# Lionfish Fact Sheet

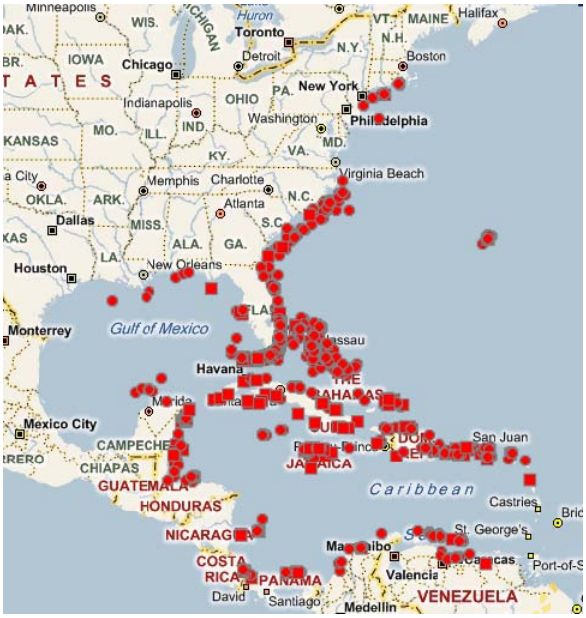
Photo credit: Paula E. Whitfield, NOAA

**Common Names:** lionfish, zebrafish, firefish, turkeyfish, red lionfish, butterfly cod, ornate butterfly-cod, peacock lionfish, red firefish, scorpion volitans

**Scientific Name:** *Pterois volitans, Pterois miles*
(Pisces: Scorpaenidae)

**How are lionfish identified?**

The body is white or cream colored with distinctive red to reddish-brown vertical stripes covering the head and body. The vertical stripes alternate from wide to very thin (with the thin stripes being more numerous) and sometimes merge along the flank to form a "V". They have fleshy tentacles above their eyes and below the mouth; fan-like pectoral fins; and long, separated dorsal spines. An adult lionfish can grow as large as 18 inches, while juveniles may be as small as one inch or less.




Lionfish Distribution Map. Photo Credit USGS Nonindigenous Aquatic Species Database (December, 2010)

**Where are lionfish found?**

**Native Range:** Lionfish species are native throughout the South Pacific and Indian Oceans. The native distribution covers a very large area from western Australia and Malaysia, east to French Polynesia and the United Kingdom's Pitcairn Islands, north to southern Japan and southern Korea, and south to Lord Howe Island off the east coast of Australia and the Kermadec Islands of New Zealand. In between, the species is found also throughout Micronesia. In their native habitat, lionfish reside near coral reefs and rocky outcrops from about 10 to 175 meters in depth.

**Non-Native Range:**
The lionfish was first detected along Florida coasts in the 1990s and are now well established throughout most of the Caribbean to Cape Hatteras, North Carolina. Juvenile lionfish have also been found as far north as New York and Rhode Island**.** These fish are not expected to be able to survive the winter in the cold northern waters; however, warming ocean conditions may permanently expand the range of this fish along much of the eastern coast of the United States.

Recent genetic work using mitochondrial DNA was unable to reveal whether *Pterois miles* and *Pterois volitans* are distinct species or two populations of a single species; nevertheless, genetic studies have confirmed that about 97 percent of the Atlantic population of lionfish consists of *Pterois volitans*, while only 3 percent is *Pterois miles*.

**How were lionfish introduced?**

Their initial introduction is thought to have occurred during Hurricane Andrew in 1992 when at least six lionfish escaped from a broken beachside aquarium near Biscayne Bay. The continued release of unwanted lionfish by hobbyists is thought to be cause of additional introductions and the range expansion of the lionfish.

**Why are we concerned about lionfish?**

In their native range, lionfish populations are controlled by many factors such as predation, competition, and disease. In the Atlantic Ocean, they have few natural predators, are capable of reproducing year-round, and are relatively resistant to parasites. For these reasons, the lionfish invasion in the North Western Atlantic and Caribbean represents one of the most rapid marine invasions in history. A recent study found a tenfold increase in their abundance from 2004 to 2008 in parts of the Atlantic and Caribbean. Recent estimates of lionfish abundance have reported more than 200 lionfish per acre in some locations.

Photo Credit: Rich Carey, Reef Environmental and Education Foundation

Lionfish are voracious eaters and prey upon numerous species of fish and crustaceans; this broad diet suggests that this species may become a real threat to many native reef fish populations through direct predation as well as competition for food resources with native piscivores. Stomach content analysis has shown that lionfish prey upon species such as juvenile spiny lobster, wrasses, parrotfish, blennies, and other ecologically important species. Researchers have reported that after lionfish are introduced into a new area, survival of native reef fishes decline by about 80 percent. The aggressive feeding behavior of the lionfish may impact multiple trophic levels by reducing the abundance of herbivorous fishes that keep seaweeds and macroalgae from overgrowing corals. Furthermore, lionfish occupy the same trophic position as economically important species (e.g., snapper and grouper) and may hamper stock rebuilding efforts and coral reef conservation measures.

**How is NOAA responding to the lionfish?**

NOAA's Center for Coastal Fisheries and Habitat Research in Beaufort, North Carolina first documented the establishment of Indo-Pacific lionfish in the Atlantic and is leading the agency's efforts to study the lionfish invasion. NOAA is accomplishing its research missions on lionfish through strong collaborations with the Reef Environmental and Education Foundation (REEF) and the United States Geological Survey (USGS).

In Florida Keys National Marine Sanctuary (FKNMS), NOAA's outreach and coordination with non-governmental organizations such as REEF and Mote Marine Laboratory have led to significant reporting and capture efforts by training and educating divers and snorkelers on how to identify and safely capture lionfish in the sanctuary. FKNMS and REEF have also sponsored multiple lionfish derbies in the Florida Keys to raise public awareness, remove lionfish from the sanctuary, and highlight the fact lionfish can be safely prepared and consumed by the public. The lionfish derbies have been very successful in meeting outreach and removal goals as well as providing NOAA and USGS scientists with valuable information about stomach contents, age classifications, and genetics of the lionfish population.

NOAA is also working internationally to advise countries in the Wider Caribbean Region of the threat of lionfish. NOAA will work aggressively with intergovernmental partners, such as the International Coral Reef Initiative (ICRI) and the United Nations Caribbean Environment Program to assist other countries to respond to the invasion. In response to a resolution adopted at the last ICRI meeting, NOAA is leading an international effort to develop a best practices manual that will be disseminated in workshops for managers and other interested parties in the Wider Caribbean Region.

NOAA has launched an "Eat Lionfish" campaign aimed at promoting consumption of lionfish. In partnership with the Reef Environmental Education Foundation, Chef Barton Seaver, and sustainable seafood proprietor Sean Dimin; NOAA is promoting lionfish as a sustainable seafood choice through multiple media outlets.

To learn more about lionfish, visit:
http://www.ccfhr.noaa.gov/stressors/lionfish.aspx
http://www.reef.org/lionfish
http://nas.er.usgs.gov/queries/FactSheet.aspx?SpeciesID=963