

WHAT'S FOR DINNER? LIONFISH!

How eating lionfish is a course of action in restoring invaded coral reefs.

By Courtney Graham



Lionfish and the coral reef ecosystem. Source: NOAA

Thought to be one of the greatest threats to the Northwestern Atlantic and Caribbean waters, the lionfish, first sighted here in 1985, is an unwelcome trespasser within the area's profound coral reef ecosystems.¹

Invasive species tend to have minimal natural predators in their newly established regions, and the lionfish is no different. A lack of predation and competition has allowed the lionfish to spread rapidly northward along the southeastern coast of the US, southward throughout the Caribbean, into the Gulf of Mexico and, more recently, along the north coast of South America (Map 1), with prediction of spread continuing down the east coast of South America (Map 2).¹

Lionfish have been found to feed primarily on other fish (including themselves). And they eat A LOT. Lionfish feed on coral reef fishes that are important in maintaining the reef ecosystem. An experiment in the Bahamas found a 79% decrease of reef fishes from the presence of a single lionfish! These invaders outcompete the natural predators, such as Coney grouper, affecting the behaviour, distribution, growth, survival and ultimately population size of these native fishes. Overfishing of grouper and other local predators has also aided lionfish abundance.²

LIONFISH IS AN INVASIVE SPECIES IN THE SOUTHEASTERN UNITED STATES AND THE CARIBBEAN.

ITS REMOVAL IS ESSENTIAL FOR THE ECONOMIC AND ECOLOGIC HEALTH OF THE CORAL REEF ECOSYSTEMS.

WHY NOT TRY LIONFISH FOR DINNER TONIGHT?



Map 1: Reports of lionfish as of June 2012.¹



Map 2: Potential future distribution of lionfish, assuming sea surface temperature will be the only limiting factor.¹

With the decrease of natural coral reef fishes from lionfish consumption, the entire reef ecosystem has become threatened from the overgrowth of seaweeds that are the source of food for native species such as parrotfish and other herbivorous fish. The impact cascades through the food webs, eventually affecting the fishing industries in the region by reducing the overall available catch of economically important fish, like grouper.¹

With natural predation not showing to be an effective means to reduce lionfish¹, other methods of intervention must be established.

Research, education and awareness are essential.

Community involvement is an approach that can have great effects on the course of action to remedy the lionfish invasion. One strategy is developing an economic market for lionfish. Fundamental to this strategy is **promoting removal and encouraging consumption** of the fish. Developing consumer demand for lionfish can help elevate its value and create a market that provides incentive for commercial removal.

A market based on the commercial use of lionfish is a sustainable approach to restore the ecosystems impacted by the lionfish invasion.

Castaway’s Wreck Diver-style Lionfish

From Castaway Waterfront Restaurant and Sushi Bar in Marathon Key, Florida³

Ingredients:

- 42 ounces lionfish fillets, patted dry
- flour (for coating)
- 5 cloves garlic, diced
- 2½ cups chopped tomatoes
- 5 tsp. capers
- 1/2 cup white wine
- 1/4 cup fresh-squeezed lemon juice
- 2 tbsp. chopped fresh basil
- parsley or kale for garnish
- lemon wedge for garnish

Preparation: Dredge fillets in flour to lightly dust. Place in sauté pan with small amount of hot butter over medium heat. Cook first side, careful not to burn.

Turn over fish when golden, and reduce heat while adding garlic, tomatoes, capers, white wine and lemon juice. Cover to hold steam in and cook until fish is fork-tender. Add basil and serve immediately. Garnish with a sprig of parsley or kale and lemon wedge.

Supply and demand chains can provide ongoing incentive for fishers to target and remove lionfish. Recently invaded areas may even consider priming the market with pre-packaged lionfish imports as a method to enhance consumption prior to the availability of local catches.¹

With a shift of fishing pressure to lionfish, over-exploited native species could have a chance to recover, and in turn, positively impact the entire coral reef ecosystem.¹

The National Oceanic and Atmospheric Administration (NOAA) has created an “Eat Lionfish” campaign bringing together fishers, wholesalers, chefs and diners as active participants in an effort to

protect the local reef ecosystems. It builds on research conducted by NOAA and other experts to track the spread of lionfish and learn more about its invasive impacts.⁴

Lionfish has a **sweet** and delicate white flesh and has been shown to have **higher omega fat content** than many commonly consumed native species.³ See an example of a recipe above.

The essential course of action is to encourage the removal and consumption of lionfish as an effort of sustainability and conservation.

Help save the coral reef ecosystems and eat a lionfish today!

References:

1. Morris, J.A., Jr. (Ed.). 2012. Invasive Lionfish: A Guide to Control and Management. Gulf and Caribbean Fisheries Institute Special Publication Series Number 1, Marathon, Florida, USA. 113 pp.
2. Albins, Mark A. and Mark A. Hixon. 2008. Invasive Indo-Pacific lionfish *Pterois volitans* reduce recruitment of Atlantic coral-reef fishes. *Mar Ecol Prog Ser.* **367**: 233–238.
3. National Geographic. Lionfish: Gotta eat ‘em to beat ‘em. <http://newswatch.nationalgeographic.com/2013/07/10/lionfish-gotta-eat-em-to-beat-em/> Accessed 23 November 2013.
4. NOAA’s “Eat Lionfish” Campaign. <http://globalfishalliance.org/images/tales/docs/LionfishOnePager.pdf> Accessed 22 November 2013.