

# Grouper's Revenge

*Ciguatera fish poisoning exacts a nasty toll on unwitting fishermen in tropical and subtropical waters.*

*This diver would soon regret eating the black grouper he speared at Cay Sal Bank. Below: Barracuda (this one from Gulf of Mexico) is another species associated with ciguatera fish poisoning.*

**T**he fishermen risked major fines or worse by crossing to Cay Sal Bank without paying for a Bahamas fishing license. They did it anyway and sneaked over and back to the Florida Keys. Law enforcement took no notice. But Karma did.

"I'd speared a big black grouper in 50 feet of water, like 50 or 60 pounds," one of the men, a Miami resident, told Florida Sportsman. "We

**By Jeff Weakley, Editor**

my office ate it. It tasted so good, everyone was fighting over it!"

Within hours, the once-jubilant fisherman had terrible diarrhea. So, too, did his friends—though for the first few days, no one would admit to the symptoms. "I woke up the next morning and my legs felt tired and weak," the man said. "When my feet touched the cold tile floor, there was this hot, tingling sensation. About a week into it, someone said, 'What the [expletive], I wake up and I can't walk!' That's when we all came to the conclusion that the fish was bad."

The man and his colleagues realized they had ciguatera fish poisoning, an illness resulting from eating saltwater fish laden with a specific toxin produced way down the food chain. The illness isn't terribly common; among Floridians, it's a "one-in-a-million" kind of thing, at least according to healthcare system reports curated by the Florida Dept. of Health. But, if you're the kind

brought it back and a bunch of people at



of person who eats a lot of big groupers and other fish, you need to know about it.

In some parts of warm seas—and certainly The Bahamas—microscopic algae in the Gambierdiscus family cluster around some shallow-water plants and corals. They are photosynthetic, free-swimming organisms not unlike those which produce red tide. As small grazer fish inadvertently pick up bits of the algae, a chemical product thereof, toxic to mammals but apparently not fish, is deposited in their fatty tissues. As larger, long-living predator fish such as grouper, barracuda and amberjack eat those grazing fish, the toxins accumulate.

The main calling card of ciguatera is the reversal of hot and cold sensations—tingling feet

on tile, shivering in a hot shower, cold drink feels hot to the hand. "That's pathognomonic," said Dr. Tim Allison, Vice Chief of Emergency Medicine at Jupiter Medical Center and an avid Southeast Florida angler. "GI symptoms are common—vomiting, diarrhea, abdominal cramps—but can be ciguatera or some other type of poisoning. When you get to the neurologic symptoms, the hot/cold reversal, you can pretty well call it."

Allison and other experts interviewed by Florida Sportsman said the intravenous administration of Mannitol within 24 to 72 hours can alleviate symptoms (healthcare professionals can call the Poison Information Hotline, 800-222-1222, for details). Experts aren't completely

sure how Mannitol treats the illness, but they agree that it somehow interrupts the swelling of nerve cells caused by the ciguatoxin.

Unfortunately for the Miami crew, they'd missed the Mannitol window. They were on their own. "I went to the doctor, and he said now there's nothing we can do. You just have to ride it out," the man said.

Making matters worse, they'd begun experiencing one of ciguatera's nastiest, least-discussed symptoms: dyspareunia. That's extreme pain during—ahem—life's most intimate moment. "Painful like you wouldn't believe!" as he described it.

Over several weeks, the symptoms subsided, which is typical. The man swore off eating big groupers caught in The Bahamas—with the exception of "deep drop" species caught at 500 feet or more, where the sunlight-activated Gambierdiscus algae doesn't seem to be present. (Let's also hope—thankful as we are for his honest story—that he made a renewed commitment to abiding by international fishery laws.)

The U.S. Food and Drug Administration (FDA) is cognizant of the threat ciguatera poses to consumers. But because there is no specific test available, the FDA seems to issue only "keep calm/carry on" generalities to seafood processors, such as: Establish monitoring procedures. Keep records. Be aware that ciguatoxic fish may be found "between 35° north latitude and 35° south latitude and are common in several areas in the Caribbean Sea, Pacific Ocean, Indian Ocean, and in the Flower Garden Banks area in the northern Gulf of Mexico." Within that vast range, the FDA classifies some species most commonly associated with ciguatera: barracuda, amberjack, grouper, snapper, jack, wrasse, and ornamental fishes as parrotfish.

"There is no specific test or facility to test for ciguatera," said one manager of a seafood market in southern Florida. The manager asked to remain anonymous. "As for other protec-



*These anglers fishing in the Abaco islands were aware of the ciguatera risk associated with large groupers there, and wisely released this big black grouper.*

tive measures, it's all about buying from certified HACCP [hazards analysis critical control point] facilities. Where are they getting their fish from?" The manager said he "won't buy bottom fish from the Bahamas. In our area, the epicenter

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A consumer test kit for ciguatera, available for about 10 years under the "Cigua Check" label, proved totally ineffectual under a clinical trial and is no longer on the market. Readers couldn't agree on the test strip results—and even when they did, they had over thirty percent "negative positives"—meaning they would've consumed ciguatoxic fish.

That lack of a test kit is a bummer for anglers,

who find little in the way of formal guidance from fishery managers. Discussing localized risks with fellow anglers—say on the Tropical Forum at [floridasportsman.com](http://floridasportsman.com)—is one solution. In the case of Bahamas fish, regulations aimed at conserving fish stocks also provide a bit of security against ciguatera: The law limits visiting anglers to no more than 60 pounds or 20 fish per vessel, comprising an aggregate of groupers, snappers, jacks and other demersal fish. That pretty well discour-

ages keeping the largest reef fish, which seem to be the most toxic. However, some fishermen who've had ciguatera say they'll no longer eat ANY groupers or other shallow-water bottom fish in the Islands. (Their reactions may be in part informed by the awareness that ciguatera symptoms may recur, even after eating seemingly safe catches.) Large king mackerel and amberjack, for the record, have been implicated in cases of ciguatera in the Bahamas.

Experts say ciguatera is notoriously under-reported; even when diagnosed by a healthcare professional, only about a tenth of the cases are actually reported to the Florida Dept. of Health. Over the past 10 years, the department indicates somewhere around 10 to 60 cases per year, more than half of them from Miami-Dade County.

Talk to anglers, especially in South Florida, and it doesn't take long to find credible stories. Researchers affiliated with the University of Florida emailed licensed recreational anglers

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*Of Florida cases, 31 percent involved groupers, 18 percent barracuda, 8 percent amberjack, 8 percent snapper, 7 percent hogfish.*

*Algae collection device monitored by researchers with Florida Gulf Coast University studying ciguatera algae in the Florida Keys.*

in Florida and turned up some interesting details. Rather than a one-in-a-million illness, as suggested by Dept. of Health records, ciguatera looks more like one in 20,000. Among anglers in certain areas, it may be even more common.

The survey, by Elizabeth G. Radke, Andrew

Reich, and John Glenn Morris, Jr., questioned anglers about ciguatera symptoms and factored alongside confirmed outbreaks those accounts deemed "likely or possible."

The researchers concluded that 31 percent of ciguatera cases in Florida, over an 11-year

period, involved groupers, 18 percent barracuda, 8 percent amberjack, 8 percent snapper, 7 percent hogfish and a smattering of others. As to the origin of the fish in question, the surveyors concluded "the majority of cases in Florida are caused by fish caught in The

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Bahamas and the Florida Keys and fishermen should be cautious in consuming high-risk fish caught in these areas.”

## Researching Ciguatera “Hot Spots”

Dr. Michael Parsons of Florida Gulf Coast University, in Fort Myers, is a principal investigator



Amanda Ellsworth at FGCU extracts tissue samples from Florida Keys fish for toxin analysis, part of an ongoing, region-wide study.

in an ongoing, multi-institutional study of the ciguatera-causing *Gambierdiscus* dinoflagellate. He’s charged with sampling for the algae in the Florida Keys, mainly around Long Key and Marathon. Colleagues are looking at the same for The Bahamas and other parts of the Caribbean. In another year or two, we might have a better grasp of what’s going on.

“We do see the toxin out there; it is showing in fish and algal samples, but it looks like it’s lower than what we see in St. Thomas,” Parsons said. “We also now know there are more than 10 species of this dinoflagellate. We’re learning that some kinds produce more toxins than others.”

Interestingly, Parsons says the algae respond to temperature. Scientists have been publishing reports about how rising sea temps may lead to a range expansion of this and other kinds

of harmful algae. At the same time, too much heat may thin their ranks.

“In Florida, by the time we hit August and September in the Florida Bay side, *Gambierdiscus* disappears; we think maybe because it gets too hot for them,” Parsons speculates. “Being algae, they need sunlight—we’ve seen them in tide pools a foot deep and they’ve been reported as deep as 120 feet. But an interesting thing is, they do not like really high light levels—we think they hide in the blades of seaweed and macroalgae so they aren’t exposed to high sunlight.”

As a practical matter, Parsons said he “definitely won’t eat barracudas.” He also mentioned a case in Key Largo in which diners were sickened after eating amberjack. And, based on the Radke survey already mentioned, Parsons worries that “we have to be careful with hogfish, too.”

Dr. Tim Allison, from Jupiter, has not only treated a number of ciguatera cases over the years, but happens to be a fisherman and boater who spends a lot of time in The Bahamas. From Allison’s personal and professional experience, he says: “I don’t eat big grouper, especially big grouper from the Bahamas. I’ve never eaten barracuda, and I’d avoid big amberjack. And after reading this guy’s blog recently about his poisoning ([ciguateratoxin.com](http://ciguateratoxin.com)), I don’t think I’d eat big hogfish, either. I’d go for small, fast-growing things, small reef fish and pelagics.” **FS**

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