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For Immediate Release

November 5, 2002

To: News Media

**From: Heidar Heshmati, M.D., M.P.H., Ph.D., Director
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Subject: RED TIDE HEALTH ADVISORY

Recent measurements of the levels of red-tide-causing organisms in the offshore waters of Brevard County, Florida have indicated that red tide is present along Brevard County's coast from Jetty Park to South Melbourne Beach.

A red-tide event does not produce urgent public health concerns, but may result in mild and short-lived respiratory symptoms. Fish kills may occur. In addition, precautions should be taken when preparing and cooking fish caught in local waters, and consumption of locally harvested molluscan shellfish (oysters, clams, and coquinas) should be avoided during this event.

Exposure to red tide can lead to varying degrees of eye, nose, and throat irritation similar to cold symptoms. **Health officials recommend that people experiencing the aforementioned symptoms remain away from beach areas -- Once a person leaves the red tide area, the symptoms usually go away.** People with severe or chronic respiratory conditions are cautioned to avoid red tide areas.

Residents living in beach areas are advised to close windows and run the air conditioner (making sure that the A/C filter is maintained according to manufacturer's specs). If outdoors, they may want to wear paper filter masks, especially if onshore winds are blowing. For people with long-term exposure, such as beach workers or fishermen, a more properly fitted mask is recommended.

The Florida Marine Research Institute recently reported levels of *Karenia brevis*, the causative algae, in excess of those needed to produce fish kills over the next several days. The fish kills result from oxygen depletion in the water, and the direct effects of the algae on the fish.

Red tide can affect humans through consumption of contaminated molluscan shellfish, through aerosolization of the organism, and through skin contact. During a red tide, bivalve shellfish, including clams and oysters, concentrate the toxin and can produce neurotoxic shellfish poisoning (NSP) in humans if eaten. Both mild gastrointestinal and neurological symptoms may occur in NSP, which may include tingling and numbness of lips, tongue, and throat, muscular aches, dizziness, reversal of the sensations of hot and cold, diarrhea, and vomiting. Onset of this disease occurs within a few minutes to a few

hours; duration is fairly short, from a few hours to several days. Recovery is complete with few after effects; no fatalities have been reported.

Cooking does not eliminate the toxin. Only clams and oysters collected in shellfish harvesting areas monitored and open for harvesting per the Department of Agriculture and Consumer Services (DACS) should be eaten. Scallops may be consumed as long as only the muscle is eaten. Shellfish harvesting areas are closed by DACS during red tide. Any healthy finfish harvested from red tide affected waters should be carefully filleted and cooked fresh, avoiding consumption of roe and internal organs. The meat of fresh, healthy fish should be safe to eat.

The other human effects of red tide are transient, with no long-term health effects, although any individuals with severe chronic respiratory conditions such as emphysema or asthma should avoid beach areas and contact with water spray during red tide conditions. In situations where conditions produce human contact with affected water spray, such as those due to wind direction and wave action along with spray production by boat propellers, some susceptible people may experience varying degrees of eye, nose, and throat irritation similar to cold symptoms, and may include coughing or wheezing. The symptoms are generally only a transient nuisance, with mild discomfort, and can be resolved by leaving the area where spray is being produced. A rash can sometimes occur after contact with affected water, and is usually self-limited, resolving within 24 hours. It may be prudent for a swimmer in an affected area to rinse off after swimming, to reduce the time of contact with affected water. Swallowed water is unlikely to cause health effects, but prudence would indicate that this should be avoided.

Many questions are asked about what to do with the fish that have died during red tide conditions. Contact with fish killed in a red tide event does not produce any red tide associated symptoms. However, these fish can present a nuisance, in that they have an unpleasant odor, and attract such things as flies and vermin. These fish may be disposed of according to local solid waste practices. Gloves or use of implements to collect any fish for disposal is recommended. Citizens with dead fish for disposal are instructed to use double-lined plastic bagging.

Attached is a summary of common questions and answers about red tide. The public may obtain more information on ongoing red tide events from the Florida Marine Research Institute. The Florida Marine Research Institute's website is <http://www.fmri.usf.edu/>. Additionally, there is red tide information at the EPA's website: <http://www.epa.gov/owow/wtr1/estuaries/coastlines/summer98/harmfulalga.html>. The Florida Poison Control Information Center in Miami has an estuary associated illness "hotline", for those with symptoms to report them. The toll-free number is 1-888-232-8635. A poison control specialist will be present to respond to the call.

Locally you may call the 24-hour 211 Number should you require more information. If you are unable to access 211, you may dial 321-632-6688.

RED TIDE - FREQUENTLY ASKED QUESTIONS

What is red tide?

Florida's red tide is a natural phenomenon resulting from dense concentrations (blooms) of a microscopic, plant-like organism that measures 1/1,000 inch. The toxin produced by the tiny cells can kill large numbers of fishes, which can wash ashore and litter beaches. When the organism is extremely concentrated, seawater can have a reddish-brown color.

What causes red tide?

The organism that causes the Florida red tide is a dinoflagellate called *Karenia brevis*. Because of its plant-like nature, *K. brevis* responds to various environmental factors such as light, temperature, salinity and nutrients. These growth factors, along with other conditions caused by winds, tides and currents, determine how and where a bloom develops. Offshore, *K. brevis* probably blooms annually as a normal part of its growth cycle. Other types of similar organisms cause red tides worldwide; each type produces a different group of toxins that result in different bloom effects.

How do you know that red tide is in the water?

Florida Marine Research Institute scientists test for presence of the red tide algae by collecting water samples in areas suspected of having blooms. The red tide algal cells are visible only through a microscope at a magnification of about 1500 times. Scientists then count the density of organisms per volume of water to determine the severity of the bloom. Some of the reasons to suspect red tide is in the water are presence of dead fish, people experiencing the respiratory impairment associated with red tide and discolored water.

Is there any way to control red tide?

There is no method currently known that will control red tide outbreaks in the wild. Blooms of related organisms have been controlled by the introduction of clay-like material into Japanese waters. Over the past 30 years many theories have been proposed to control red tide and some have been tested. Control of any species of organism in the open environment has the potential to also adversely affect many other organisms and must be approached with great care.

How does red tide kill fish?

The red tide algae produces a toxin that affects the nervous system of fish such that the fish is paralyzed and can't breathe. The first indication that a bloom is in the area is usually dead fish. The slower moving or sedentary species of fish are generally the most affected. The red tide algal cells respond to light and therefore move up and down in the water column during the day and night. Therefore, fish can be affected at any depth of water.

Why can't I eat shellfish during a red tide?

"Shellfish" is a generic term used to describe a large number of marine animals not all of which are affected by red tide. Shellfish like the bivalve molluscs; clams, oysters, and coquinas should not be eaten. These molluscan shellfish are filter feeders and can therefore filter large amounts of the red tide algae from the water and concentrate the toxin producing algae in their gut. Other seafood also commonly called shellfish such as crabs, shrimp, and lobster can be eaten because they do not filter water and will not concentrate the toxin. Scallops can be eaten if only the scallop's muscle is eaten, as is normally the case. Scallop stew, which would use the whole animal, should not be eaten.

When will this red tide go away?

There is no way to tell either when a red tide will appear or how long a bloom will last. Scientists are perfecting techniques to identify the conditions in the atmosphere and offshore waters that precede blooms and may be able to accurately predict when they will occur in the near future. The continuation of any red tide is dependent on weather and water conditions and the concentration of the bloom.

What causes the respiratory irritation near the beaches during red tides?

As the red tide blooms approach coastal areas, the breaking waves can cause some of the toxin to become mixed with sea spray. People to varying degrees experience eye, nose, and throat irritation similar to cold symptom. Once a person leaves the red tide area, the symptoms usually go away. People with severe or chronic respiratory conditions are cautioned to avoid red tide areas.