

Red Tide is a concern for our coastal communities and visitors alike. Red tide is an example of a Harmful Algal Bloom (HAB)- a higher-than-normal concentration of a toxic or nuisance microscopic alga (plantlike organism) that negatively affects natural resources or humans.

The microscopic algae responsible for Florida red tide is *Karenia brevis*, pictured here. Red tide in Florida is a natural phenomenon, originating 10-40 miles offshore from algae lying dormant as cysts in the sediment. HABs occur under a particular combination of biology, chemistry, and physics, however it is unclear what causes the red tide cysts to awaken and multiply. In contrast to the many red tide species that are fueled by nutrient pollution associated with urban or agricultural runoff, there is no direct link between nutrient pollution and the frequency or severity of red tides caused by *K. brevis*.

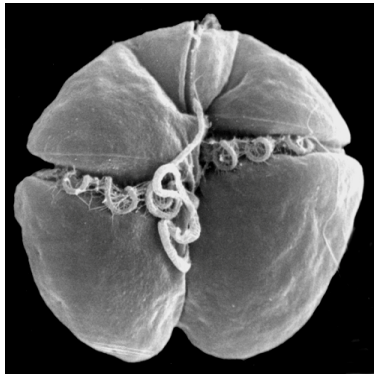


Photo: FWC

The Florida red tide organism, *K. brevis*, produces brevetoxins that can affect the central nervous system of fish and other vertebrates, causing these animals to die. Fish can acquire the toxins through direct uptake (such as fish that eat plankton), or by bioaccumulation through the food chain. Often the animals themselves do not exhibit any visible sign of contamination. Predatory fish, birds, marine mammals and humans that eat this fish can become poisoned. Blooms of *K. brevis* can kill millions of fish and birds in a few days, and blooms can last for weeks. The red tide toxins can also accumulate in mollus-

can filter-feeders such as oysters and clams, which can lead to Neurotoxic Shellfish Poisoning in people who consume contaminated shellfish. However, Commercial seafood found in restaurants and grocery stores is safe because it comes from red tide free water and is monitored by the government for safety.

Red tide also causes respiratory irritation in humans as *K. brevis* cells release toxins into the air as they are broken down by wave action. For people with severe or chronic respiratory conditions, such as emphysema or asthma, red tide can cause serious illness. Although the occurrence of a red tide cannot be predicted, scientists can forecast its movement using wind and water current data once a bloom is located. Scientists also monitor the concentration of the red tide organism by collecting water samples routinely and in response to blooms. The information provided by forecasting and monitoring allows citizens to make informed decisions regarding their beach-going activities.

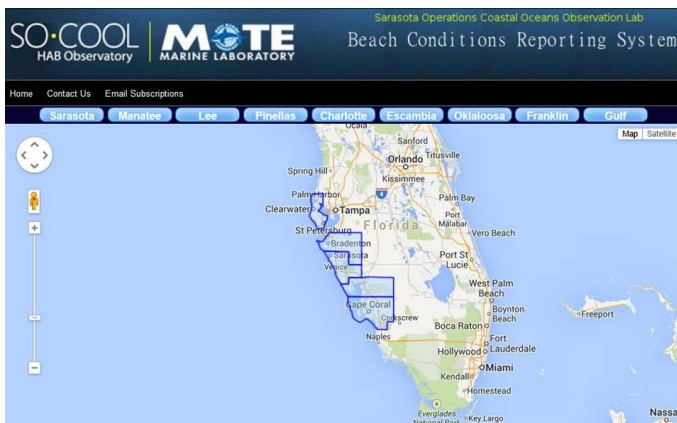
Some precautions to avoid disease and/or discomfort due to red tide HABs include:

- Stay away from the water where HAB conditions have been identified or if water is foamy or discolored or contains dead fish.
- Do not eat, use or collect any fish, crabs, shellfish, other life or items from those waters.
- Do not let pets swim in or eat fish from those waters.
- If contact is made with the water, rinse as soon as possible with fresh water.
- If you suffer respiratory discomfort when near the water, moving a short distance away from the shore may alleviate the symptoms. In more severe cases, stay indoors in air-conditioned rooms as much as possible.

Red tides can last as little as a few weeks or longer than a year. The duration of a bloom in nearshore Florida waters depends on physical and biological conditions that influence its growth and persistence, including sunlight, nutrients and salinity, as well as the speed and direction of wind and water currents. HABs can have consequences on human health, the environment, local and regional economies, and can impact natural ecological communities directly and indirectly.

A weekly Status Report is published by the Florida Fish and Wildlife Research Institute (FWRI) each Friday. The report includes state and regional maps. These are available online, <http://myfwc.com/research/redtide/statewide/>, and posted to the Facebook page at <https://www.facebook.com/FLHABs.com>.

The Beach Conditions Reporting System, maintained by Mote Marine Laboratory, is a user-friendly web interface that provide real-time conditions of our local beaches. The web portal enables you to register for email alerts for your choice of southwest Florida counties at <http://coolcloud.mote.org/bcr>



During a red tide event, information includes:

- If dead fish are present
- Whether there is respiratory irritation among beachgoers
- Water color
- Wind direction
- What warning flags are flying at lifeguard-monitored beaches

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You can report a Fish Kill to the FWRI Fish Kill Hotline. Call 1-800-636-0511 or visit <http://research.myfwc.com/fishkill/submit.asp> to report fish kills, diseased fish, or fish with other abnormalities. Leave a detailed report and contact information on the recorded message. A biologist will contact the caller, usually the following workday, if more information is needed.

Note– please do not call the FWRI Fish Kill Hotline to request dead fish cleanup.

Health and Safety information on HABs
Centers for Disease Control and Prevention
<http://www.cdc.gov/nceh/hsb/hab/default.htm>

Florida Department of Health
<http://www.myfloridaeh.com/medicine/aquatic/index.html>

Florida Department of Agriculture and Consumer Services
<http://www.floridaaquaculture.com/RedTide/RedTideInfo.htm>

Additional Resources

Mote Marine Laboratory, Florida Red Tide FAQs
<http://mote.org/news/florida-red-tide>

Florida Fish and Wildlife Research Institute Red Tide Page
<http://myfwc.com/research/redtide>

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