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Algal Toxin Linked to Marine Mammal Deaths

When toxins from common microscopic algae build up in fish and seagrass, they can kill large numbers of dolphins and manatees, according to new research. The findings may help explain the recent deaths of these creatures in Florida waters, even when harmful algal blooms were no longer present.



Florida is no stranger to harmful algal blooms, also known as red tides. The phenomenon occurs when populations of toxic microscopic algae explode, turning the sea red, brown, green, or yellow. The organism responsible for red tides (*Karenia brevis*) produces a potent poison called brevetoxin that kills fish and sickens people when they eat filter-feeding organisms such as clams and oysters. Scientists suspected that the same toxin was causing the deaths of dolphins and manatees, but they couldn't understand why the creatures continued to die long after the bloom had passed.

The search to find the cause of the deaths gained greater urgency in 2002 when 34 manatees turned up dead in southwest Florida. Two years later, 107 dolphins died. Although a test of the waters showed relatively low concentrations of *K. brevis*, marine biologist Jerome Naar of the University of North Carolina, Wilmington, and colleagues found that the stomach tissues from the dead animals contained high levels of brevetoxin, suggesting the poison was introduced through food. Further testing showed that seagrass in the manatee stomachs was loaded with the toxin, as were the menhaden fish inside the dolphins.

Since even small amounts of brevetoxin can kill fish, Naar wondered if live fish could accumulate and retain the poison. When he fed fish in his lab toxic clams and red tide algae with low levels of the toxin, the fish stayed healthy but accumulated the toxin in their tissues. The findings indicate that fish can remain a potent source of algal toxin long after a red tide has disappeared, says Naar, whose team publishes its findings in the 9 July issue of *Nature*.

Poison pill. Toxic algae (*inset*) from red tides can accumulate in seagrass and kill the manatees that graze on it.

CREDIT: Patrick M. Rose. Save the Manatee Club; (*inset*) Florida Fish and

"This is very bad news," says David Townsend, an oceanographer at the

University of Maine, Orono. Already facing danger from fishing nets and accidents with boats, he says, "Florida's manatees and dolphins don't need any more help dying."

--AMITABH AVASTHI