

## How Florida is handling Invasive Lionfish

Florida's southern coast is one of the most popular divespots in the world. Home to the only tropical coral reef in the continental United States, hundreds of species of fish live along this reef system. But the fish here are in danger because of a foreign predator that's been devouring them: lionfish.

Eric Nelson is an avid scuba diver who hunts lionfish up to 130 feet below the surface of the Atlantic Ocean.

Eric Nelson: They can eat 90% of their body weight every day in fish, in fact we have pictures of fish, lionfish that have been gutted, and they have 50 small fish inside of them.

Nelson and his teammates are competing in a lionfish derby off the coast of Boca Raton, Florida. It's a competition to catch as many lionfish as possible before sunset.

Paul Verian: It's a pretty obvious spot, it's on the outside edge, it's a little cave.

The boat's captain, Paul Verian, is a commercial fisherman who's been diving these waters for 16 years.

I saw my first lionfish 7, 8 years ago maybe. I remember going 'Oh wow, what's that? That's crazy', you know, and now they're everywhere.

Lionfish are native to the South Pacific and the Indian Ocean and there are different theories about how they came to inhabit Atlantic waters. The leading theory is that a few home aquarium owners set some lionfish free in the ocean in the 1980s & the fish rapidly reproduced. Several scientific studies have traced the DNA for the entire lionfish population in the Atlantic back to a small group of fish.

When lionfish invade a reef, they can reduce the population of fish they eat by 65% over a period of two years, according to a study conducted in the Bahamas.

How much of a problem are lionfish to the reefs in this area?

Eric Nelson: I've dived in the same reefs over and over, year, every year, you can actually really noticeably tell the difference between a reef that had lots of reef fish before the lionfish invasion and then devastatingly half as many reef fish.

Lionfish consume more than a hundred species of fish, including baby grouper and snapper, and fish that maintain the health of the reefs by grazing on algae.

Eric Nelson says he's noticed that the hunts off the coast of Florida are starting to make an impact.

Eric Nelson: Once we started actively hunting lionfish, we noticed that the same populations are coming back.

During the past decade, lionfish have invaded the underwater habitats in the Atlantic Ocean, the Gulf of Mexico and the Caribbean. Scientists expect that the invasion will continue to spread from North Carolina to the Southern tip of Brazil. One reason for the lionfish invasion is that they are fast breeders, laying more than 2 million eggs every year.

Lad Akins oversees the lionfish program for the Reef Environmental Education Foundation, that is dedicated to Marine Conservation.

Lad Akins: The marine environment is a very complicated interconnected system. And it's taken thousands of years for things to work their place out in balance. And when you introduce a new piece to that puzzle, it disrupts the entire system.

Because lionfish are not native to the Atlantic, they don't have natural predators here. Akins says when you combine that with their voracious appetites, lionfish wreak havoc on underwater habitats, and lionfish have been found as deep as a thousand feet in the ocean.

Lad Akins: With the impacts we're seeing in our shallow waters, we don't know how bad this is going to get, so our entire marine ecosystem is at risk. We could see extinctions of some species of fish, we could see severe degradation to coral reef environments if algae is not kept in check by the grazers, which lionfish are consuming. We could see impacts to our commercial fisheries, to groupers, snappers, shrimp, crabs.

Without natural lionfish predators here, the most effective way to control the population is for divers to catch and kill them, but they're not easy to catch: they don't swim in large schools, and they have poisonous spines that can sting.

Eric Nelson: This is safe, that's safe, the ones that have the venom on them are that one and that one, then along the pectoral one there. The pain can be 50

times worse than a wasp sting. That's about an hour after being stung. That was in total about a 3 month ordeal.

The dive community has stepped up to find safe ways to catch lionfish. One diver designed this plastic cylinder, that he calls a zookeeper, to store lionfish under water and protect divers from being stung. Nelson and his team are using pole spears that he adapted and calls lionfish slayers.

Lad Akins: What's great is that everybody is pitching in. Divers are spending their time and money to go out and remove lionfish. Governments are putting money and effort into researching better tools and techniques.

Florida's Fish and Wildlife Conservation Commission has been running a public awareness campaign about the lionfish threat and contributing prize money to derbies to catch them. As this lionfish derby comes to an end, the dive teams head back to the dock for weigh-in.

Lad Akins organization, REEF, is one of the sponsors of the event. He says derbies can help scientists better understand the species.

Every individual lionfish that's collected is measured because that information is very useful when looking at impacts on populations, and then samples are made available for researchers that are hoping to better understand lionfish.

Some fish is also donated to local restaurants to create a human appetite for lionfish.

Chef Andreas Avayu at Piccolo restaurant in Fort Lauderdale says his customers line up for tables when the speciality item is on the menu.

Grill it, sauté it, bake it, it's like its flavour, it's really versatile. There is no right, there is no wrong. It's one of those fish that just is.

One of his favourite recipes: lionfish tacos. And fishermen have noticed that catching lionfish can be profitable. Commercial fisherman Paul Verian says demand is increasing, and even wholefood sells them when available.

Paul Verian: They've become a pretty big part of my income, in the last year or so, everybody finally figured out that if the guys were buying them from us, the restaurants, the consumers, then everybody likes them, and it's worth it, everybody's making money and the consumer's happy at the end, so now, the price has gone up, demand's gone way up. I have people calling me. I don't even know who they are, begging to buy lionfish. I'm like – sorry, I'm just

selling to people I've been selling to for years... if I could shoot a thousand pounds a day, I could sell them.

As the results come I from the weigh-in at this derby, some people are tasting lionfish for the first time.

Woman: I'm a scuba diver and I've seen them underwater for a long time, and everybody's been telling me it's a nice light white crispy fish, and a very mild flavor.

Lad Akins says popularizing lionfish cuisine may be the best way to control the problem.

Here is a fish, lionfish, it needs to be removed, so consuming lionfish is the best possible option. Eradication is not on the table. Lionfish are simply too widespread, too deep, too inaccessible in some areas for us with our current tools and technologies to remove every last one. So what we're left with is something akin to weeding the garden.