

Lionfish Invasion

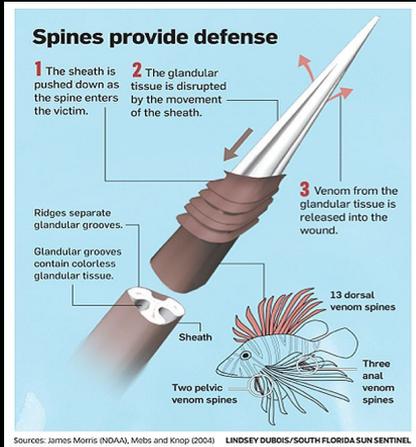


Presented by: Michael, Elias, Zeph,
& Charli

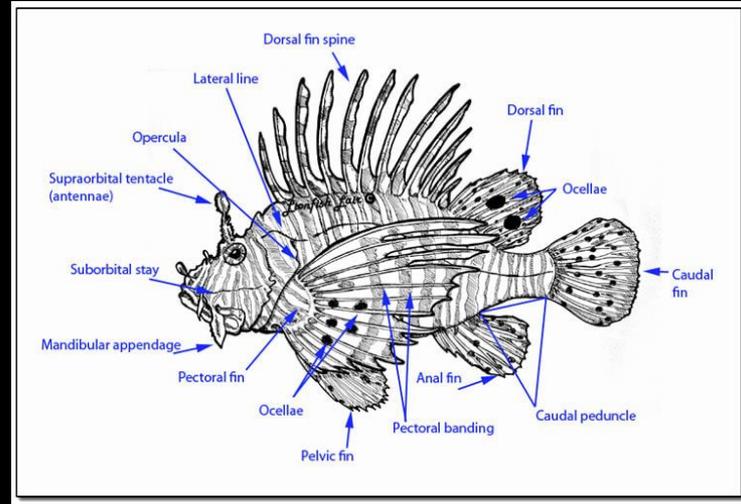
Photo provided by myfwc.com

Description and Biology

- Lionfish are best known for the red and brown mottled coloration, their appearances individualized by white zebra stripe-like patterns. Lionfish mature at about one year of age, and grow to 12-15 in. in length. In foreign habitats, they can grow upwards of 18 in. in length.
- There are two separate, yet very similar Lionfish species populating their non native waters, the Red Lionfish (*Pterois volitans*), which comprises 97% of the population, and the Devil Firefish (*Pterois miles*).



Photos provided by
Belize Lionfish Project



- Lionfish are known stalking predators who use their pectoral fins to corral prey. These fish have an unique technique of blowing water towards their prey to bring them closer before consumption.
- Lionfish have 18 venomous spines along their body that function as a defense mechanism.

Lionfish Introduction

- Where are lionfish located?
 - Lionfish were first located in the coastal Indo-Pacific region. Now they are located in several tropical areas, such as the Gulf of Mexico, the Caribbean Sea, and southern U.S. Atlantic waters. In 1992, Florida was struck by Hurricane Andrew. Six lionfish were released into Biscayne Bay due to this, furthering the spread of lionfish.
- How were lionfish introduced?
 - The running theory is that they were released into the Atlantic in the late 1980s by local aquariums or lionfish owners in Florida. From there, the lionfish were able to quickly proliferate and cement their place in the ecosystem.



Photo provided by NOLA.com

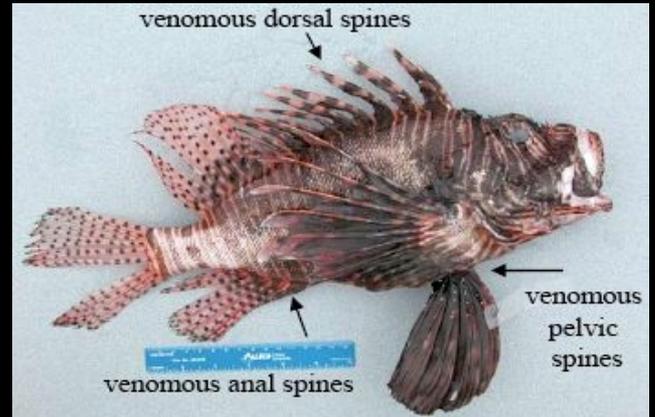


Photo By NOAA.org

Year: 1991



Difficulties Resolving the Issue

- Lionfish are very quick working colonizer species. Mature female Lionfish are able to lay 50,000 eggs every three days, year round, for their entire lifespan. Because of this, their abundance in numbers causes issue in matters of monitoring and controlling their numbers.
- Ecosystems they invade are often left devastated, as Lionfish have ravenous eating habits. They eat multiple key species and leave the hierarchy of the foreign waters unbalanced and unsustainable. In reef environments, Lionfish can kill almost 90 percent of the juvenile fish population of the ecosystem within 5 weeks.
- As they are a venomous species, handling, harvesting, and introducing them as a food source to other species can be difficult. Their 18 sharp dorsal, pelvic, and anal fins make them very dangerous, as they can easily pierce through wetsuits.
- Despite the devastation they cause, Lionfish are not recognized as predators by their newfound prey. This results in native creatures not understanding the threat lionfish pose to them.
- Lionfish have no natural predators in their new habitats. Because of this, there is one less barrier to rapid growth in the lionfish population.

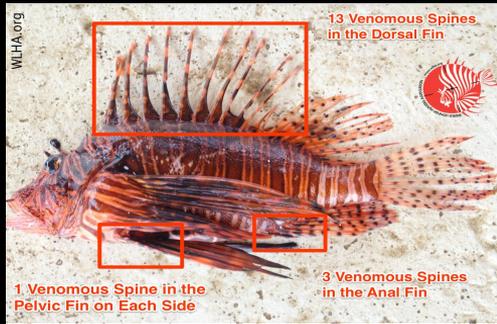


Photo provided by
WLHA.org

Photo provided by
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Difficulties Resolving the Issue cont.

- What makes them a problematic invasive species?
 - Relative to other local species, lionfish are resistant to native parasites.
 - Due to the aforementioned traits of invasive lionfish, they can quickly cement themselves in new environments. Lionfish are also very attached to their location. Once they reach maturity, they tend to stay in that area, worsening the effects of their invasion.
- Do they harm humans?
 - They can harm humans, both directly and indirectly. If a person gets stabbed by their spines it can result in extreme pain, swelling, nausea, diarrhea, seizures, and even paralysis. Invasive lionfish can also destroy fishermen's livelihood by depriving the local waters of harvestable fish. In an interview conducted by Michael Ramsey with Captain Nick Stanzyck, "I have been fishing the Florida waters ever since I was a child, and places that my father has showed me that produce lots of fish are no longer fishable due to the lionfish wiping out the food source and habitat of the other fish that used to thrive there. This affects my charter company because places that I used to go to put my customers on fish are no longer able to be fished. Plus these lionfish eat almost anything that can fit in their mouths. And because of this, they eat all the bait that I need to catch, leaving me with nothing."

Solutions to the Lionfish Take Over

- Lionfish Market
 - Dr. James Morris, a NOAA researcher, suggested having a lionfish market that can promote harvesting these fish. Although their spines are venomous, the flesh is perfectly edible.
- Local Control
 - Promoting the spread of information on invasive species and how badly they can harm the environment and ecosystems.
 - Introducing the Lionfish as a food source for the predators of the ecosystems they invade.
- Aquariums
 - Banning aquariums from importing them.
- Governmental incentive
 - The state of Florida holds cleaning/killing tournaments where people are encouraged to kill as many lionfish as possible with the promise of rewards for their efforts.

Works Used for This Presentation:

- [NOAA National Marine Sanctuaries Lionfish Response Plan \(2015-2018\) | Office of National Marine Sanctuaries](#)
- <https://fishingbooker.com/blog/tame-lionfish/>
- <https://www.fisheries.noaa.gov/southeast/ecosystems/impacts-invasive-lionfish>
- <https://oceanservice.noaa.gov/facts/lionfish.html>
- <https://www.fau.edu/ehs/info/lionfish/>
- <https://www.wri.org/research/reefs-risk-revisited/atlantic-and-caribbean-lionfish-invasion-threatens-reefs>
- https://www.usgs.gov/centers/wetland-and-aquatic-research-center-warc/science/lionfish-distribution-geographic-spread?qt-science_center_objects=0#qt-science_center_objects
- <https://myfwc.com/wildlifehabitats/nonnatives/marine-fish/scorpionfish-and-lionfish/lionfish/>
- <https://www.iucnredlist.org/species/190475/54145413>
- <https://www.iucnredlist.org/species/190468/78940195>
- https://docs.google.com/document/d/1MPkJLDfYPPs8SDa0L2f37sahnT_DVi4ZVxXw8x90EGY/edit
- <https://flowergarden.noaa.gov/education/invasivelionfish.html>
- <https://www.belizelionfish.org/>
- <https://www.oceansupport.org/lionfish-information>
- <https://appliedecology.cals.ncsu.edu/absci/wp-content/uploads/Tuttle-et-al-17-Biol-Invas-lionfish-parasite-release.pdf>

If You Want To See Some Invasive Lionfish Get Obliterated...

