



Lionfish Invasion



Background

The lionfish is a venomous predatory fish native to the Indo-Pacific that was introduced into Atlantic waters as early as the 1980s. Lionfish have the potential to impact many marine ecosystems and visitor experiences. Preliminary evidence suggests that the proliferation of lionfish may diminish important native species, resulting in changes to ecological community composition and function.

How did Lionfish get Here?

There are currently two theories on how lionfish made their way to our waters. The first is through the aquarium trade.

Lionfish are very popular in the aquarium trade. Because lionfish can wreak havoc on a salt water tank, irresponsible pet owners often just let them go. In addition, lionfish may have gotten into the ecosystem after an aquarium was destroyed during Hurricane Andrew, in 1992.

Another potential source of this invasive species was through ballast water on international

shipping boats. These boats need to take in water for stability before a voyage. Once a ship arrives at its destination, it releases this ballast water.

Ballast water can contain living species. Over 3,000 marine species travel around the world in ships' ballast water on a daily basis.

While the original source of lionfish in the Caribbean and Atlantic is up for debate, we do know they were first confirmed in Everglades National Park in July 2010, and have been found as far north as Massachusetts.

Lionfish Habitat & Identification

The lionfish's native range covers a very large area in the Indo-Pacific; however, as is evidenced by their proliferation along the eastern seaboard of the United States and the Caribbean Sea, lionfish can be found in most habitat types available in warm marine waters of the tropics. Lionfish have been found in water depths from 1 to 1000 feet on hardbottom, mangrove, seagrass, coral, and artificial reefs (like shipwrecks).

Lionfish have distinctive brown or maroon, and white stripes or bands covering the head and body. They have fleshy tentacles above their eyes and below the mouth; fan-like pectoral fins; long, separated dorsal spines; 13 dorsal spines; 10-11 dorsal soft rays; 3 anal spines; and 6-7 anal soft rays. An adult lionfish can be up to 18 inches long, while juveniles may be as small as 1 inch or less.

Why are Lionfish a Problem?

Preliminary evidence suggests the proliferation of lionfish may have the potential to significantly impact commercially, recreationally, and ecologically important species, and result in changes to the community composition and ecological function of various marine ecosystems.

The invasion of lionfish is unprecedented, as it is the only known marine invasive species known to have established itself throughout the Caribbean and the coastal waters of the southeastern United States. Currently, twelve units of the National Park Service stand to be impacted by the lionfish,

as well as many additional wildlife refuges and sanctuaries administered by related agencies.

Many of our nation's coastal resources have long shown signs of being impacted by a variety of natural and human-caused stressors, including hurricanes, fishing pressure, pollution, disease, rising seas, and warming waters. The introduction of lionfish is an additional stressor that may threaten the continued existence of critically imperiled species, like communities of federally listed staghorn and elkhorn corals.

Ecological Role of Lionfish

Lionfish are slow-moving and conspicuous, so they rely on their unusual coloration and fins to discourage would-be predators from eating them.

Lionfish are now one of the top predators in many coral reef environments of the Atlantic. Lionfish eat anything and everything—consuming over 50 species of fish including economically, ecologically and recreationally important species. Recent studies indicate that they can eat 80 percent of the fish on a given reef in just five weeks!

Unlike other Caribbean and Atlantic fish, lionfish can reproduce year-round. They also grow incredibly fast—capable of outgrowing native species with whom they compete for food and space, such as the already compromised snapper and grouper.

In addition, because the lionfish is outside of its native range, they lack natural predators to help keep their numbers in check.

Lionfish Venom

Those beautiful fins on a lionfish contain venomous spines that can cause intense pain, burning, swelling, redness, bleeding, joint pain, anxiety, headache, disorientation, dizziness, nausea, temporary paralysis, and convulsions. The release of this venom is a mechanical process that can even occur from contact with a dead lionfish.

A lionfish sting should not be taken lightly. If stung the following precautions should be taken:

- Immerse wound in hot water (100-110°F) for 15 to 20 minutes.
- When on a boat use a hot-pack or hot water from the jet of the engine.
- Seek medical attention as soon as possible.
- Call the Aquatic Toxins Hotline at the Florida Poison Information Center in Miami, where medical experts can advise you: 888.232.8635.

What's the Park Doing About Lionfish?

While it is recognized that it is presently unrealistic to attempt eradication, Everglades National Park is exploring active management efforts that include assessment, control strategies, and measures of success. To that end, south Florida national parks are working collaboratively with numerous organizations, across jurisdictional boundaries, to plan response efforts that minimize the risk of harm.

After the first confirmed lionfish sighting in 2010, the park developed a management plan that calls for targeted removal of lionfish from specific areas within the park. Park biologists constantly survey potential habitats for the presence of lionfish. When found, they remove and study them to find out more about their habits, diet and genetics. At Everglades, initial removal efforts will focus on hardbottom/ledge habitat in southern Florida Bay.

What can You do About Lionfish?

Local removal efforts can significantly reduce lionfish densities. If you're out snorkeling, fishing, or diving and you see a lionfish, report the sighting to the park at the numbers shown below. If you plan on handling lionfish, make sure to wear heavy gloves to avoid stings from their venomous spines.

Lionfish are slow-moving and often found stationary—making them relatively easy to capture. There are two methods commonly used in capturing lionfish: netting and spearing; however, spearfishing is not allowed in Everglades National Park.

In netting, pairs of clear, fine-meshed hand-held nets are used for capturing lionfish. Position the

first net behind the fish, while using the second net to chase the fish into the other.

Once caught and the spines removed—only the spines are venomous—lionfish can be filleted like any other fish, cooked and eaten. Some say it tastes just like hogfish.

One final note, if you have a fish in your home aquarium that you can no longer take care of, don't release it into the wild. Instead, be a responsible pet owner, and contact the Florida Fish and Wildlife Conservation Commission to find out about their Nonnative Pet Amnesty Program at myfwc.com/nonnatives.

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National Park Service
U.S. Department of the Interior
Everglades National Park
www.nps.gov/ever



Report All Sightings

If you observe lionfish in Everglades National Park, please note...

- Date and time of sighting
- Location of sighting
- Depth of sighting
- Habitat
- Number of lionfish
- Size(s) of lionfish
- Behavior of lionfish

Report sightings to...

305.809.4738 or 305.562.0820
tracy_ziegler@nps.gov