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The Race To Kill Lionfish, The Invasive Species Threatening Our Seafood Supply

Spearfishing is saving the ecosystem, one lionfish at a time.

BY ALLISON ARNOLD PUBLISHED: SEP 29, 2023

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The lionfish most likely got its name from the 18 venomous spines that fan out across its body like a lion's mane. Get stung by one and you could experience pain and swelling, and even paralysis. The stunning brown- and white-striped fish, also known as *Pterois volitans*, is popular in the global aquarium trade, which is probably how it ended up as an invasive species in the Gulf of Mexico and Western Atlantic, far from its native waters in Asia.

The vicious lionfish, first spotted in the U.S. off Florida's Dania Beach in 1985, will eat nearly any fish that crosses its path, not unlike its mammalian namesake. Lionfish have been known to feed on at least 50 species, from the parrotfish that keep coral reefs healthy to the economically vital grouper and snapper that are popular in

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Reef Environmental Educational Foundation (REEF). Females spawn about two million eggs per year, and in the early 2000s lionfish began [spreading](#) throughout the Gulf of Mexico and Caribbean at alarming rates. If an area has enough lionfish, they can reduce the chances that native fish will reach adulthood by about 79 percent, according to one [study](#).



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“We’ve all accepted that they’re here and we’re not going to eradicate them from this area—they are just too prolific and they reproduce too frequently for that to be a reality for us,” said Lee.

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The non-native lionfish doesn't have any predators. But now that they're so ubiquitous throughout the Caribbean, Gulf of Mexico, and up the East Coast as far north as Rhode Island, humans have taken on that role. Lionfish swim amongst coral reefs and shipwrecks, so they can't be caught with a hook and line. The only way to hunt them is by diving below the ocean's surface and spearing them one by one.

Killing lionfish isn't just a fun way to spend a day in Florida; it's vital to protecting the ecosystem. "If efforts to hunt lionfish stopped, they would increase in numbers again and exert a lot of pressure on the native fish communities," said Andrew Ibarra, former REEF intern and recreational lionfish hunter.

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the hunt, Ibarra's team, Men of Science, got their boat ready, mapped out diving spots, and gathered all of their equipment: scuba gear, spears, and safety tools. Alarms were then set for 4 a.m.

"Competing in these derbies is a fantastic time," he said. "The friendly competition creates a great atmosphere to connect and educate people about lionfish," he said.

After two days of hunting from dawn to dusk, a record 1,898 lionfish were caught by 22 diving teams. Men of Science won first place in its division for spearing a total of 156 lionfish.



Men of Science team: Chris Reynolds, Andrew Ibarra, Jim Brittsan, and Rick Hayden.

MADDIE BROWNFIELD

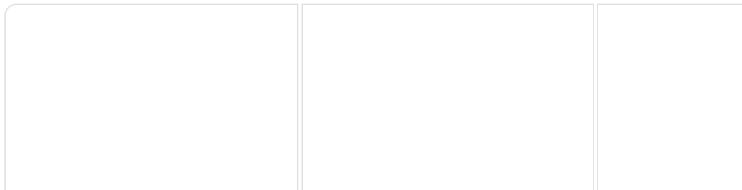
But it's not all bloodshed: The derby is as much about education and lionfish awareness as it is a free-for-all of spear hunters. Following the derby, there's a festival with lionfish-filleting demonstrations, vendors selling jewelry made out of fins and spikes, and chefs preparing fresh lionfish tacos and ceviche.

"People are really surprised to hear that you can eat it," Lee said. She prefers her lionfish sweet potato-encrusted.

REEF keeps 20 percent of the lionfish harvested during the derby for educational purposes. What's not eaten of Ibarra's bounty, he sells to local restaurants. The light, flaky fish has become a common dish at restaurants throughout the Keys.

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“Not a single part of the fish went to waste!” Ibarra said. This year he threw a party to celebrate his team’s win and prepared a variety of lionfish dishes. Fins and spines were given to his friend who makes jewelry, and the carcasses were donated to a local farm for fertilizer.



Asavari Shanker of REEF holds a lionfish at the 2023 REEF Florida Keys Lionfish Derby & Festival.

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In addition to the annual derby, REEF also hosts workshops and culinary events as part of its Invasive Species Program. “Equipping divers with the tools and the knowledge that they would need to go out and fish for them, just recreationally or

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The Florida Keys derby is just one of several organized tournaments that help fight the proliferation of lionfish. And it's fair to say that the movement to kill lionfish didn't take off only because of environmentalists, but also the spearfishing.

"It's kind of like whack-a-mole," said Brady Hale, board chairman of the Ocean Strike Team, a nonprofit that promotes ocean conservation. "It's not very hard, but it's very rewarding because you're doing good for the environment." He's also the marketing director for the [Emerald Coast Open](#) in Destin-Fort Walton Beach, the world's largest lionfish tournament, where divers compete for prize money totaling over \$100,000.

Destin-Fort Walton Beach is known as the "lionfish capital of the world," and this year, at the fourth annual tournament, 24,699 lionfish were caught—a new record, almost double last year's catch.

Whether you're in it for the sport or the ecosystem, when it comes to lionfish, everyone has a stake in the game. You might not refer to yourself as an environmentalist, but maybe you like diving and fishing, or just want to protect the local fishing industry. Unlike other species, there are no limits on how many you can catch, which makes it a goldmine for fishermen. It's always open season.

Lee compares lionfish control to weeding a garden. "It's all about routine removals," she said. "And single-day events like lionfish derbies have actually been known to reduce the lionfish population significantly." She says that there are some places in the Keys where you might not even see any lionfish these days because the local diving community has been so active in their removal.

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Marilyn Steadman, Michael Ryan, Cassandra Clark, and Doug Hoffman are part of the Barnacles team. They caught the largest lionfish in the derby, which was almost 17 inches.

MADDIE BROWNFIELD

But if lionfish are so abundant—and tasty—why aren't we eating more of it? It's a matter of logistics and economies of scale.

The development of large-scale lionfish fisheries has proven difficult. Unlike, say, shrimp or flounder, lionfish can't be caught with large trawl nets. And while some lionfish-specific traps have been in development, there's nothing like that being used yet.

This presents a conundrum: How can fishermen create a consistent supply of lionfish to meet demand? And how can they do it without harming other commercial fishing industries?

Alex Fogg, coastal resource manager for Destin-Fort Walton Beach, is a lionfish expert who's been involved in everything from research and control to derbies and commercialization since 2010. "Lionfish were a problem," he said, "but now that they have established themselves in the ecosystem, at the expense of native species, we can now look at them as an opportunity or even a benefit to tourism, recreation, and the seafood industry."

Fogg claims the biggest barrier to a lionfish industry is supporting the demand. "Many restaurants want to buy lionfish," he said, "but since the most efficient method

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of fish can be harvested in a short amount of time.” And this is why you probably don’t see lionfish at your local restaurant or supermarket.

He noted that as the lionfish population changes, so do divers’ preferences, creating an “ebb and flow” in the market. While large-scale harvests would be the ideal solution, lionfish is currently more of a supplement to a commercial fisherman’s income or extra money for divers. He considers it a high-end, artisanal fish that should be sold at a premium price, thus keeping an incentive for divers to harvest them.

Lionfish is far from the first invasive species to cause problems U.S. waters—and it won’t be the last. Zebra mussels, [European green crabs](#), and Asian carp are just a few examples. European green crabs have little meat, so they’re more likely to end up as bait rather than on a plate. Tamworth Distilling in New Hampshire has even been using them to make [whiskey](#).

Asian carp, which infiltrated U.S. rivers in the 1970s, have mostly been used as bait and fertilizer due to the stigma around carp. The fish was [rebranded as Copi](#) to appeal to American appetites and has been served in dining halls at the [University of Illinois](#).

Eventually, invasive species find their place, but not without human intervention. At the other end of the spear, the lionfish is still met with only one predator—one with a dive mask.

“Definitely it would be a problem if people stopped hunting them, they would come back, I think with a vengeance,” said Hale. “And I think we’re starting to see a resurgence in the population.”