# Going Deep for Lionfish

## Designs for two new traps for capturing lionfish in deep water

Photo: G.P. Schmahl, NOAA

Lionfish are an invasive species in the Atlantic, Caribbean and Gulf of Mexico.

Photo: NOAA

A flaky fish firm in texture, demand for lionfish in the grocery and seafood market currently exceeds supply.


Lionfish can be found in the Atlantic, Caribbean and Gulf of Mexico, including these four national marine sanctuaries.

### The lionfish threat

Known for their distinctive lion-like mane of fins and venomous spines, Indo-Pacific lionfish have invaded reef ecosystems in the Atlantic Ocean, across the Gulf of Mexico, and throughout the Caribbean over the past several decades, including Flower Garden Banks, Gray's Reef, Florida Keys and Monitor national marine sanctuaries.

Found in waters from the surface to nearly 1,000 feet deep, lionfish eat any kind of prey they can get, including the young of important commercial fish species such as snapper and grouper. They have no known predators in the Atlantic.

Now, NOAA and its partners have developed and released designs for new lionfish traps that could provide the first realistic means of controlling invasive deep-water lionfish populations and support the development of a potential lionfish fishery.

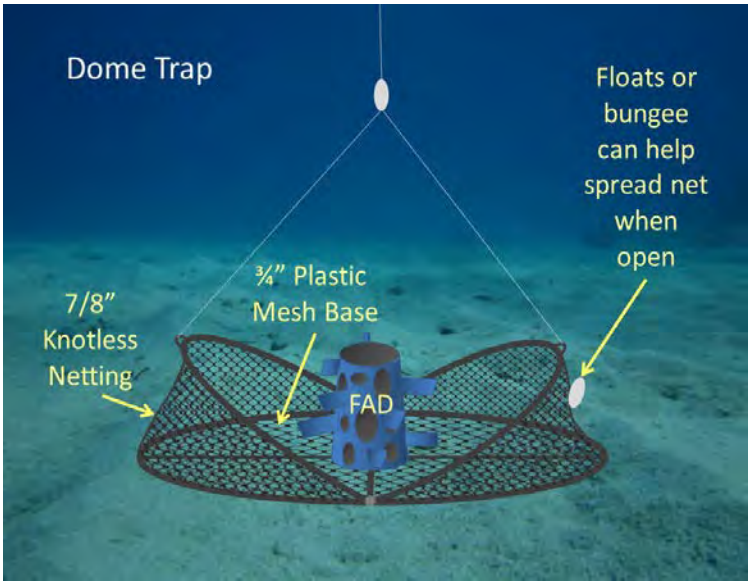
### Traps to the rescue

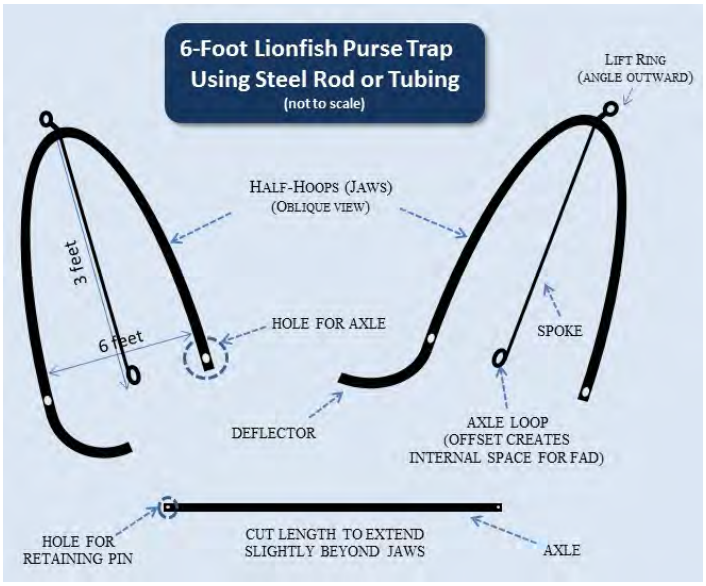
The basic concept behind the new trap prototypes, which anyone with minimal metalworking skills can build, is that lionfish tend to congregate around structures on the ocean floor. Structures in the center of the traps, called fish aggregation devices, or FADs, lure the fish into the structure. The first prototype trap used curtains made of netting that close around a cube-shaped PVC structure, trapping the fish inside; a second design works like a bear trap with a net that closes as the jaws rise over the FAD.

These traps have several benefits over conventional fish traps. They have no bait to attract non-targeted species; little potential for ghost fishing; and easy portability on fishing vessels. They use vertical structures to attract lionfish and have low-profile frames that stay open during deployment. A line to the surface is used to close and retrieve the traps.

Photo: Steve Gittings, NOAA

Lionfish swim near trap prototype during testing off Pensacola, Florida.




Images: Steve Gittings, NOAA

Diagrams showing two trap designs in development: dome trap (left) and purse trap (right). Both use fish aggregation devices (FADs) to concentrate lionfish and have "jaws" that close over the FADs to capture and retrieve the lionfish. For the purse trap, the attraction device, lifting harness, and net that covers the frame are not shown. Loose netting is recommended to minimize agitation of the fish.

NOAA's Office of National Marine Sanctuaries worked with the nonprofit organizations Coast Watch Alliance and Lionfish University, as well as the University of Georgia, to develop and test various designs for lionfish traps and produce a construction guide. The hope is that if approved for use in U.S. federal waters, and in other areas where fish traps are currently prohibited, fishermen will use the traps to capture lionfish to meet increasing restaurant and grocer demand and help combat the spread of this invasive species.

## What you can do

The construction guide provides a starting point for interested parties in the U.S. and Caribbean to test and further refine the traps' performance and design, particularly in waters beyond scuba depths. Changes in trap construction materials, shape, size, mesh choice, opening and closing mechanisms, and FADs are among the potential refinements.

To ensure the traps can be deployed in waters that currently restrict trap usage, including the Gulf of Mexico and the U.S. South Atlantic, users are advised to consult with local authorities. Also, groups or individuals are encouraged to share their experiences with the traps on social media and with NOAA so that everyone can benefit.

To download the guide, visit: sanctuaries.noaa.gov/lionfish.

To share your experience with the trap, email:

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To obtain authorization for the use of these devices in U.S. federal waters, please contact:

NOAA Fisheries
Southeast Regional Office
Sustainable Fisheries Division
263 13th Ave. South
St. Petersburg, FL 33701
727-824-5305

For more information about using these traps in state waters, please contact the respective state fishery management agency.