

Lionfish Collecting and Handling Workshops in the Southeast United States

Grant Agreement/Cooperative Agreement # F14AB00009



Elizabeth Underwood, Lionfish Program Coordinator
Lad Akins, Director of Special Projects

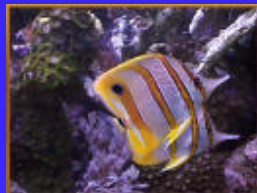




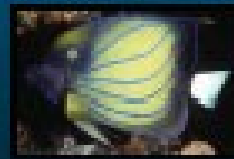
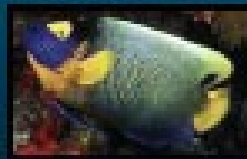
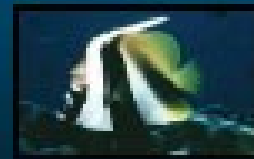
- REEF HQ in Key Largo with an office at Scripps, San Diego
- 60,000 members
- 197,170 fish surveys
- Fish survey project
- Grouper spawning project
- Artificial reef projects
- Education program
- Trips program
- Exotic/Invasive species
 - Regional management
 - Research
 - Control
 - Outreach



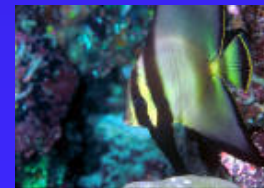
South Florida marine fish introductions – A unique place....



Field Guide to the Nonindigenous Marine Fishes of Florida



Schofield, P. J., J. A. Morris, Jr. and L. Alkins

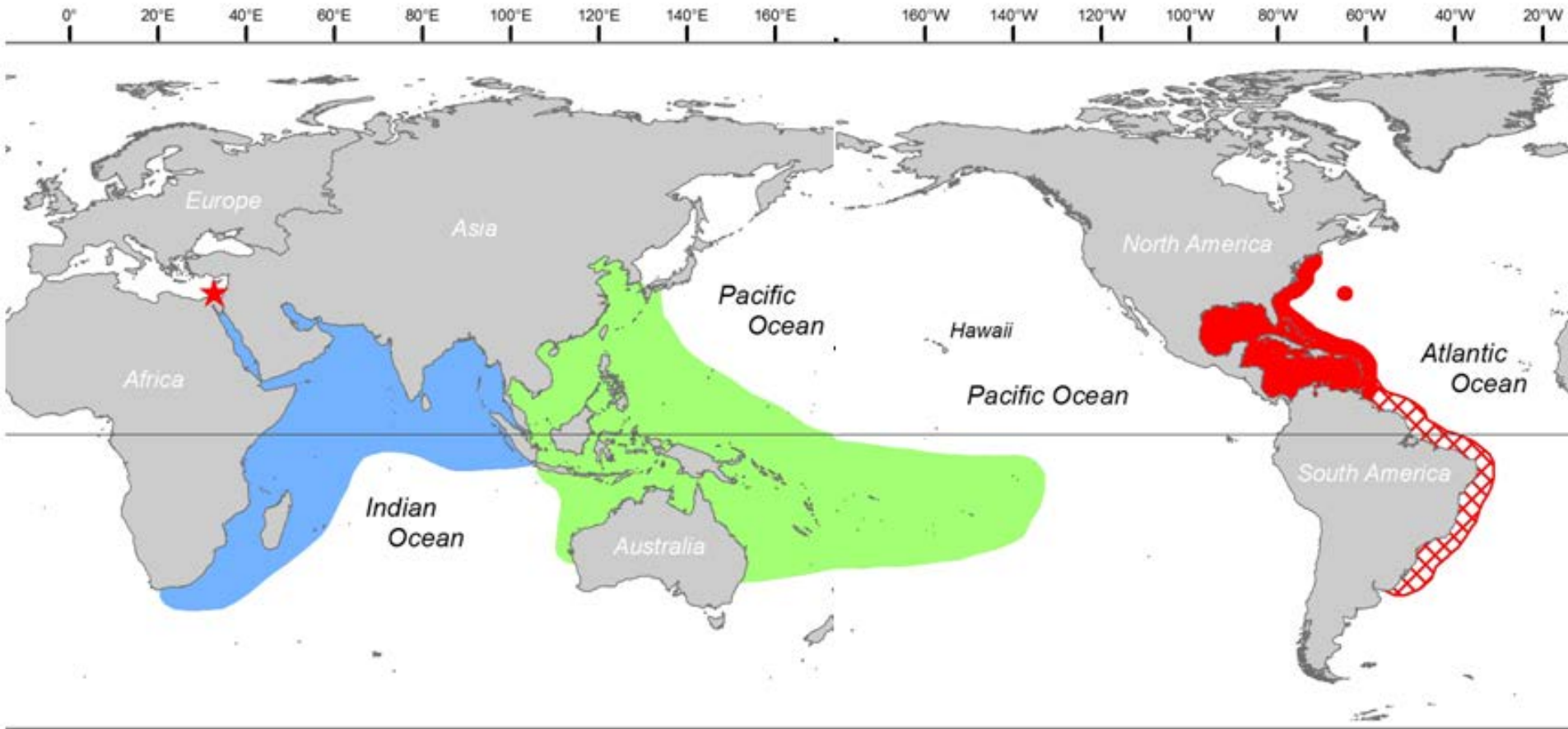


Lionfish in the Atlantic



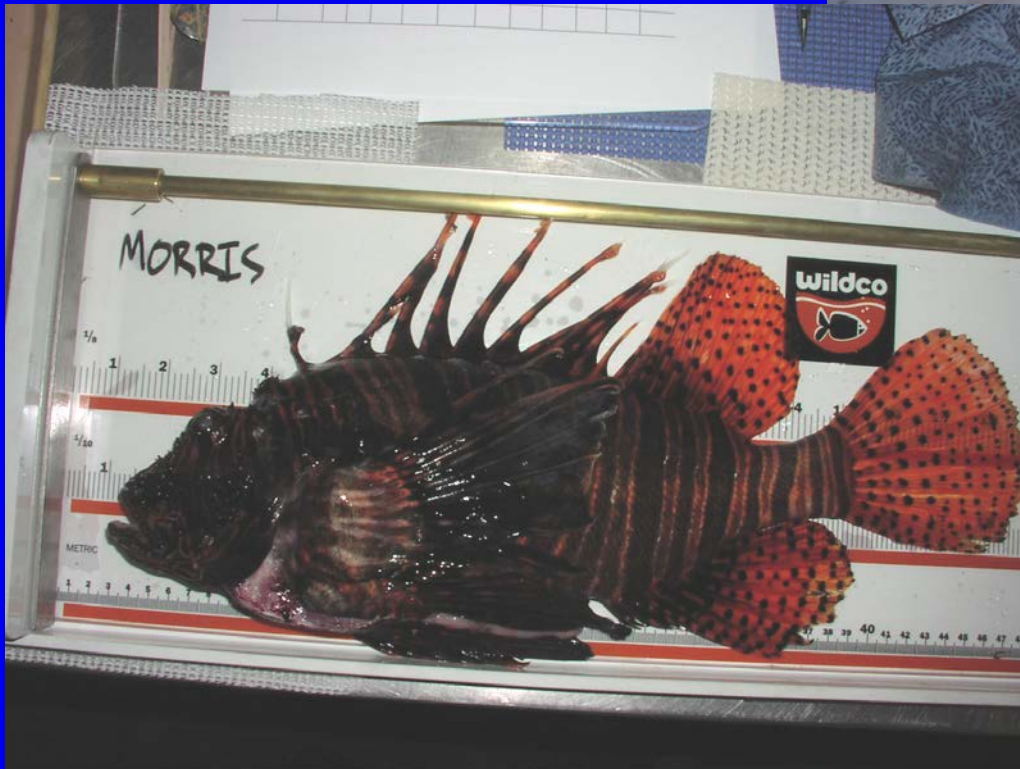
Lionfish Distribution

- Red Lionfish – *Pterois volitans*
- Devil Firefish – *Pterois miles*









Western Atlantic Sizes

Largest collected = 477mm

Max size in native range ~ 320-350mm

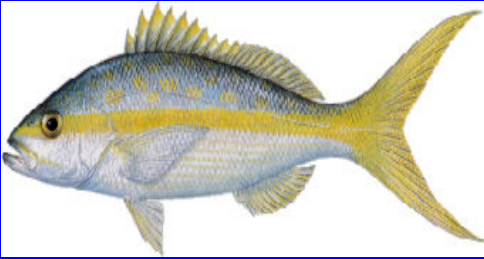




More than 120 different species of prey



Lionfish consume prey over half their size



Yellow tail snapper



Nassau grouper



Redband parrotfish



Reef squirrelfish



Banded coral shrimp



Spanish hogfish

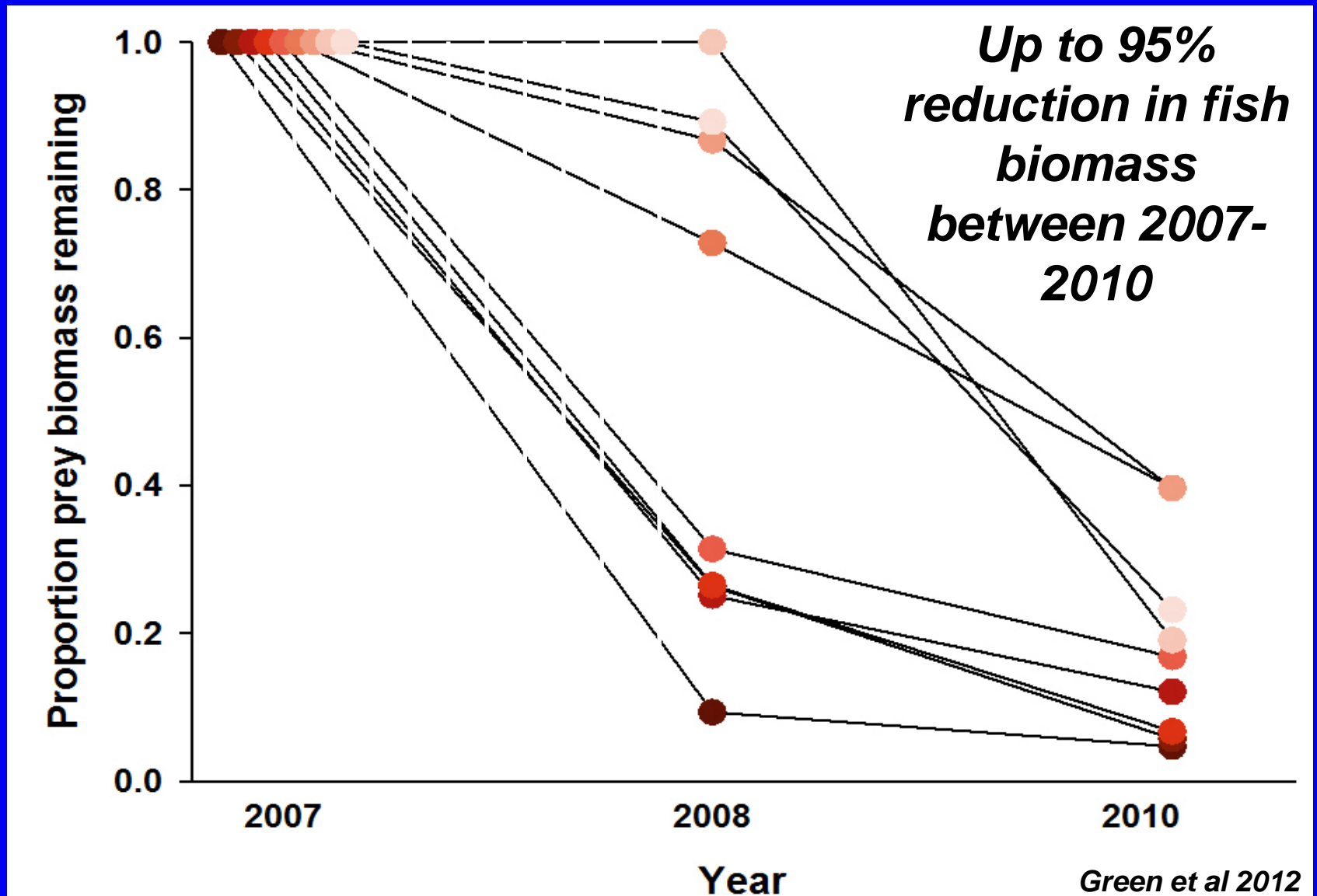
- *Commercially and recreationally important species (grazers and cleaners) – keeping the reef healthy and fish clean*





64 prey fish plus a shrimp!

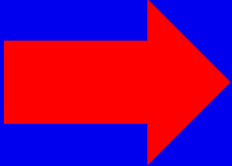
Impact of lionfish on Bahamian reef fishes



Challenge...

How do we minimize lionfish impacts?

Controlling the lionfish invasion

~~*Eradication*~~  *Population
suppression*

Success!

Local Control Can Be Effective



Incidental Captures



Targeted removals





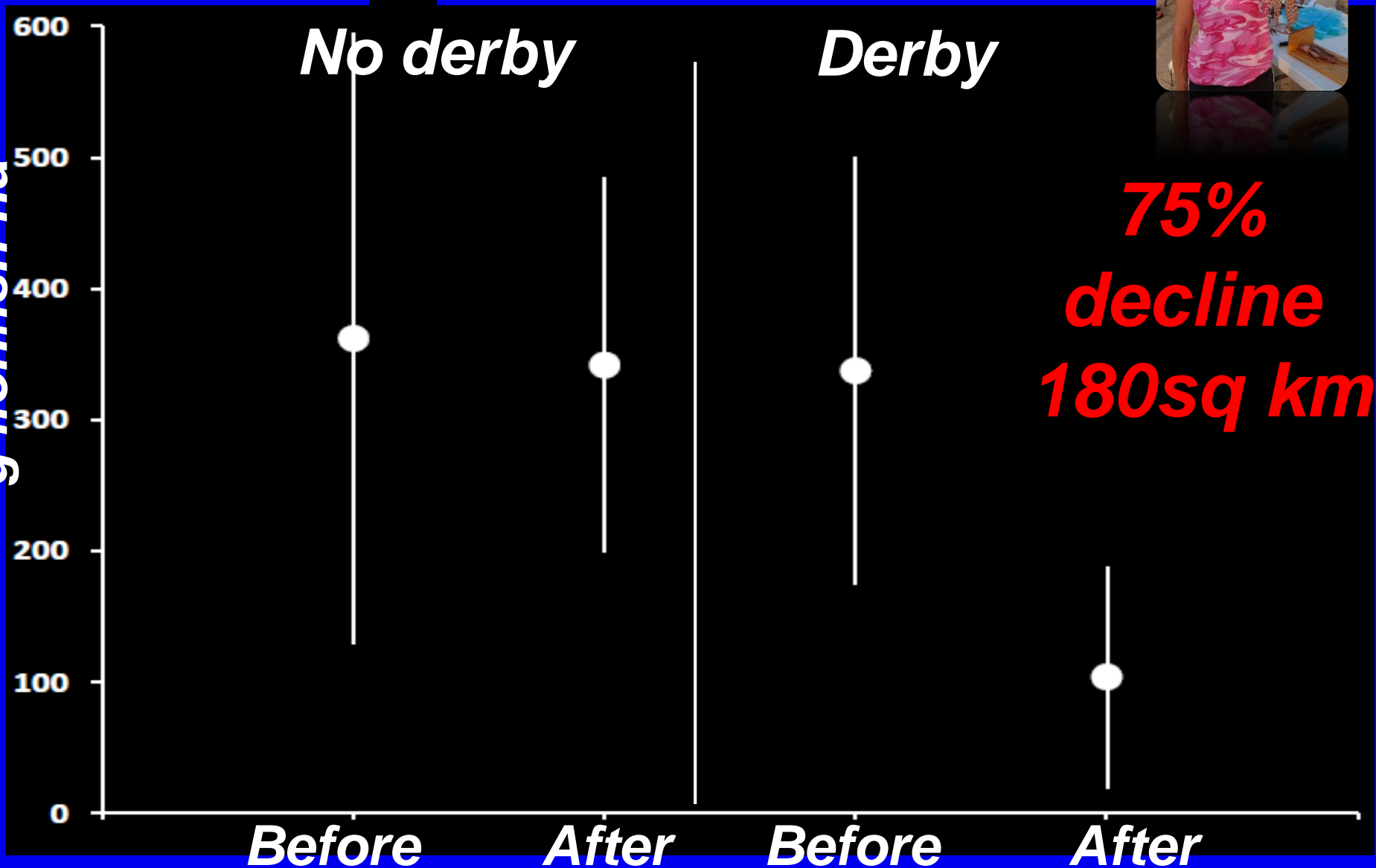
7th annual Lionfish Derby Series



2013 Green Turtle Cay, Bahamas



g lionfish ha⁻¹



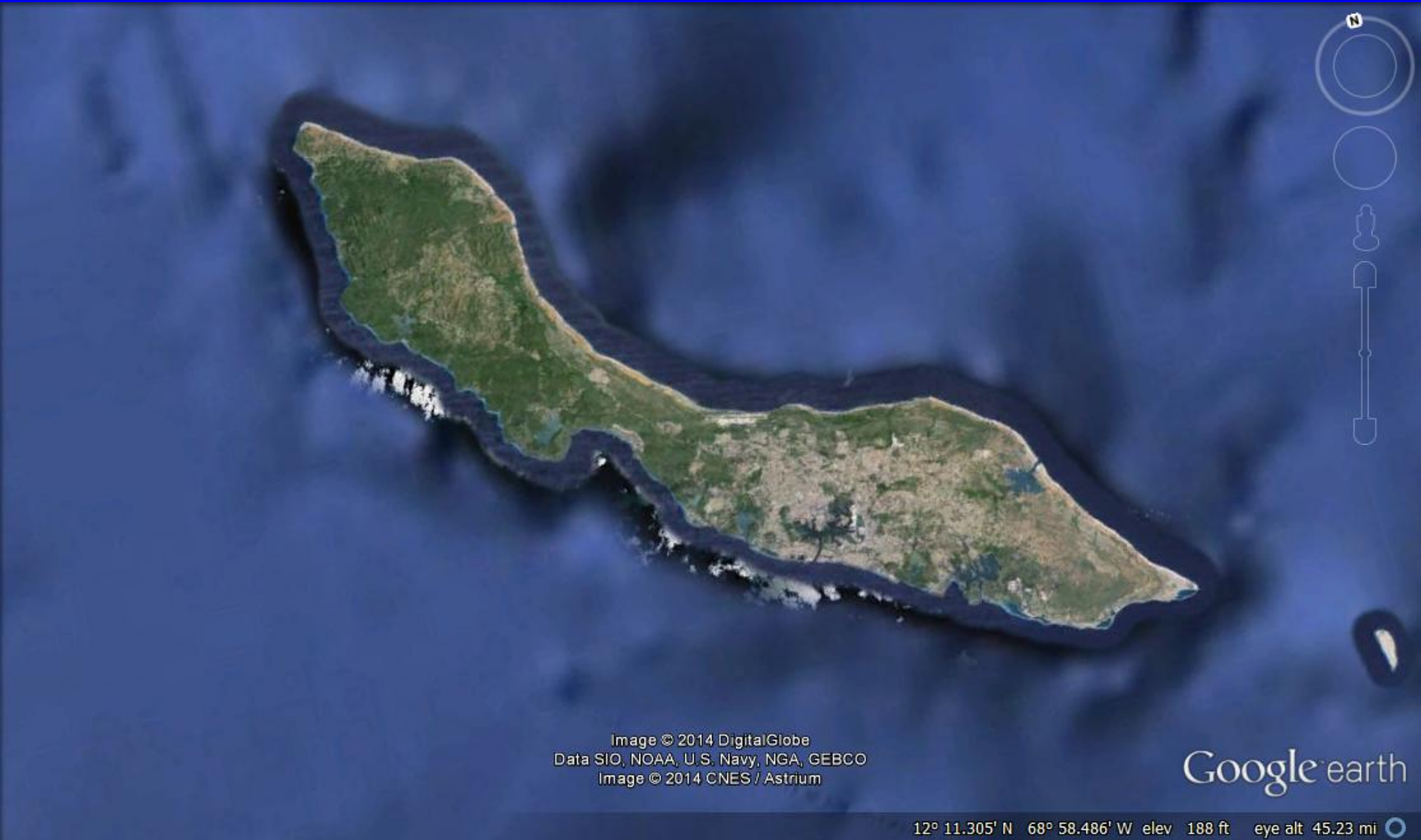


Image © 2014 DigitalGlobe
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image © 2014 CNES / Astrium

Google earth

12° 11.305' N 68° 58.486' W elev 188 ft eye alt 45.23 mi



Watamula

Alice in Wonderland

Knip Drift

Paradise

Santa cruz

Black sand reef

Mushroom Forest

Playa Hulu

Rediho

Black Coral Garden

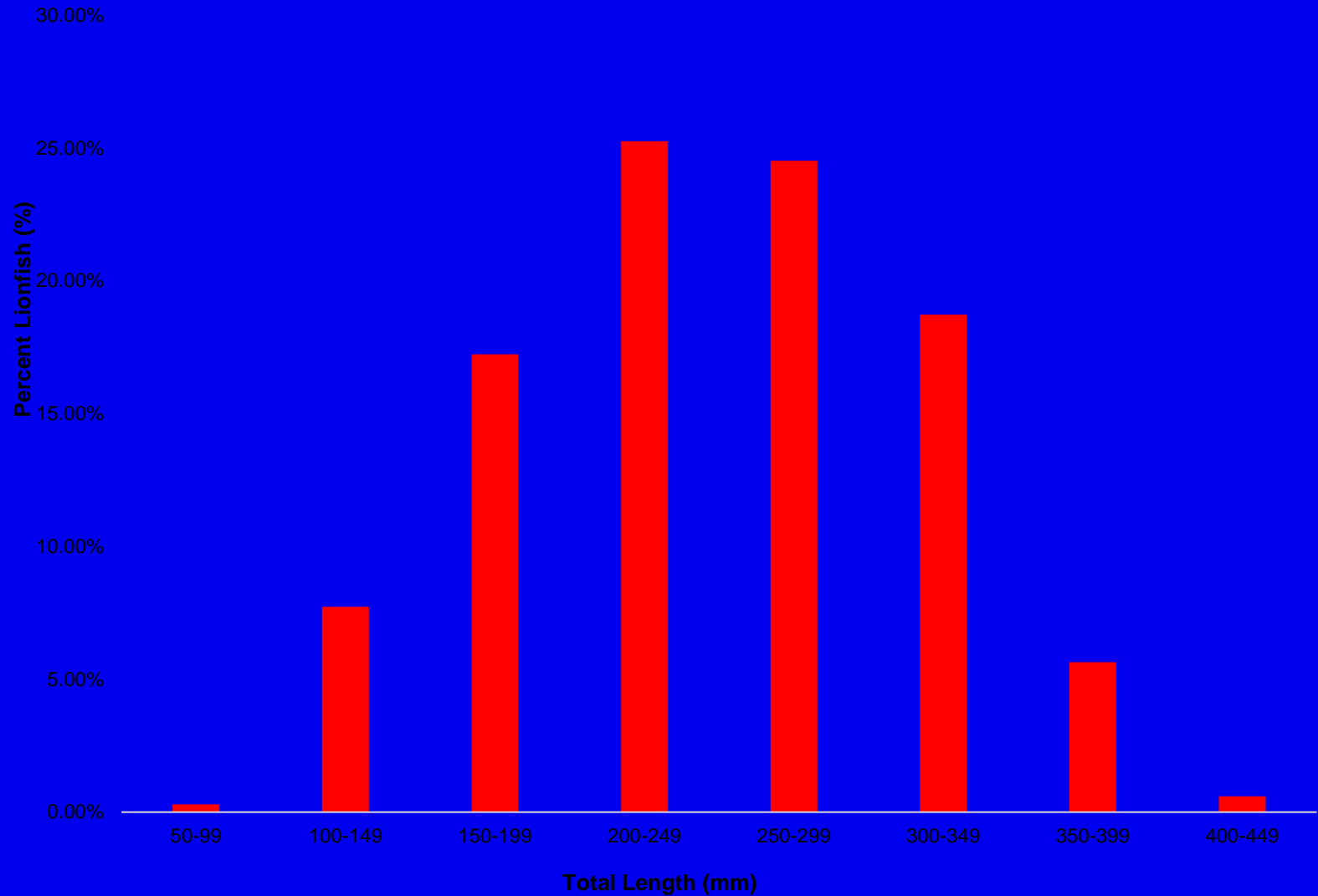
Makos Mtn

Data SIO, NOAA, U.S. Navy, NGA, GEBCO

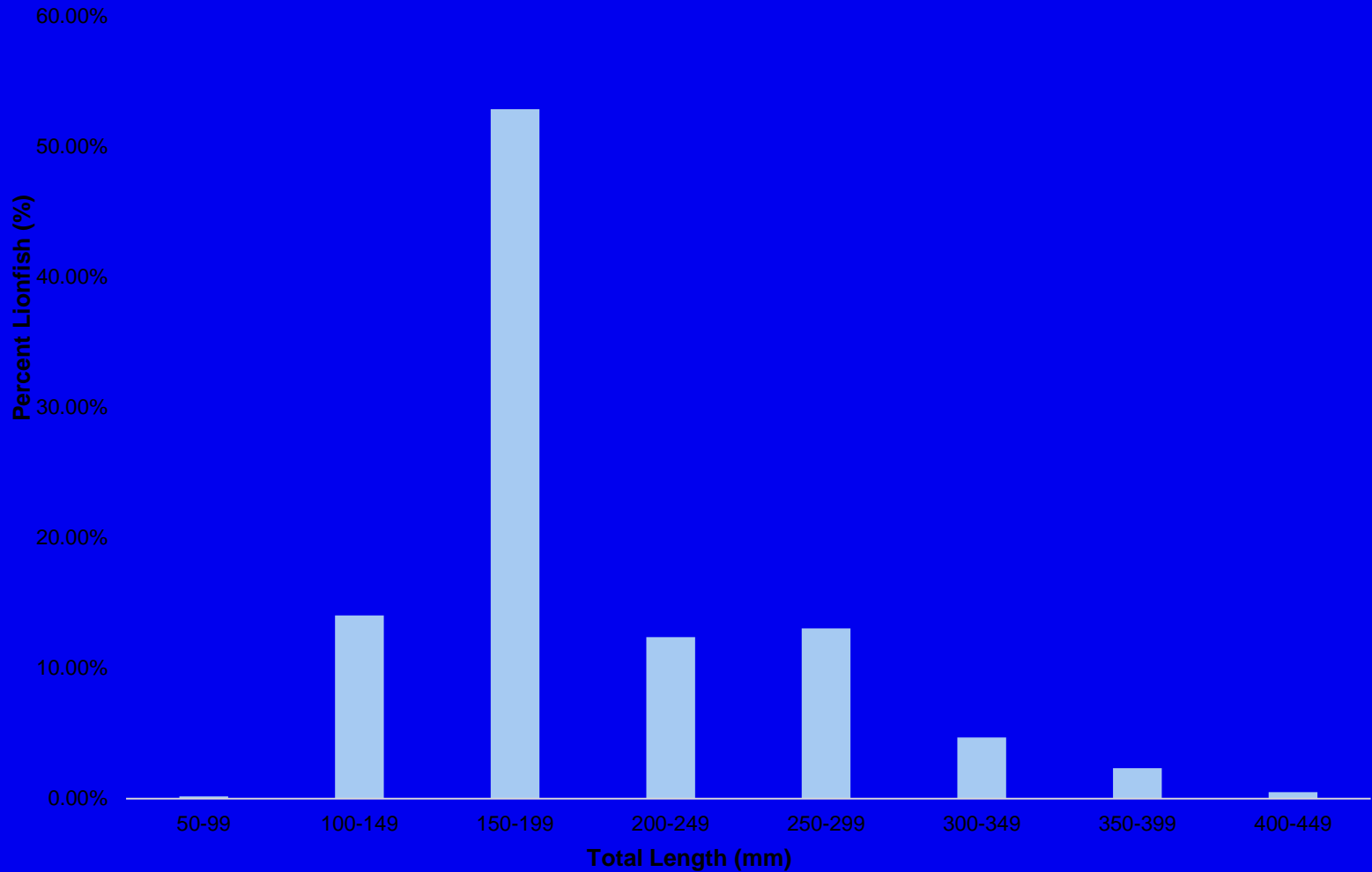
Image © 2014 CNES / Astrium

Google earth

2013 REEF Curacao Lionfish Field Project
Lionfish Total Length
Avg = 248mm



2014 REEF Curacao Lionfish Field Project
Lionfish Total Length
Avg = 198mm





Local Control Can Be Effective

- Training
- Focused effort
- Regular visitation
- Prioritizing sites
- Removal targets
- Resource allocation





INVASIVE LIONFISH COLLECTING AND HANDLING WORKSHOP

Reef Environmental Education Foundation & Canaveral Port Authority

invite you to learn about invasive lionfish and ways to get involved

When: Monday, October 21, 2013

Where: Canaveral Port Authority
Commission Room
445 Challenger Road
Cape Canaveral, FL 32920

Time: 6:30 to 8:30 pm

Cost: Free and open to the public

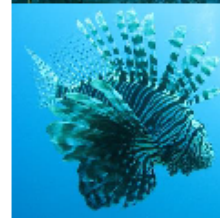
Speaker: Lad Akins, REEF Director of Special Projects

Who: Divers, fishers and ocean enthusiasts encouraged



The lionfish crisis is an ever increasing problem throughout the Atlantic, Caribbean and Gulf of Mexico. The invasive species, known for their voracious appetites, venomous spines and rapid reproduction, are depleting native fish and invertebrate populations at alarming rates. Marine scientists are concerned that lionfish will significantly harm ocean ecosystems. You can help control lionfish by reporting sightings and removing them whenever you see one.

Workshop topics include background of the invasion, lionfish biology, ecological impacts, current research findings, collecting tools and techniques, market development and ways to get involved. REEF is a grassroots non-profit organization committed to ocean conservation and education. The REEF team conducts workshops to educate resource managers, divers, fishers and marine enthusiasts. By engaging stakeholders, REEF seeks to reduce negative ecological impacts.

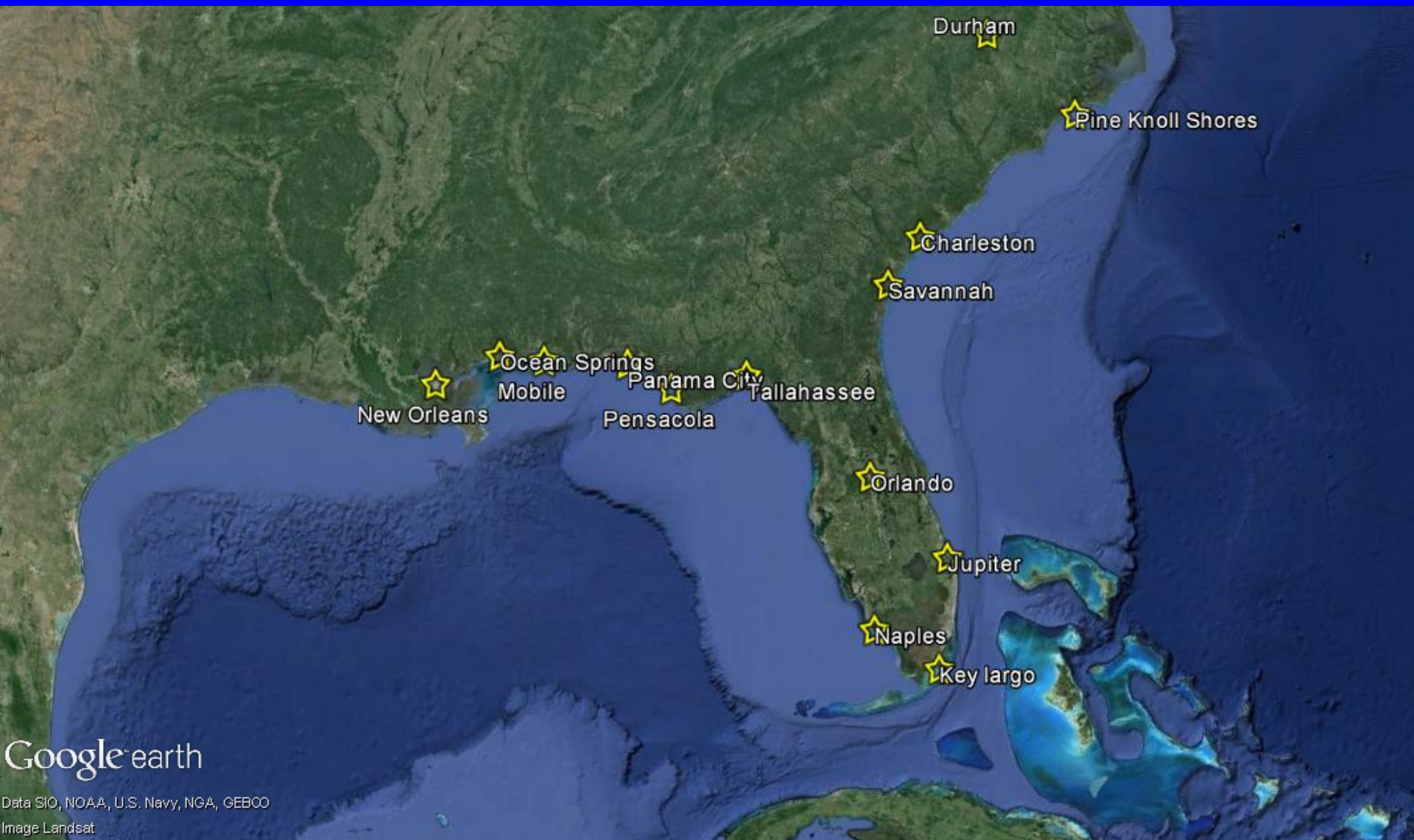


Register and see more workshops at
www.REEF.org/lionfish/workshops



Funding provided
by a grant
through U.S. Fish
and Wildlife
Service Aquatic
Invasive Species
Program

2015 Lionfish Workshop Locations



SE US Workshops

- Background
- Biology/ecology
- Impacts
- Control tools and techniques
- Hands-on training
- Q & A



Products



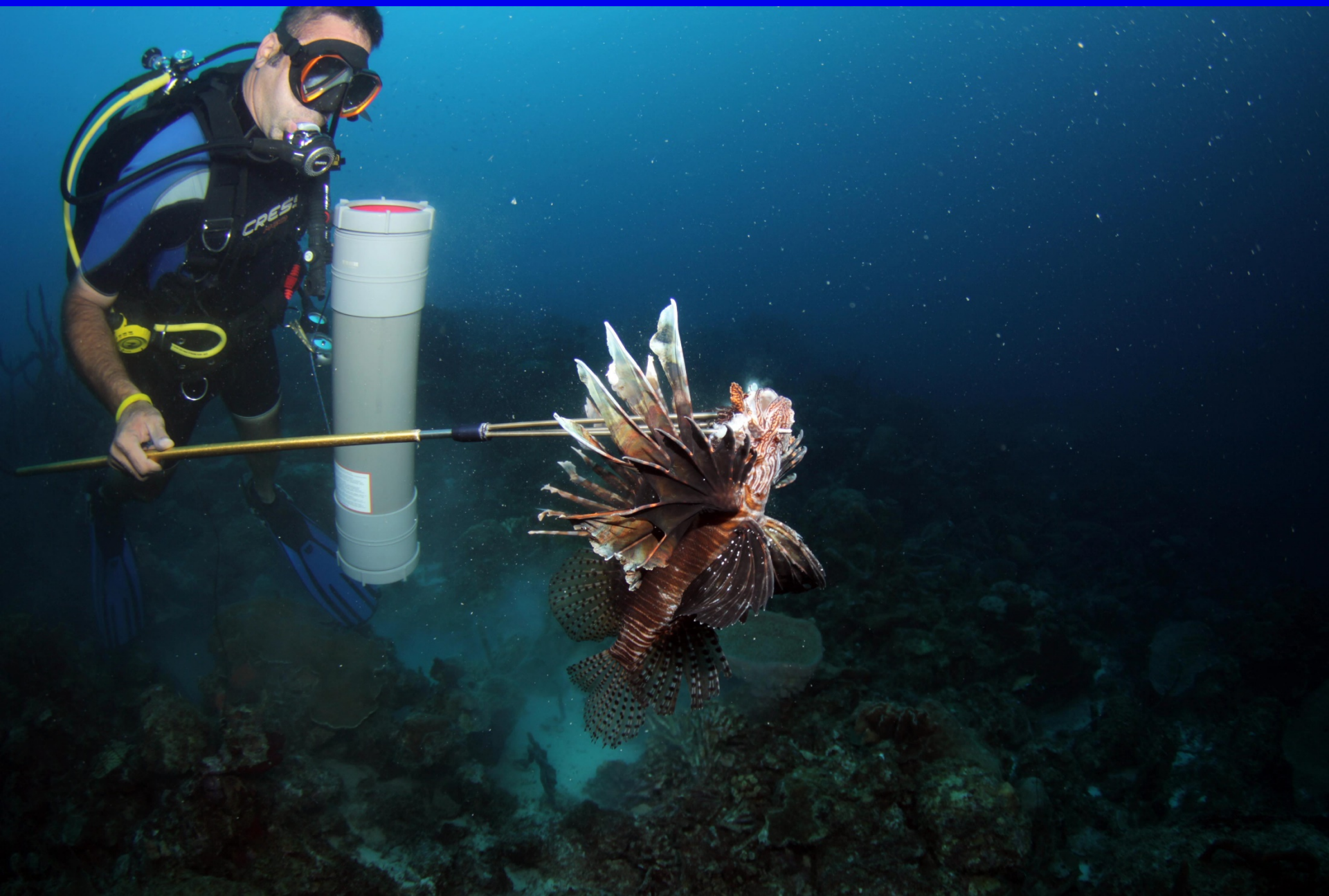






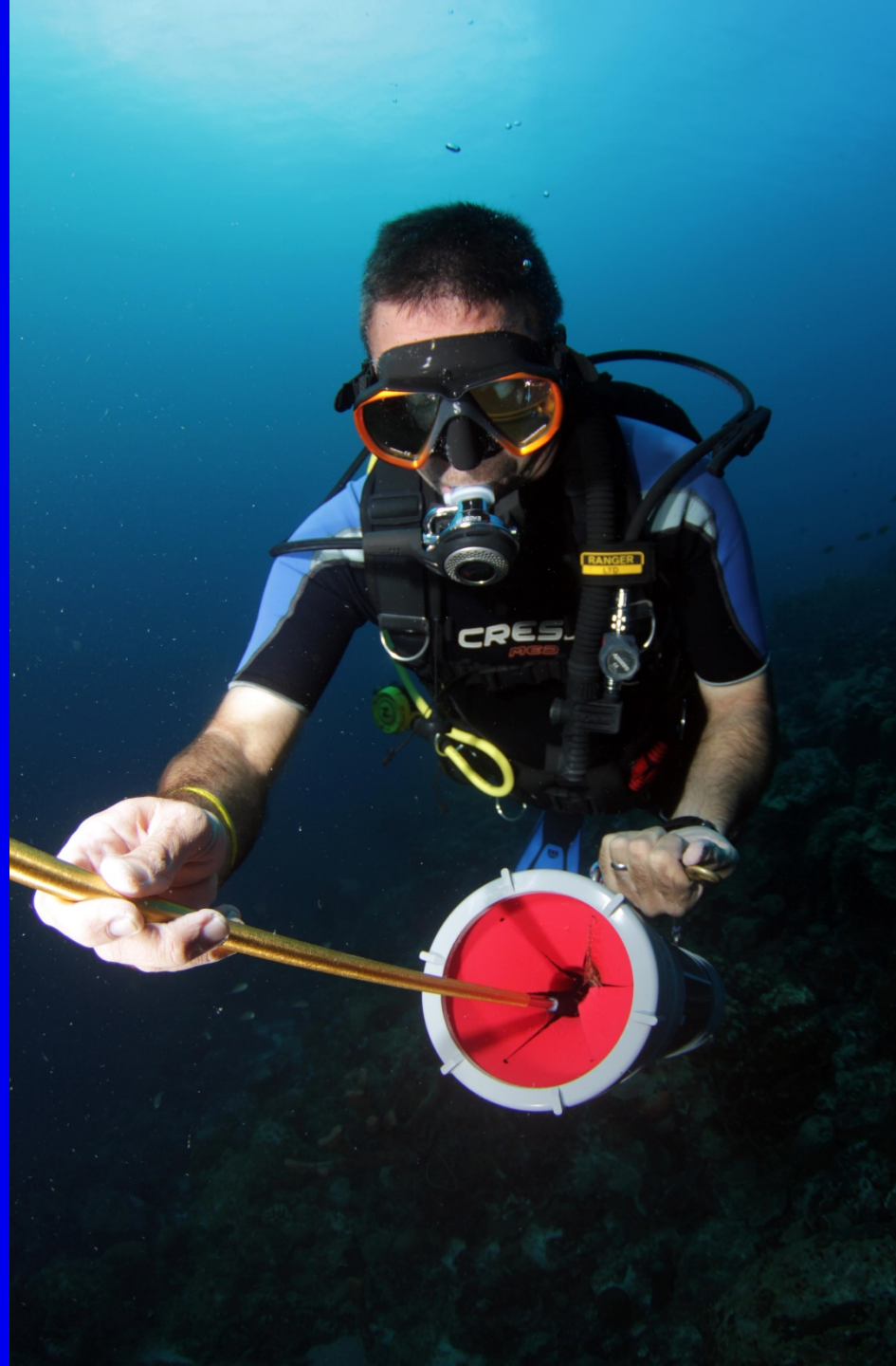




















Simon Watkins. ReefCI.

DATE	CITY	VENUE	PARTNERS	PRESENTER	ATTEN- DANCE
May 5	Key Largo, FL	REEF Headquarters	Florida Keys National Marine Sanctuary	Elizabeth Underwood	30
May 6	New Orleans, LA	Audubon Aquarium of the Americas	Audubon Aquarium of the Americas	Elizabeth Underwood	60
May 7	Ocean Springs, MS	The University of Southern Mississippi, Gulf Coast Research Laboratory	The University of Southern Mississippi, Gulf Coast Research Laboratory Mississippi Department of Marine Resources	Elizabeth Underwood	33
May 8	Panama City, FL	Junior League of Panama City Building	Divers Den	Elizabeth Underwood	7
May 11	Pensacola, FL	Escambia County Central Office Complex	Escambia County Marine Resource Division	Elizabeth Underwood	32
May 12	Mobile, AL	Five Rivers Delta Resource Center	Five Rivers Delta Resource Center	Elizabeth Underwood	13
May 14	Tallahassee, FL	Tallahassee Museum	Tallahassee Museum Florida Fish and Wildlife Conservation Commission	Elizabeth Underwood	20
May 26	Pine Knoll Shores, NC	North Carolina Aquarium at Pine Knoll Shores	North Carolina Aquarium at Pine Knoll Shores NOAA Carolina Reef Eastern Carolina Artificial Reef Association Olympus Dive Center Discovery Diving	Elizabeth Underwood	24
May 28	Durham, NC	Water World, Inc.	Water World, Inc.	Elizabeth Underwood	23
June 4	Jupiter, FL	Jupiter Fire Station Community Room	Jupiter Drift Divers	Elizabeth Underwood	18
June 8	Charleston, SC	South Carolina Aquarium	South Carolina Aquarium Fleet Landing Restaurant	Elizabeth Underwood	15
June 10	Savannah, GA	Skidaway Institute of Oceanography	Skidaway Institute of Oceanography	Elizabeth Underwood	17
June 18	Orlando, FL	University of Central Florida Biology Field Research Center	University of Central Florida New Smyrna Beach Marine Discovery Center Sea Dogs Dive Center	Elizabeth Underwood	35
June 23	Naples, FL	Rookery Bay Environmental Learning Center	Rookery Bay National Estuarine Research Reserve Florida Sea Grant University of Florida, IFAS extension	Elizabeth Underwood	50
TOTAL				14 workshops	377



INVASIVE LIONFISH COLLECTING AND HANDLING WORKSHOP

Reef Environmental Education Foundation & Audubon Nature Institute

invite you to learn about invasive lionfish and ways to get involved

When: Wednesday, May 6, 2015

Where: Audubon Aquarium of the Americas
One Canal Street
New Orleans, LA 70130

Time: 6:00 to 8:00 pm

Cost: **Free** and open to the public

Speaker: Elizabeth Underwood
REEF Lionfish Program Coordinator

Who: Divers, fishers and ocean
enthusiasts encouraged to attend

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Audubon Nature Institute
Celebrating the Wonders of Nature



Register here:
www.REEF.org/lionfish/workshops



Funding provided
by a grant through
U.S. Fish and
Wildlife Service
Aquatic Invasive
Species Program

REEF

www.REEF.org



LIONFISH COLLECTING AND HANDLING WORKSHOP

May 6th
New Orleans, LA

6:00-8:00 pm

Audubon Aquarium of the Americas
One Canal Street
New Orleans, LA 70130



Audubon Nature Institute
Celebrating the Wonders of Nature

Funding provided by a grant through U.S. Fish and Wildlife Service Aquatic Invasive Species Program.

This workshop was made possible through collaboration with the Audubon Nature Institute.

Divers, fishers and ocean enthusiasts are encouraged to attend! Workshop is free and open to the public.

Topics include background of the invasion, lionfish biology, ecological impacts, current research findings, collecting and handling techniques and more...

Register at www.REEF.org/lionfish/workshops

Invasive lionfish in Gulf: Audubon Aquarium workshop to educate public



Lionfish invasion

Lionfish are an invasive species from the Indo-Pacific that were introduced into Atlantic waters in the mid-1980s and have dramatically reduced native fish populations due to their predation and their own lack of predators, in part due to their 18 venomous spines. They were first sighted in the Gulf of Mexico in 2010 and by 2012 they were well established throughout that whole region.



By Benjamin Alexander Bloch, NOLA.com | The Times-Picayune

Email the author | Follow on Twitter

on May 01, 2015 at 2:50 PM, updated May 01, 2015 at 3:06 PM

Print
Email

In an effort to rid the [Gulf of Mexico](#) of an invasive species, marine conservationists and divers are working to hunt one of the world's most beautiful fish -- [the lionfish](#).

The nonprofit [Reef Environmental Education Foundation](#), based in Key Largo, Fla., will hold a free workshop from 6 p.m. to 8 p.m. Wednesday (May 6) at the Audubon Aquarium of the Americas, [1 Canal St.](#), to educate the general public about the lionfish invasion in local waters, and also teach divers and fishers how to safely remove the intruder.

The workshop, [one of 14](#) around the Gulf funded by the U.S. Fish and Wildlife Service, requires registration at [www.reef.org/lionfish/workshops](#) due to limited seating.

LATEST LOUISIANA SEAFOOD STORIES

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[P&J Oyster Co. waits for BP payout as local governments settle](#)

[Louisiana wetlands loss is blue crab's gain: study to examine habitat](#)

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Gulf Coast Research Laboratory to host free REEF workshop on lionfish



A recreational fishing license is not required for recreational fishers targeting lionfish while using a pole spear, a Hawaiian Sling, a handheld net or any spearing device that is specifically designed and marketed exclusively for lionfish. (Photo courtesy FWG)

The Market Insurance Blog

1 / 4



By GulfLive.com staff.

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on May 04, 2015 at 10:49 AM, updated May 04, 2015 at 10:53 AM

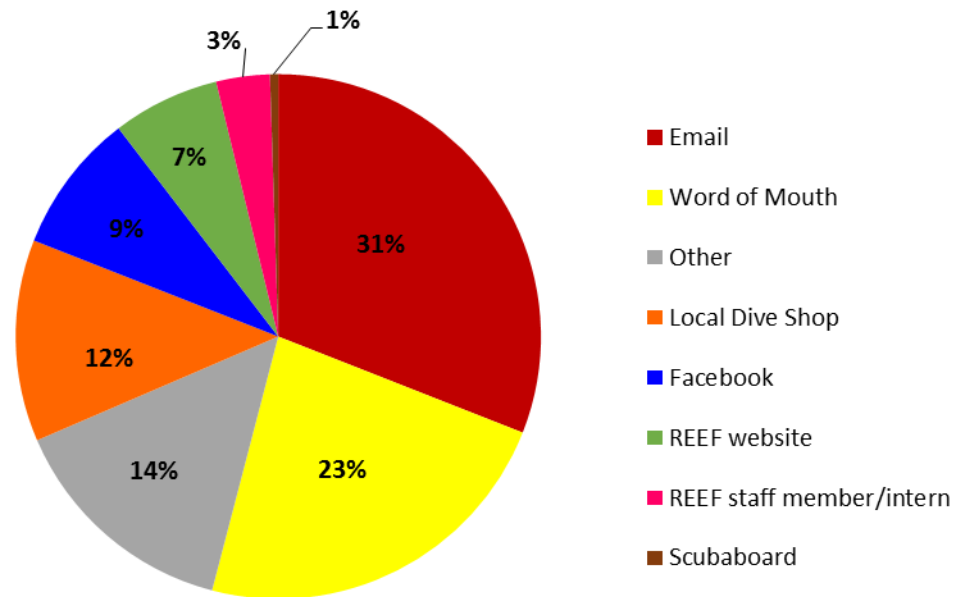
Print
Email

The REEF Environmental Education Foundation, in conjunction with the University of Southern Mississippi, is hosting a free workshop on the Gulf Coast to educate the community about invasive lionfish.

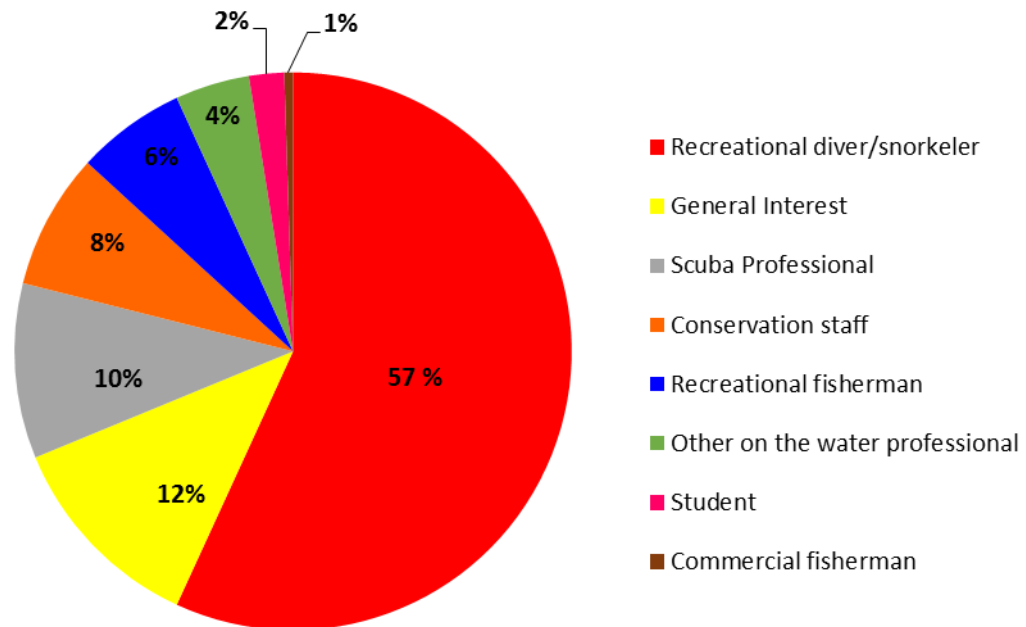
The event, scheduled for Thursday, May 7 from 6 to 8 p.m., will take place at the Southern Miss Gulf Coast Research Laboratory's Caylor Auditorium in Ocean Springs.

The workshop will cover the history of the invasion, lionfish biology, ecological impacts, venomology, how to avoid getting stung, first aid for stings, and recommended techniques for collection, handling and filleting.

How did you find out about this workshop? (n=394)



Attendee Affiliation (n=394)



Eat 'em to Beat 'em!



8 wonton wrappers
1/4 cup oil
8 lionfish fillets
2 tablespoons
2 tablespoons
"sauce"
1 tablespoon
1 cup sesame
1/4 cup wasabi

*Items can be found at oriental markets.

sauce, wasabi chili sauce and soy sauce together in a bowl and set aside. Spray skillet with non-stick cooking spray. Cook lionfish fillets in skillet over medium-high heat for 2 to 3 minutes until flaky and tender. Cut or flake lionfish so it is in small pieces. Toss lionfish in soy sauce mixture.

Place lionfish on wonton wrappers, top with seaweed salad and drizzle with wasabi mayonnaise.



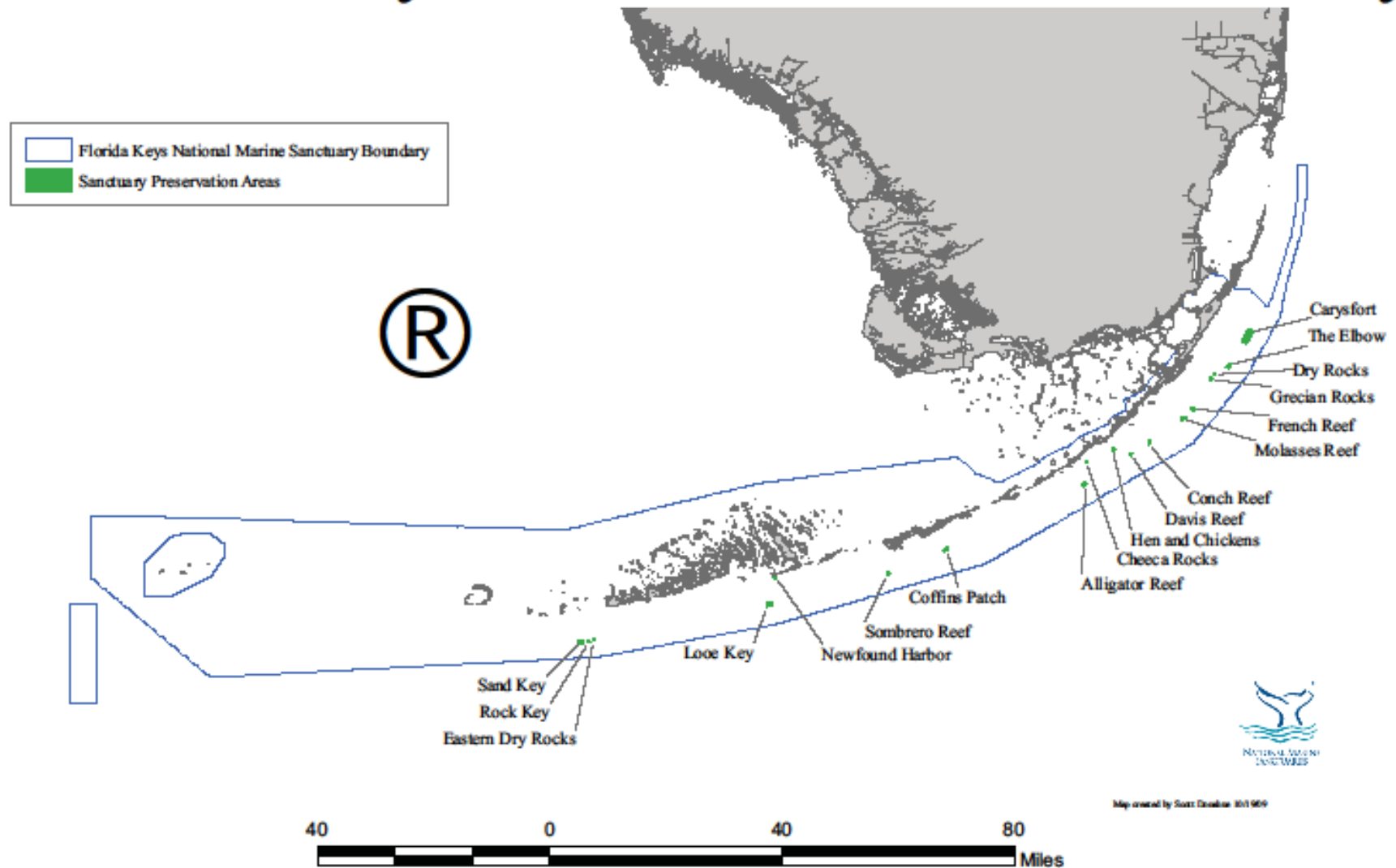


Lionfish Capture and Removal Permit Training



Florida Keys National Marine Sanctuary
Reef Environmental Education Foundation

Florida Keys National Marine Sanctuary



This permit only allows you to capture lionfish in the 18 Sanctuary Preservation Areas shown in green on this map.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

Florida Keys National Marine Sanctuary
33 East Quay Road
Key West, FL 33040

date

Dear Permit Holder:

The National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries (ONMS) has approved the issuance of permit # FKNMS-2011-300 to conduct activities within Florida Keys National Marine Sanctuary (sanctuary) to assist with sanctuary management. All activities must be conducted in accordance with the enclosed permit.

This permit contains specific terms, conditions and reporting requirements. You are responsible for understanding all of these requirements. Review them closely and fully comply with them while undertaking permitted activities. Of note are the following:

- You must complete FKNMS-endorsed Lionfish Response Training within the past 12 months prior to undertaking any activities authorized by this permit. Contact Todd Hitchins at (305) 292-0311 x230 for assistance in locating training programs.
- This permit authorizes you to capture and remove invasive Indo-Pacific red lionfish only from within the Sanctuary Preservation Areas (SPAs). No other organisms or materials, living or dead, may be removed from any SPA.
- You may use hand nets or slurp guns to remove invasive lionfish from within the SPAs. No other gear types are allowed.
- No collections of any other kind (tropical fish, invertebrates, living or dead substrate, or any other item) are authorized by this permit, from any location.
- You must report all lionfish captures from within the SPAs within 48 hours to REEF or MEERA using the enclosed form.
- You must carry this permit with you at all times when conducting activities.

If you have any questions, please contact Joanne Delaney at Joanne.Delaney@noaa.gov. Thank you for your continued cooperation with the ONMS.

Sincerely,

Sean Morton
Superintendent

Enclosure





Lionfish Response Review

Name:

Score:

Date:

Signature:

Location:

This review is to follow the lionfish response and handling workshop presented as part of the FKNMS lionfish removal permitting process. Participants must have fully attended the workshop prior to administration of this review. Successful completion of the workshop and/or review do not ensure permit approval. All permits must be signed and returned to the FKNMS to be considered active.

- 1) Lionfish in Atlantic waters are considered:
a) Native b) Non-native or Exotic c) Natural d) Invasive
- 2) The first lionfish documented in Atlantic waters was in
a) Florida b) Cuba c) North Carolina d) Bahamas
- 3) The first lionfish was captured in FKNMS waters in:
a) 1985 b) 1992 c) 2000 d) 2009
- 4) Lionfish were *most likely* introduced into Atlantic waters through:
a) Ballast water b) Natural Migration c) Aquarium releases d) Divers
- 5) Lionfish are:
a) Poisonous b) Venomous c) No danger d) Deadly
- 6) Lionfish are detrimental to our marine ecosystem due to their:

- 7) Lionfish can be removed from Sanctuary Preservation Areas (SPAs) by:
a) anyone b) FKNMS staff only c) permitted divers d) no one
- 8) Under this permit, methods allowed for lionfish removals *in SPAs* include:
a) Hand nets b) Spears c) Knives d) a and b
- 9) Lionfish removals must be reported within:
a) 24 hours of capture b) 24 hours of sighting c) 48 hours of capture d) never
- 10) *Outside* of specially managed areas (SPAs, ERs, EMAs), lionfish may be removed by:
a) Any means legally allowed for other species
b) Hook and line
c) Spearing and netting only
d) Permit holders only

FKNMS Lionfish Capture and Removal Permit

- **Facilitates removals within all Sanctuary Preservation Areas (SPAs)**
- **Does not apply to any other zone**
- **Does not cover any other activity**
- **Requires FKNMS endorsed LF training**
- **Is a binding agreement**
- **Contains specific terms and conditions**
- **Must be with you on the water**



Thank you!

www.REEF.org

