faulted for Red Tide Blooms." The presenters specifically stated, several times, that there is no scientific evidence that fertilizer is responsible for the bloom!

Please contact Mote Marine to get the true story and publish it. You owe it to your readers to insure they are correctly informed and not misled.

William C. Follmer
Bradenton

increasing in frequency and severity, and, can we predict its behavior.

Both statisticians agreed the study could not be done.

They said it could not be done because of the huge number of sample locations needed, and to use the database — which was begun years ago when collection processes were different — would be difficult.

The Institute is now saying that they found data collected between those two time periods too scattered to show a trend in red tides. But, Cynthia Heil, a research scientist and harmful algae bloom group leader with the Institute, says that there is no reason to believe nutrients in the water cause red tide.

Scientist Larry Brand, professor of marine biology at the University of Miami, said he could prove from that same data that there is an increase in nutrients, which he

thinks has led to an increase in red tides since 1952.

Brand also feels that because people are swarming to Florida, we are dumping more and more sewage, fertilizer and other nutrients into the Gulf.

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Shipped from Overseas

Donald Anderson and colleagues at Woods Hole Oceanographic Institution in Massachusetts traced the origin of a strain of algae responsible for a 1998 outbreak of paralytic shellfish poisoning on France's Mediterranean coast. Analyzing DNA and shipping records, they concluded that it hitched a ride from Japan in the belly of a ship proving that data can be analyzed.

At the summit, Anderson said he felt that when nutrients are dumped into the water, it could lead to the growth of red tide blooms. One nutrient is nitrogen, which is found in fertilizer. Anderson also said.

It is true, minerals like nitrogen are natural, but nitrogen is also an ingredient in fertilizer and sewage. According to Anderson, natural minerals found on the sea bottom can be harmful in enlarging red tide blooms.

Newspapers can only report what is said and done by others. In this case, red tide is controversial and no one knows enough about it to offer many solutions. Some experts think that civilization has made a significant contribution to the way it has increased and should be remedied. Others think that global warming could play a part in its increase. Others feel there is not an increase in red tide. Others think we shouldn't be alarmed, while others think it could be a health concern in the future.

While experts ponder reasons why, coastal residents are becoming activists. Because they fear red tide — *Karenia brevis* — is going to become a household word, and they are starting top demand solutions, not status quo.

You can e-mail Lia Martin at lmartin@lbknews.com.

Longboat Key News

5370 Gulf of Mexico Drive, Suite 210
Longboat Key, FL 34228
Phone: 941-387-2200
Fax: 941-387-8288
www.lbknews.com

Steve Reid, Editor and Publisher
sreid@lbknews.com

Melissa Reid, Associate Publisher
Associate Editor
Lia Martin

Vice President Sales/Marketing
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Glenn & Carole Swope

Graphic Design
Jerry Maguire • Caron Cooper

Newsroom
news@lbknews.com

Letters to the Editor
letters@lbknews.com

Advertising Department
ads@lbknews.com
941-749-0400