

Lionfish Update...

Most recent status, research and happenings



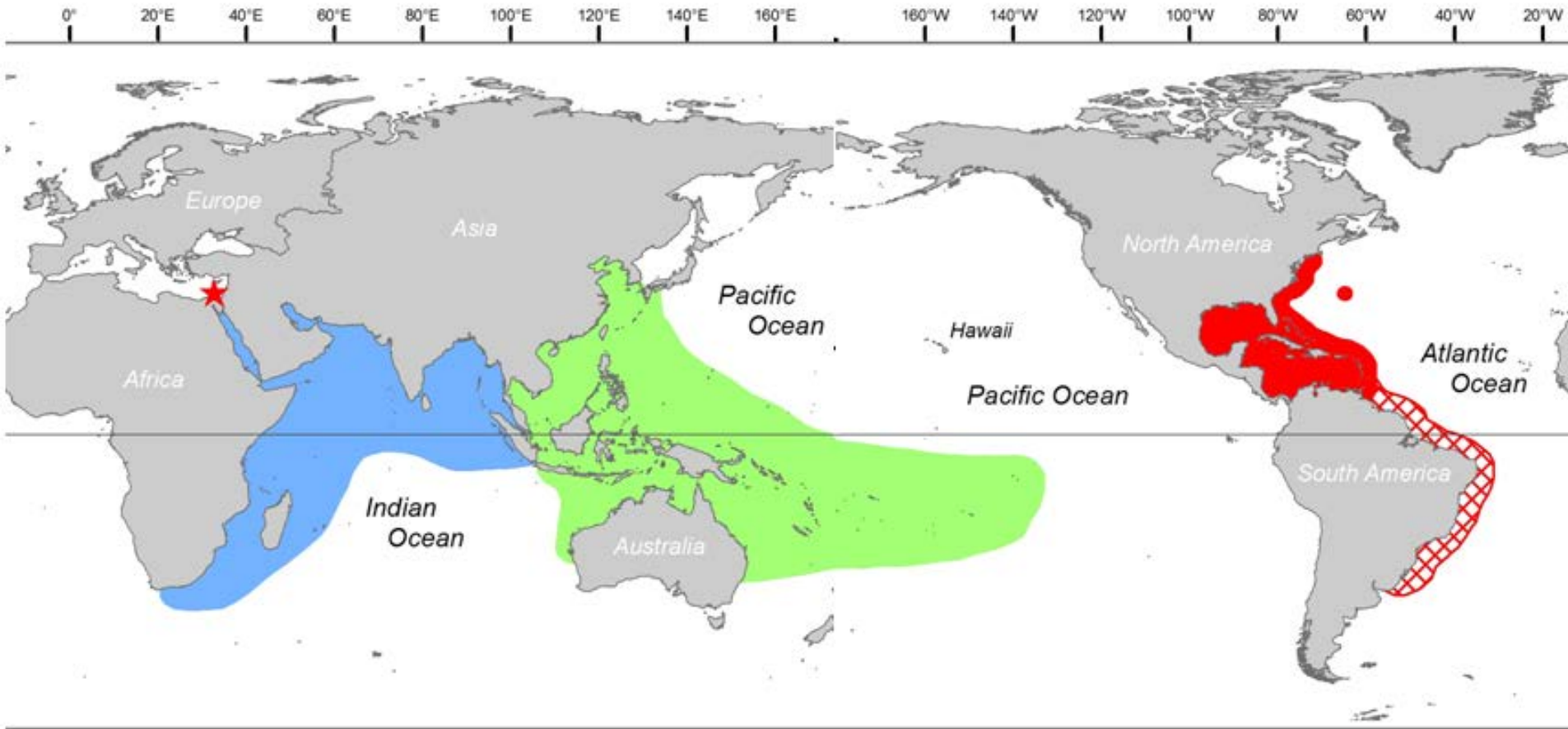
Lad Akins – Director of Special Projects, REEF

Lionfish in the Atlantic

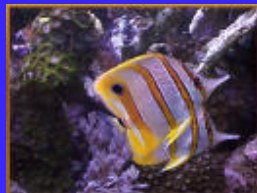


Lionfish Distribution

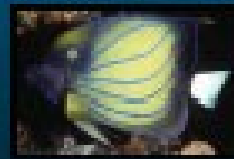
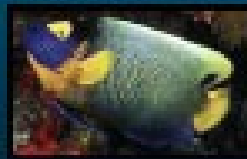
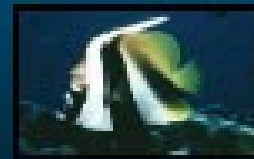
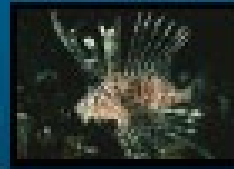
- Red Lionfish – *Pterois volitans*
- Devil Firefish – *Pterois miles*



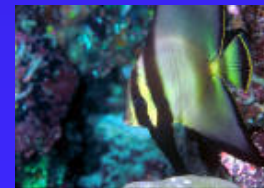
South Florida marine fish introductions – A unique place....



Field Guide to the Nonindigenous Marine Fishes of Florida



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

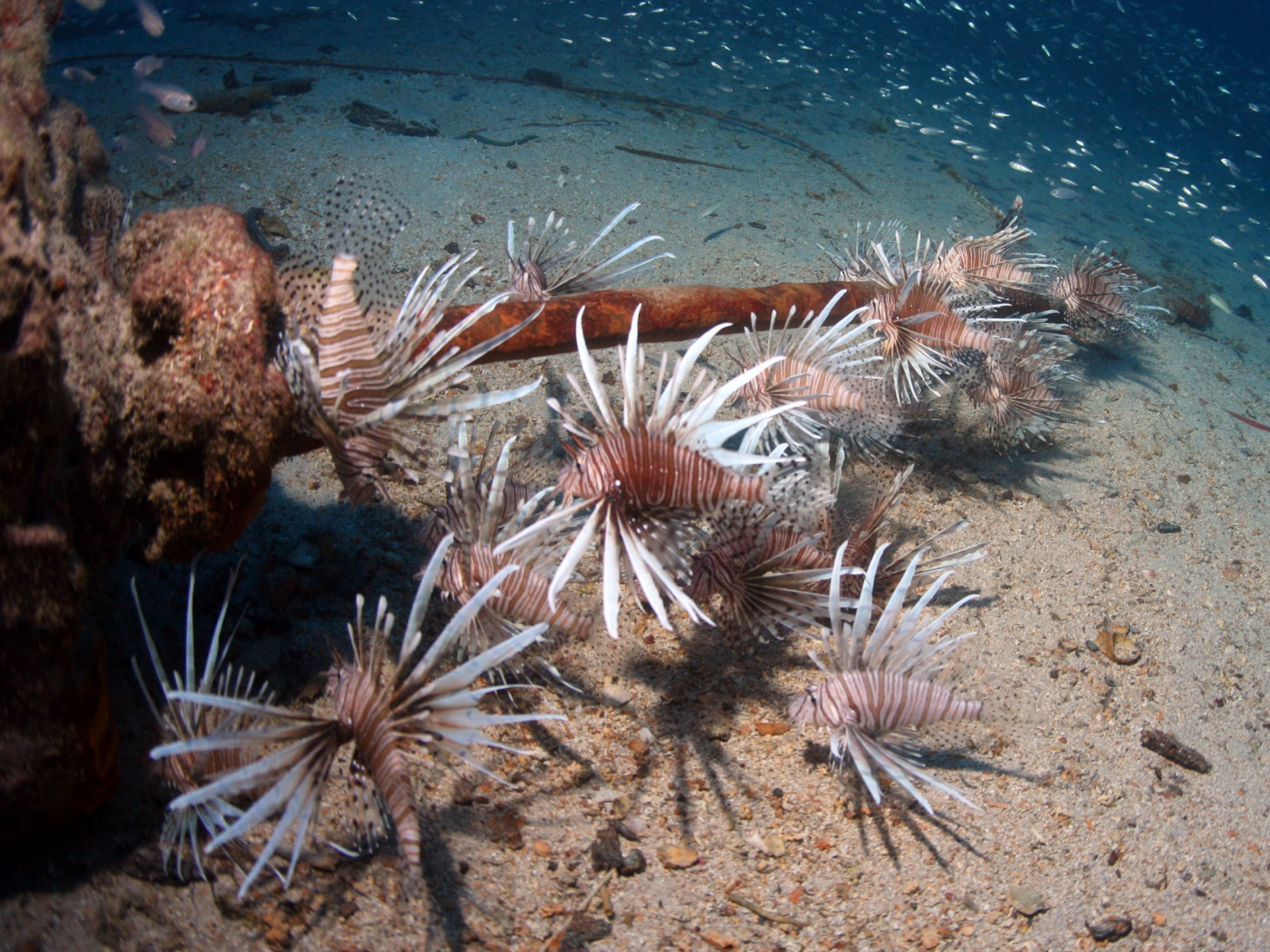




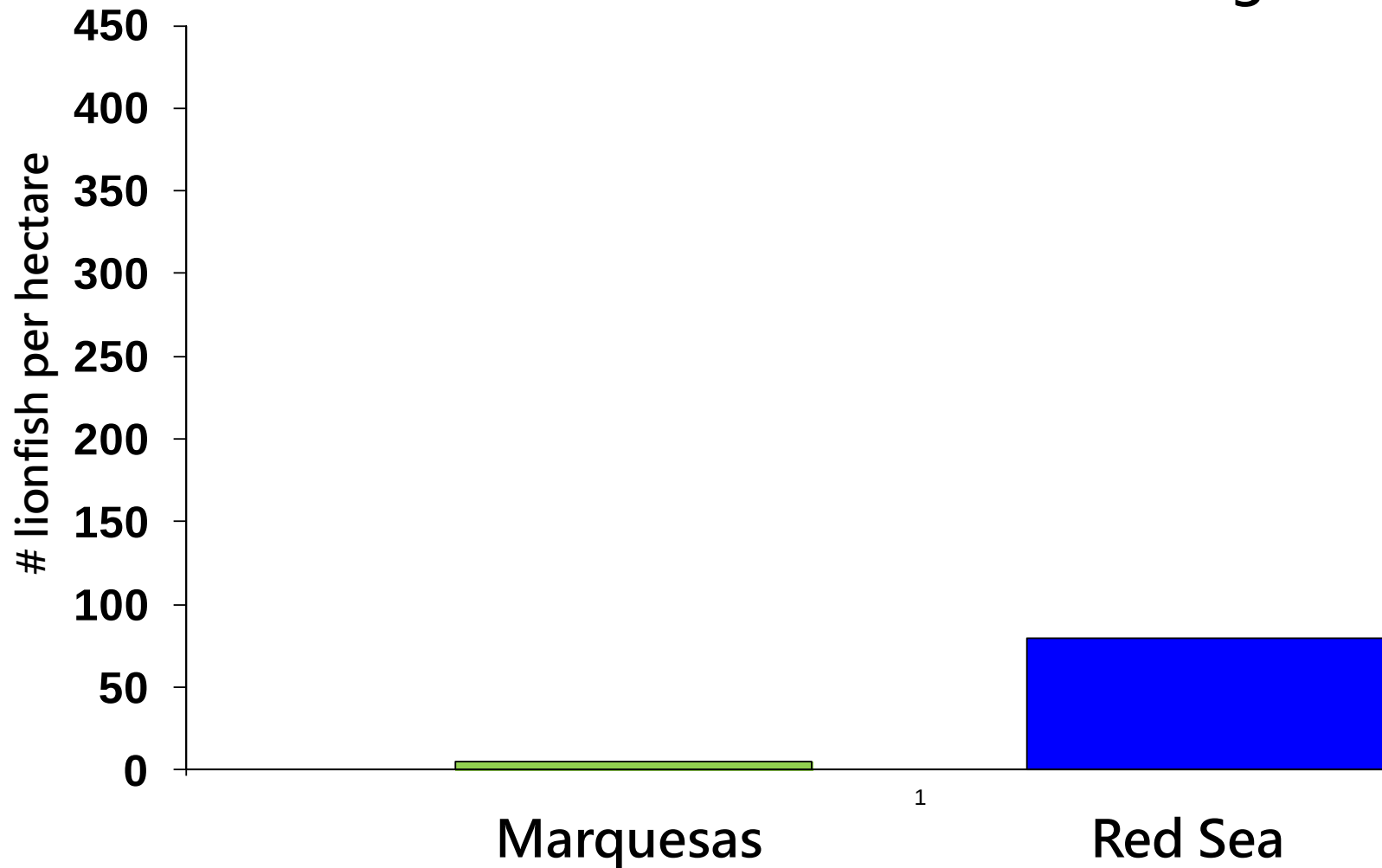
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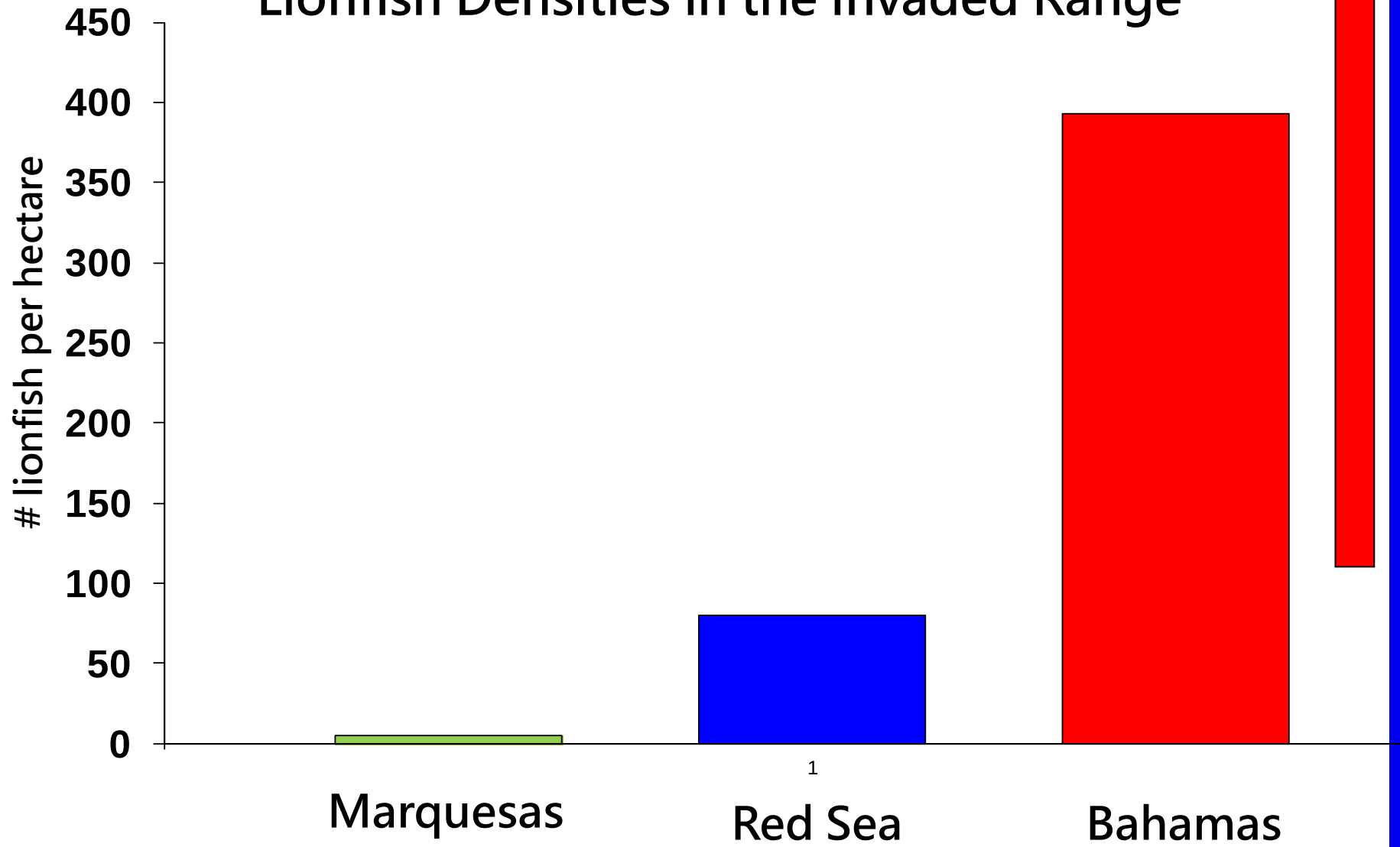


Lionfish Densities in the Native Range



Kulbikci et al 2012, Fishelson 1970

Lionfish Densities in the Invaded Range



Green & Côté 2009, Kulbikci et al 2012

Habitats







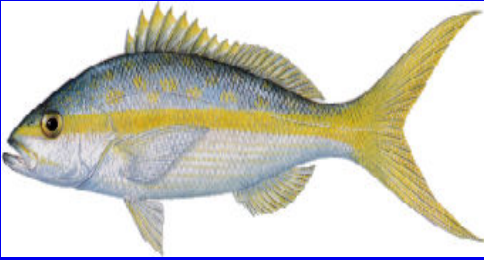
Western Atlantic Sizes

Smallest collected = 28mm

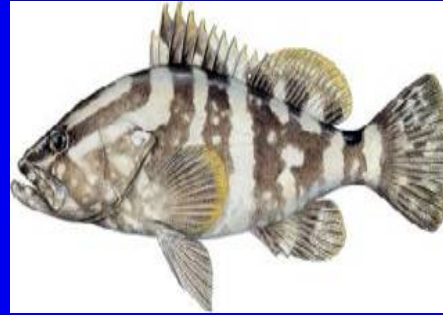
Largest collected = 474mm (482? From MX)

Max size in native range ~ 320-350mm

Lionfish consume prey over half their size



Yellow tail snapper



Nassau grouper



Redband parrotfish



Reef squirrelfish



Banded coral shrimp



Spanish hogfish

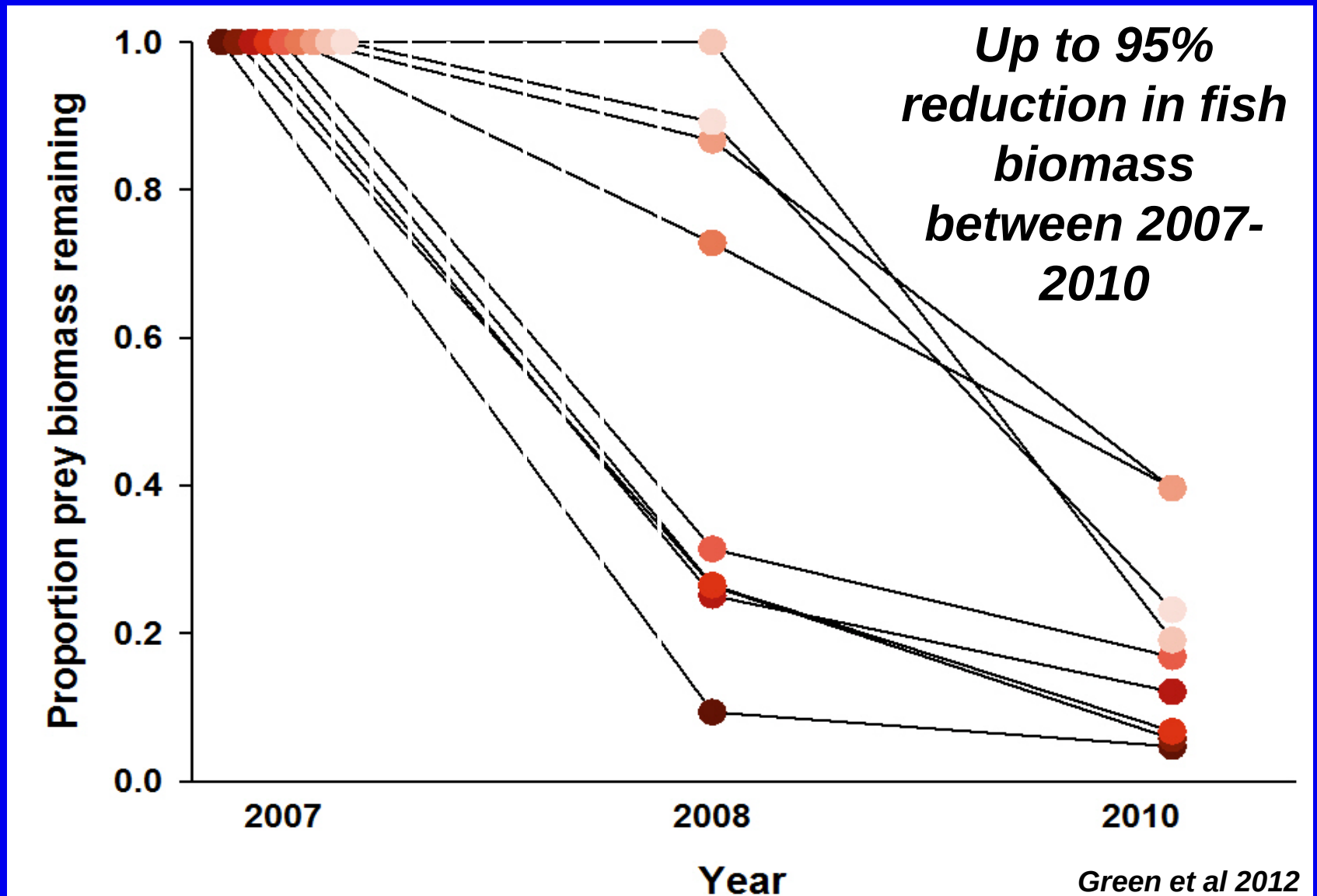
- Over 70 different prey species found in lionfish stomachs
- Commercially and recreationally important species (grazers and cleaners) – keeping the reef healthy and fish clean





64 prey fish plus a shrimp!

Impact of lionfish on Bahamian reef fishes



Why are lionfish so successful?

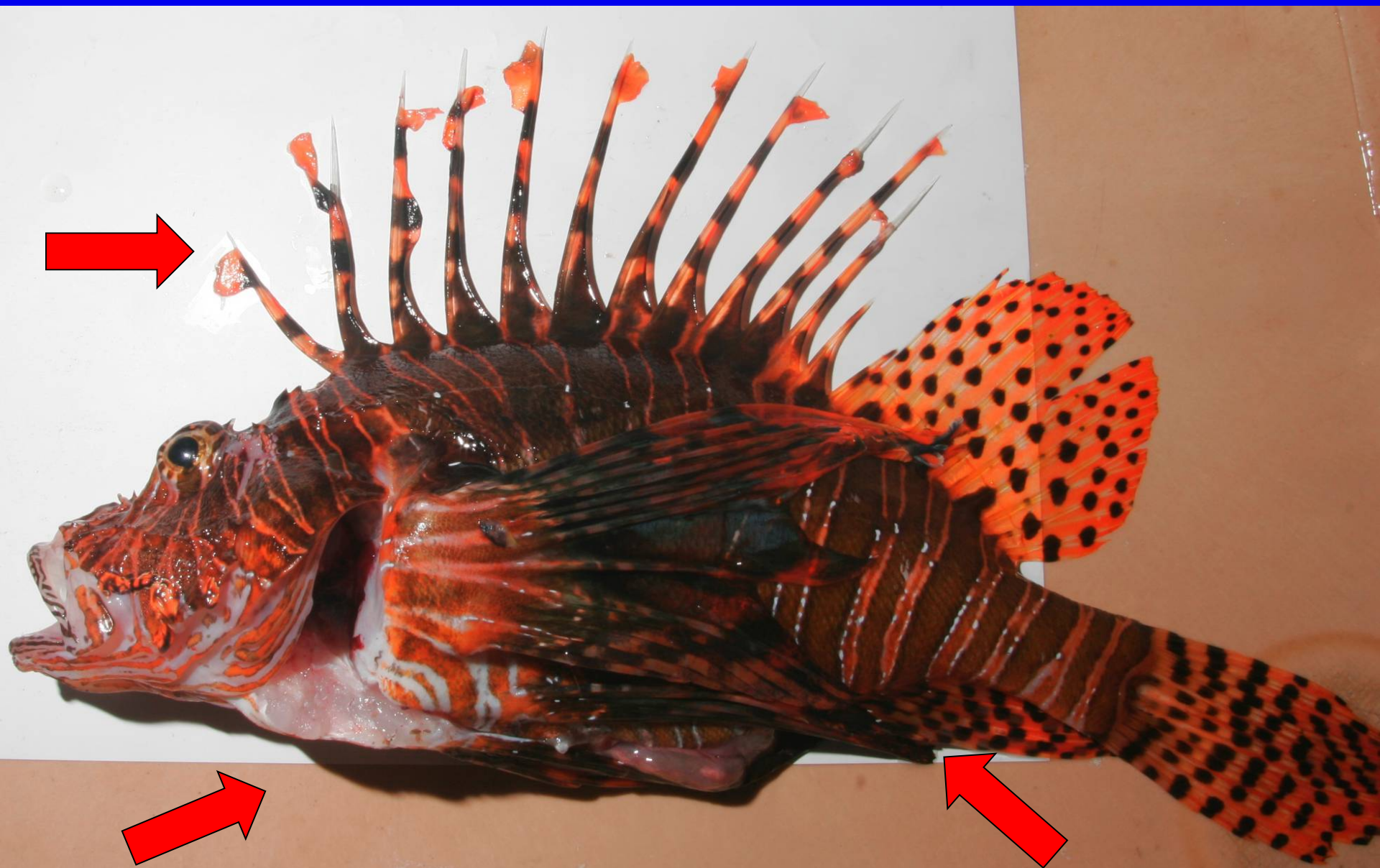


Lionfish venomology





SIMON FRASER
UNIVERSITY



Lionfish reproduction

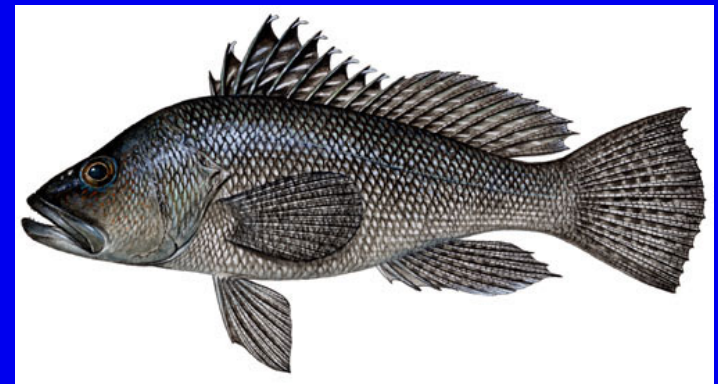
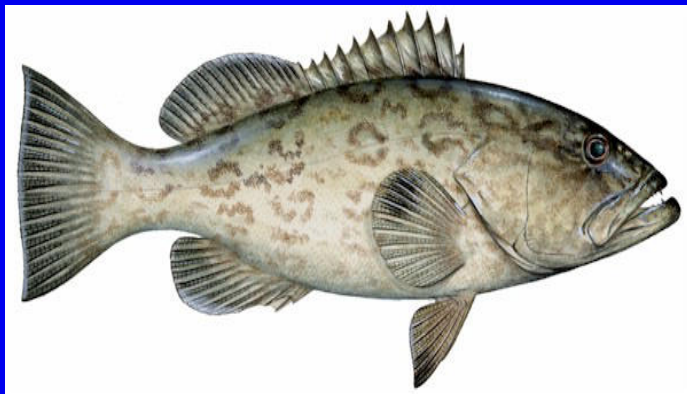
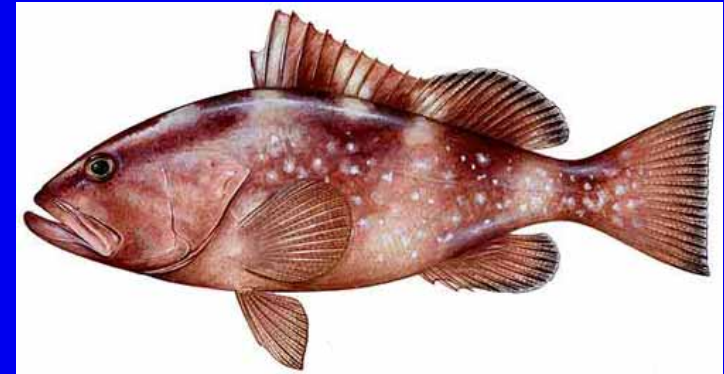
- Spawn in pairs
- Lionfish release two buoyant egg balls
- ~30,000 eggs per spawn
- Spawning can occur throughout the year
- Frequency ~4days



Lionfish predators?



Predation experiments







Additional Invasion Factors...

- Fewer parasites
- Faster growth
- Less competition
- Prey naiveté'
- Genetic vigor



Local Control Can Be Effective



Products





Local Control Can Be Effective

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



Training/Outreach/Education



Lionfish Awareness Workshop

Learn how you can help

Topics include background of the invasion, biology/ecology of lionfish, current research and impacts, collecting and handling, and more...



Photo by Lori Quick, ECHA

Lionfish are gluttonous feeders that are equipped with venomous spines. This invasive species could affect various segments of our marine environment including commercially-, recreationally-, and ecologically-important marine species.

When: Tuesday, October 11th 6:30 – 8:30 pm

Where: Eco Living Center at Rutenberg Park

6490 South Pointe Blvd

Fort Myers, Florida, 33919

FREE and open to the Public

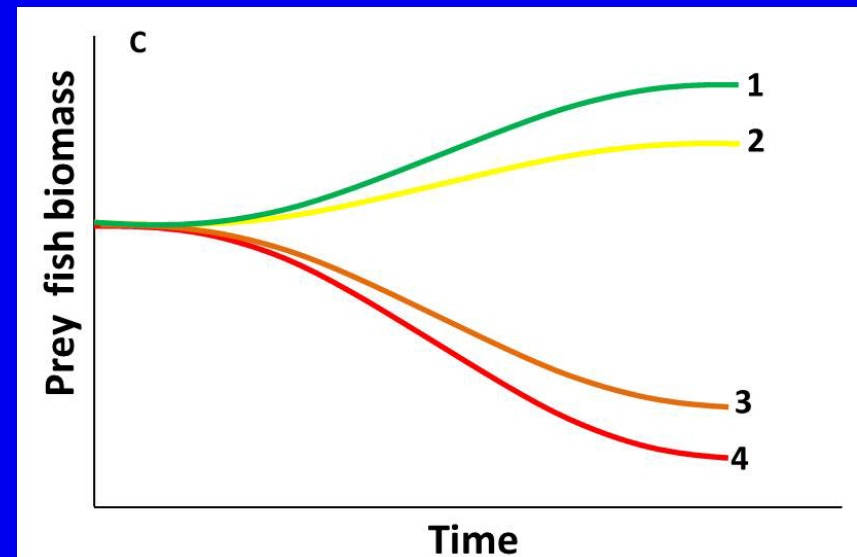
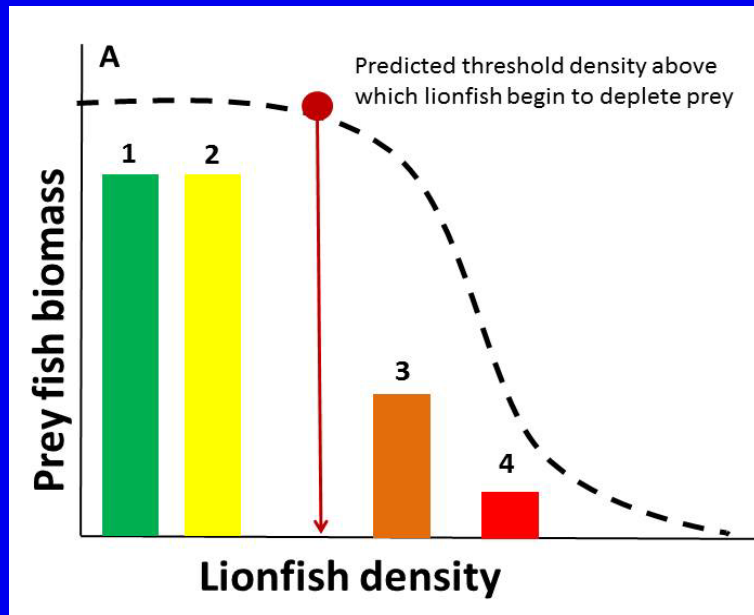


For more information on lionfish go to: www.reef.org

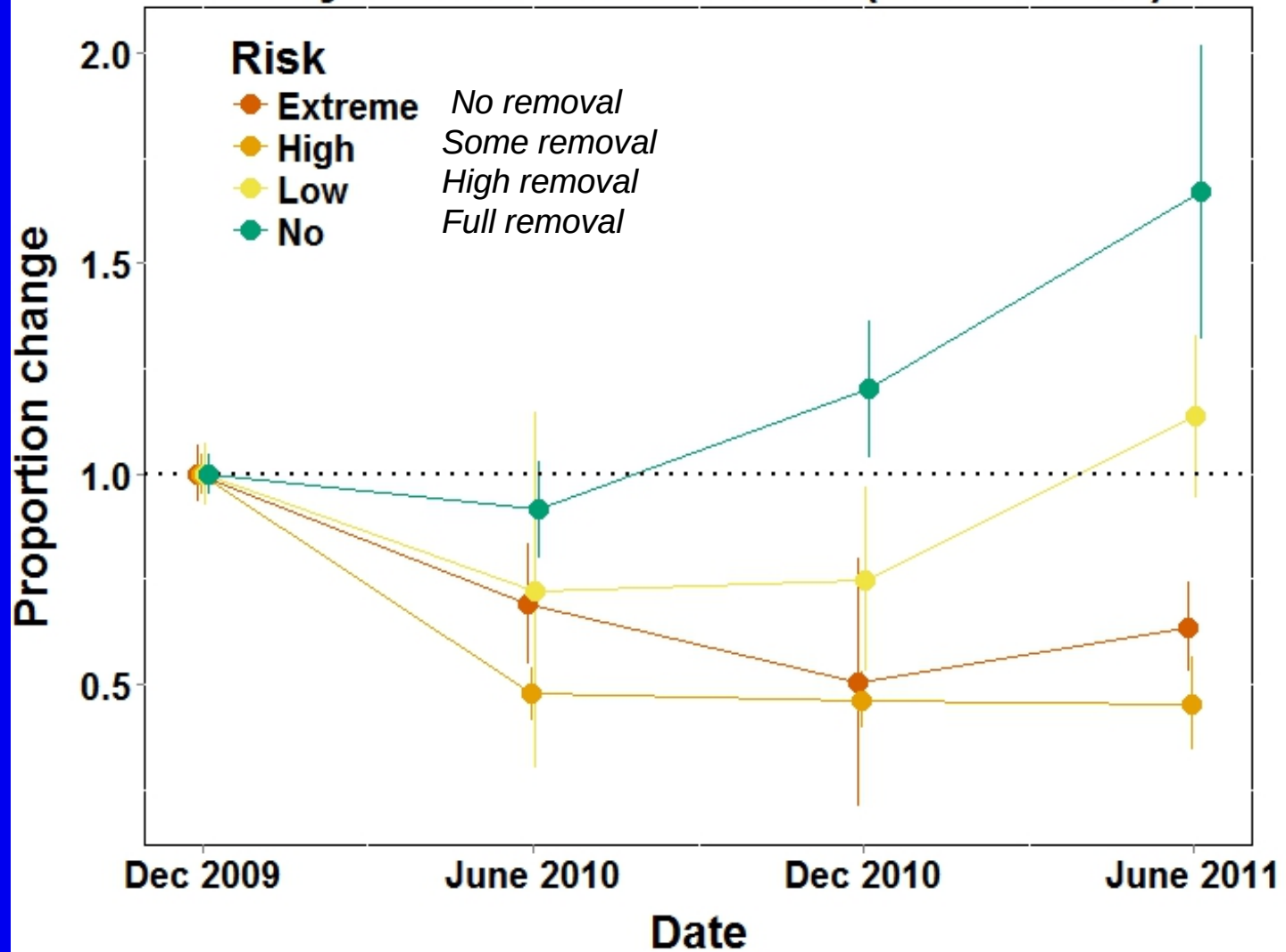
Target Density Model – how many LF can a reef support?



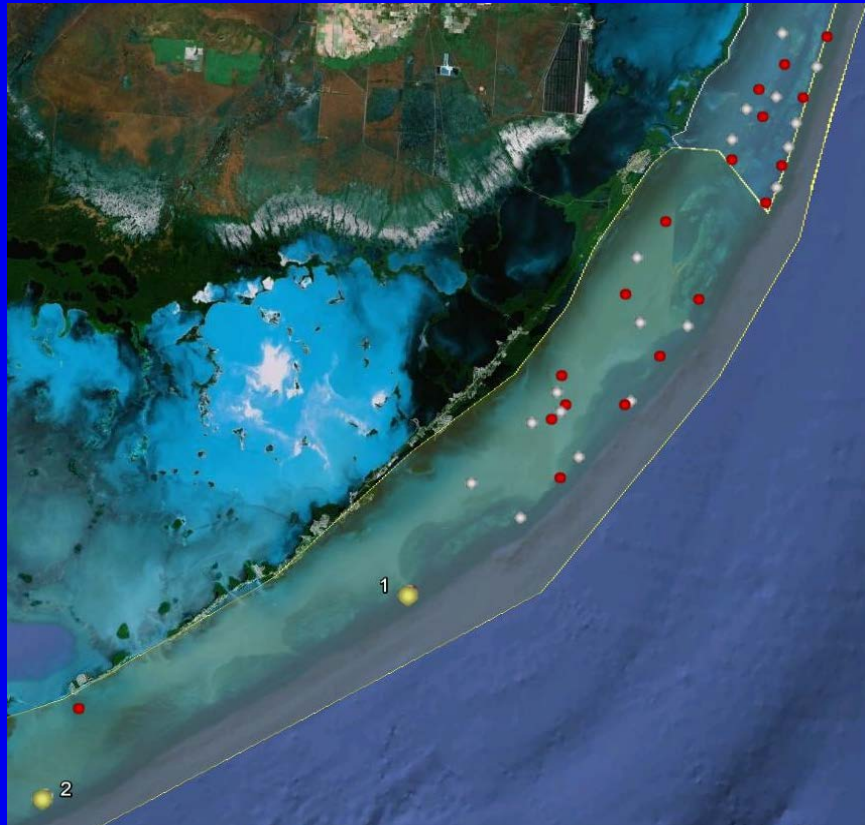
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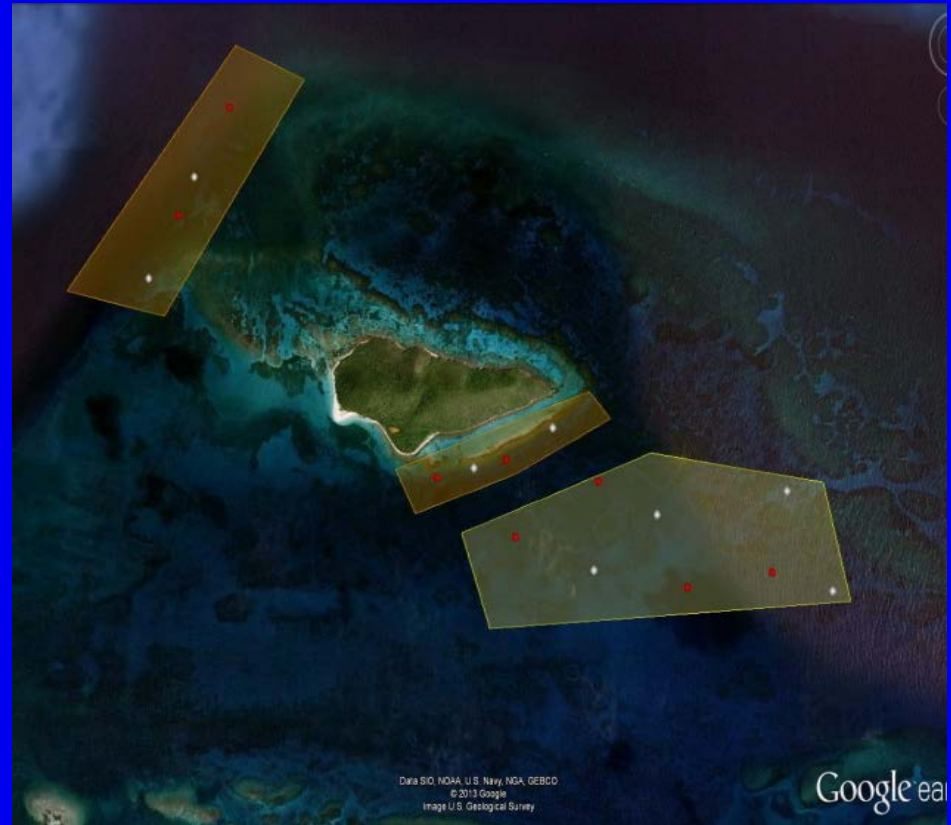
Prey sized fish biomass (6-15cm TL)



Target Density and Removal Effectiveness Study sites

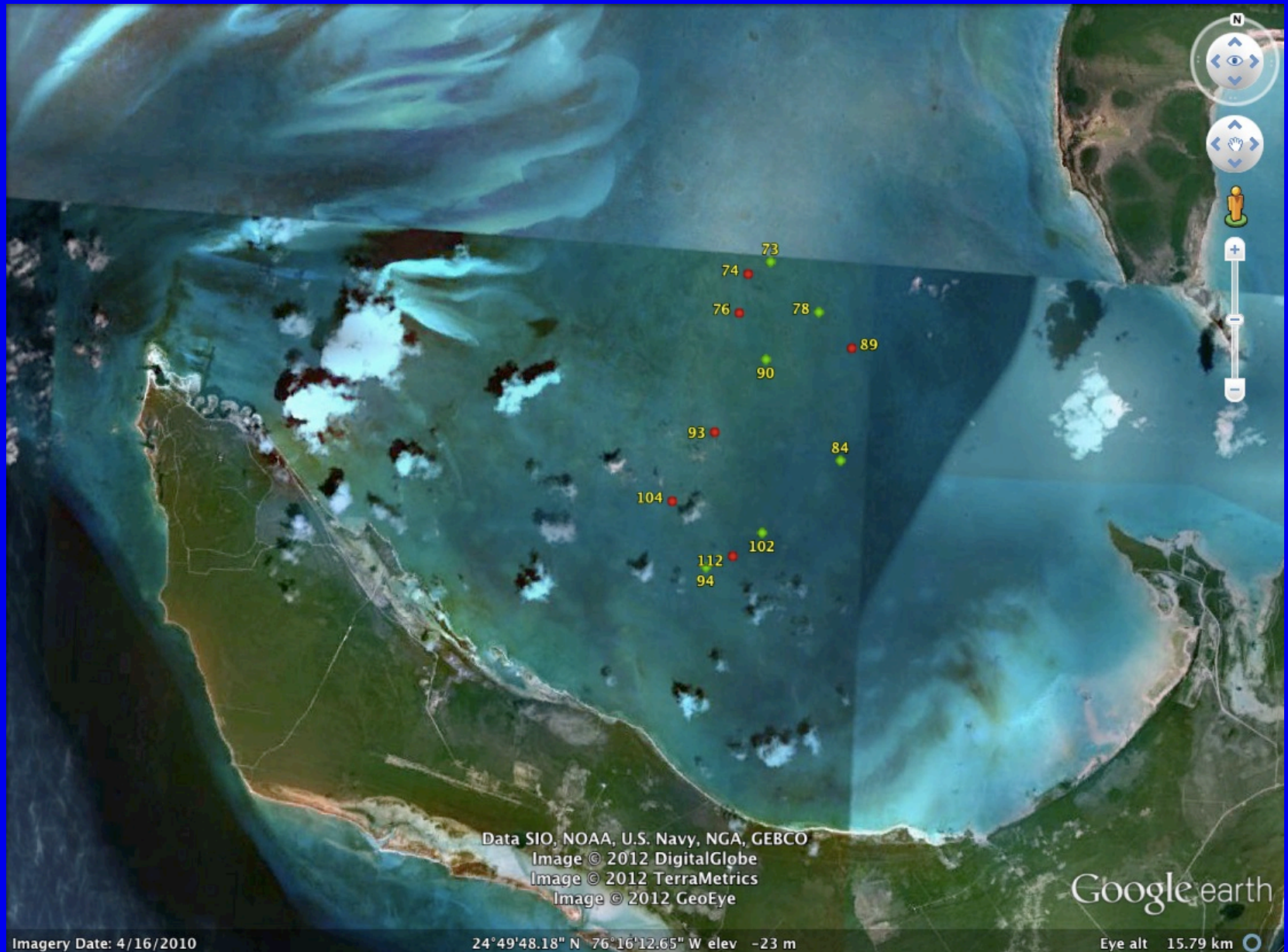


FKNMS and BNP

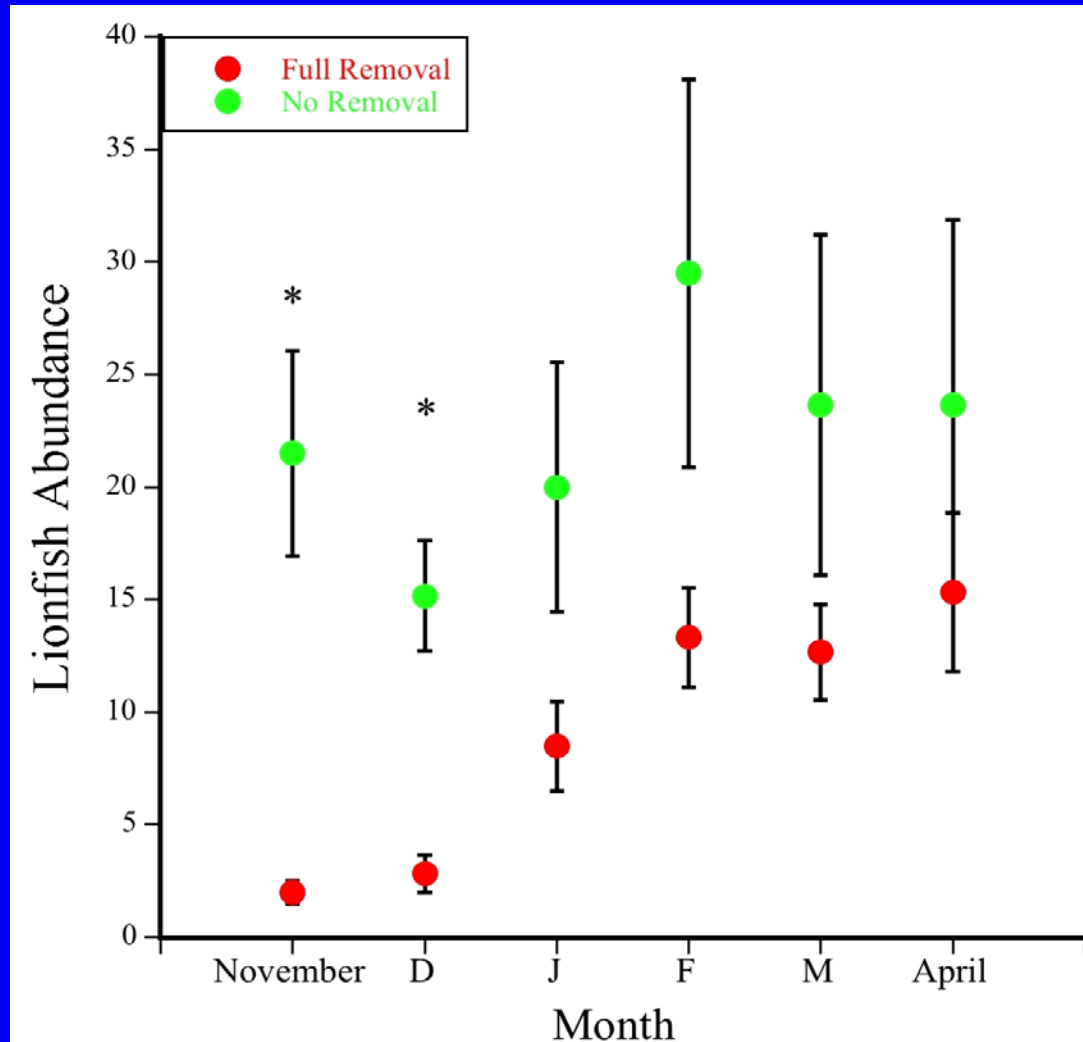


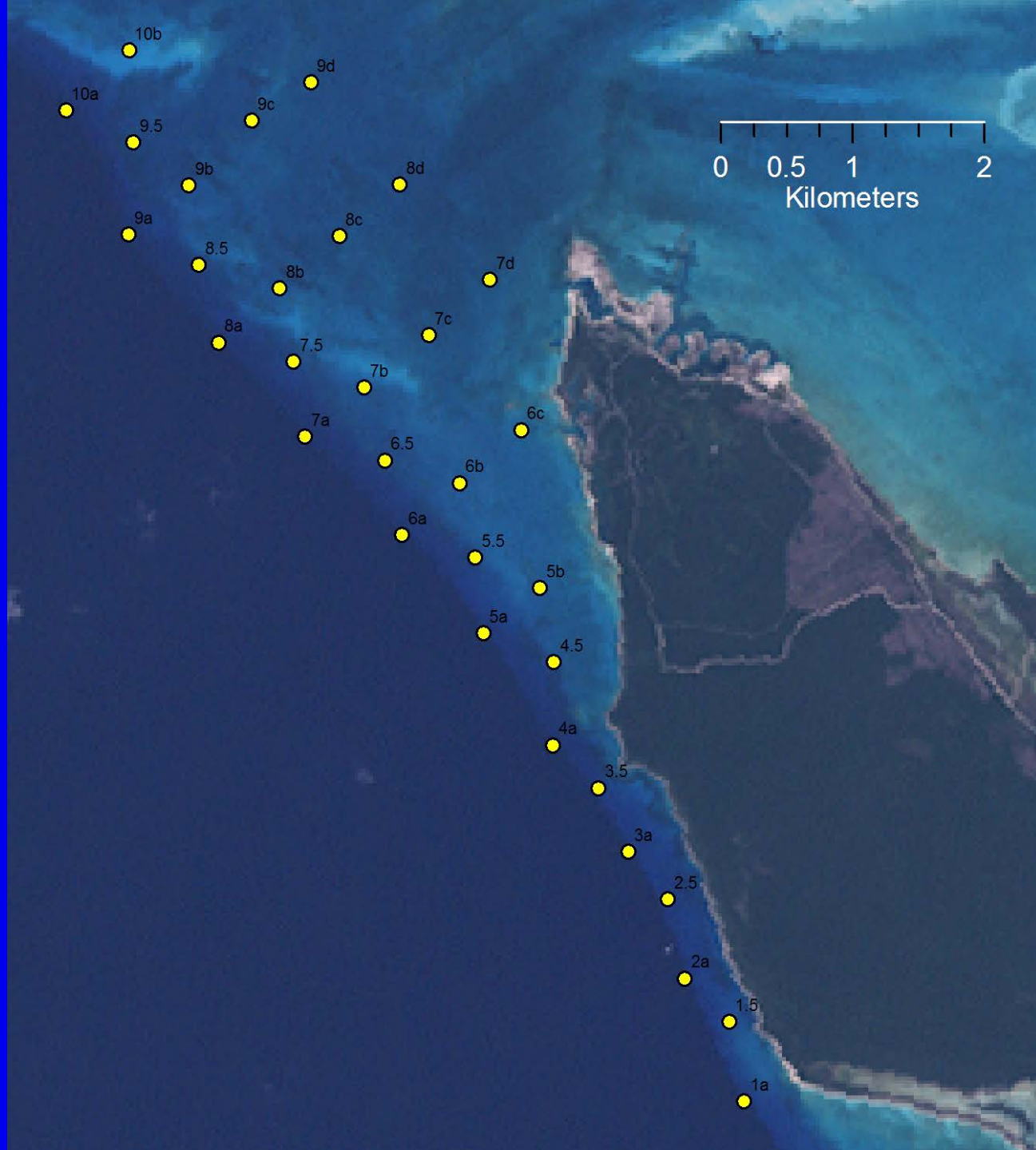
Buck Island, USVI

Removal and Re-Colonization



Re-colonization over 5 months







Ongoing control





Lionfish By-catch in the Florida Keys Commercial Spiny Lobster Fishery

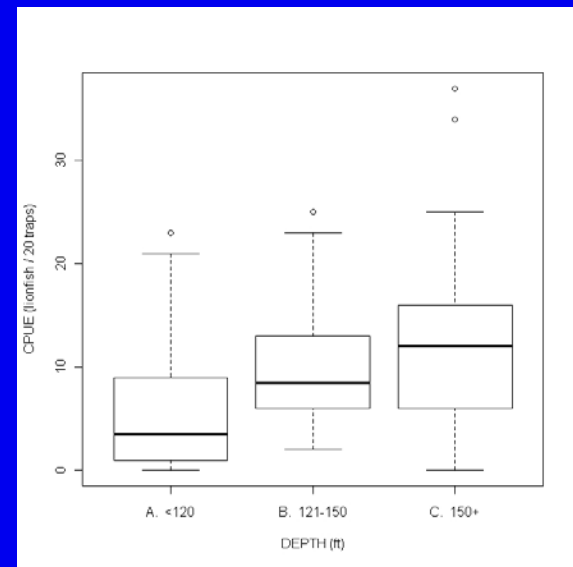


- *128 Commercial lobster vessels in Monroe County, FL*
- *\$12.6 Million USD in annual gross revenues*



Early results

- Mean total length of lionfish increases with depth and temporally during the fishing season.
- Catch rates of lionfish increase with depth
- Correlations show that when lionfish are present in traps, the catch rates for lobster is lower



REEF

Lionfish Derbies



Lionfish Derby & Rodeo

Photo by Rich Carey

THIRD ANNUAL LIONFISH DERBY

TENS OF THOUSANDS OF DOLLARS IN CASH PRIZES FOR MOST, BIGGEST & SMALLEST LIONFISH CAUGHT ON JUNE 25TH AND BROUGHT TO DERBY HEADQUARTERS—GREEN TURTLE RENDALS DIVE CENTER. DERBY REGISTRATION FORMS AT BRENDALS DIVE CENTER, GREEN TURTLE CLUB OR REGISTER ONLINE: lionfishderby.com Must be registered to compete.



June 24th & 25th, 2010

GREEN TURTLE CAY, ABACO



lionfishderby.com

242-365-4411

WANTED LIONFISH HUNTERS



2012 SOUTH FLORIDA LIONFISH DERBY SERIES

Saturday, June 30th: 15th Street Fisheries- Broward County
Saturday, August 18th: Sailfish Marina- Palm Beach County
Saturday, September 8th: Coconuts Restaurant- Upper Keys

Over \$10,000 in Cash and Prizes

Help Control the Lionfish Population
Pre-registration required;
www.reef.org/lionfish/derbies
or 305-852-0030



Poster adapted from design by Jamie Stock and Heather McWhorter

WANTED

★ ★ ★ LIONFISH HUNTERS ★ ★ ★

FLORIDA KEYS LIONFISH DERBY

Saturday, September 11th • Upper Keys @ Coconuts - Key Largo
Saturday, October 16th • Middle Keys @ Keys Fisheries - Marathon
Saturday, November 13th • Lower Keys @ Hurricane Hole - Key West

Over \$10,000 in cash and prizes! Help control the Lionfish population.
For information or registration, go to www.reef.org/lionfish or call 305-852-0030

REEF

NATIONAL MARINE SANCTUARY FLORIDA KEYS

Printed by Litho-Craft Printers • Poster designed by Tinsley Advertising

History of Derbies

Green Turtle, Abaco 2009 –
1,408 lionfish

Marsh Harbor 2011 –
2,957 lionfish

Florida, Mexico, Cayman, DR,
Curacao, ...





Derbies can provide...

- *Outreach and Awareness*
- *Training for removers*
- *Media interest*
- *Samples for research*
- *Tasting opportunities*
- *Lionfish removals!*



How effective are derbies?



- Participant maps of areas where lionfish captured
- Surveys of lionfish before and after the derby

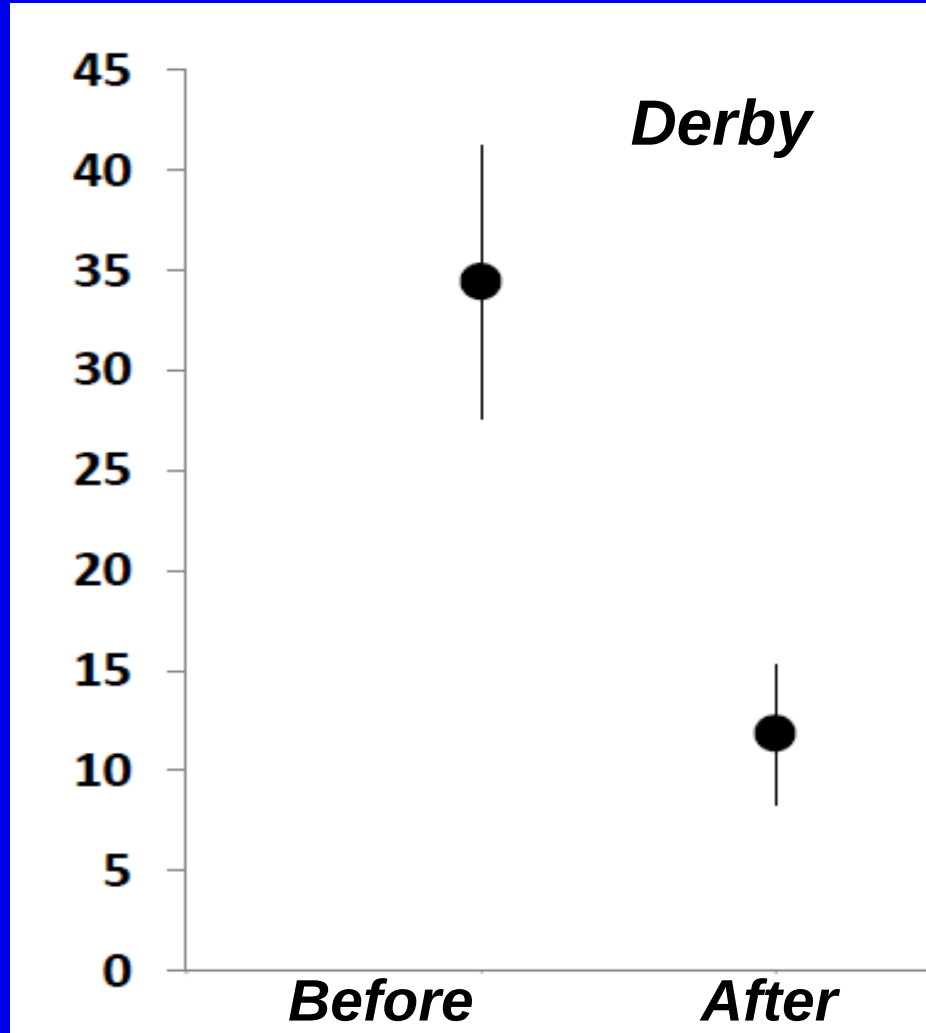


**Green Turtle Cay Lionfish Derby
June 16, 2012**

Derby reduced local lionfish population by 69%



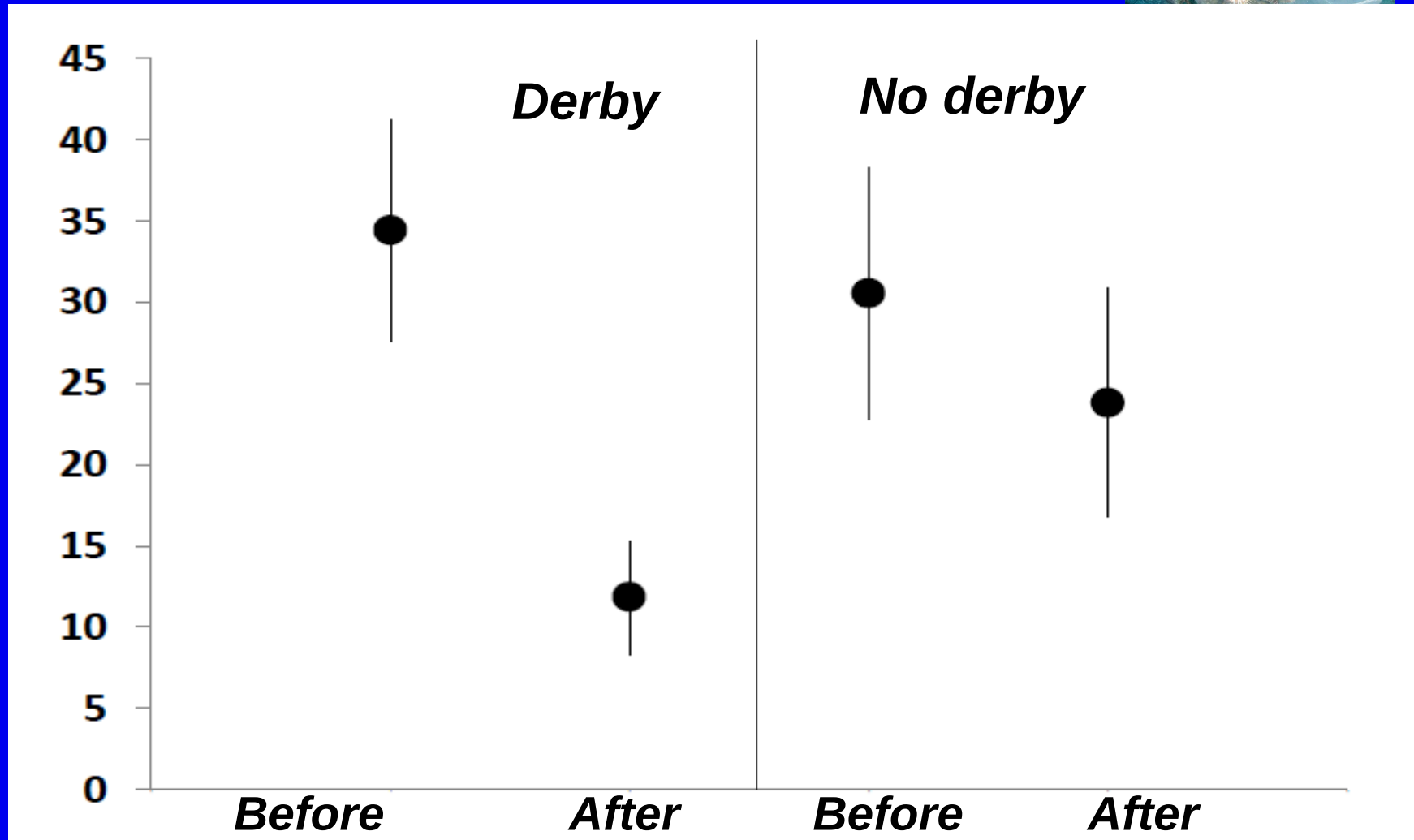
Lionfish per hectare



Derby reduced local lionfish population by 69%



Lionfish per hectare



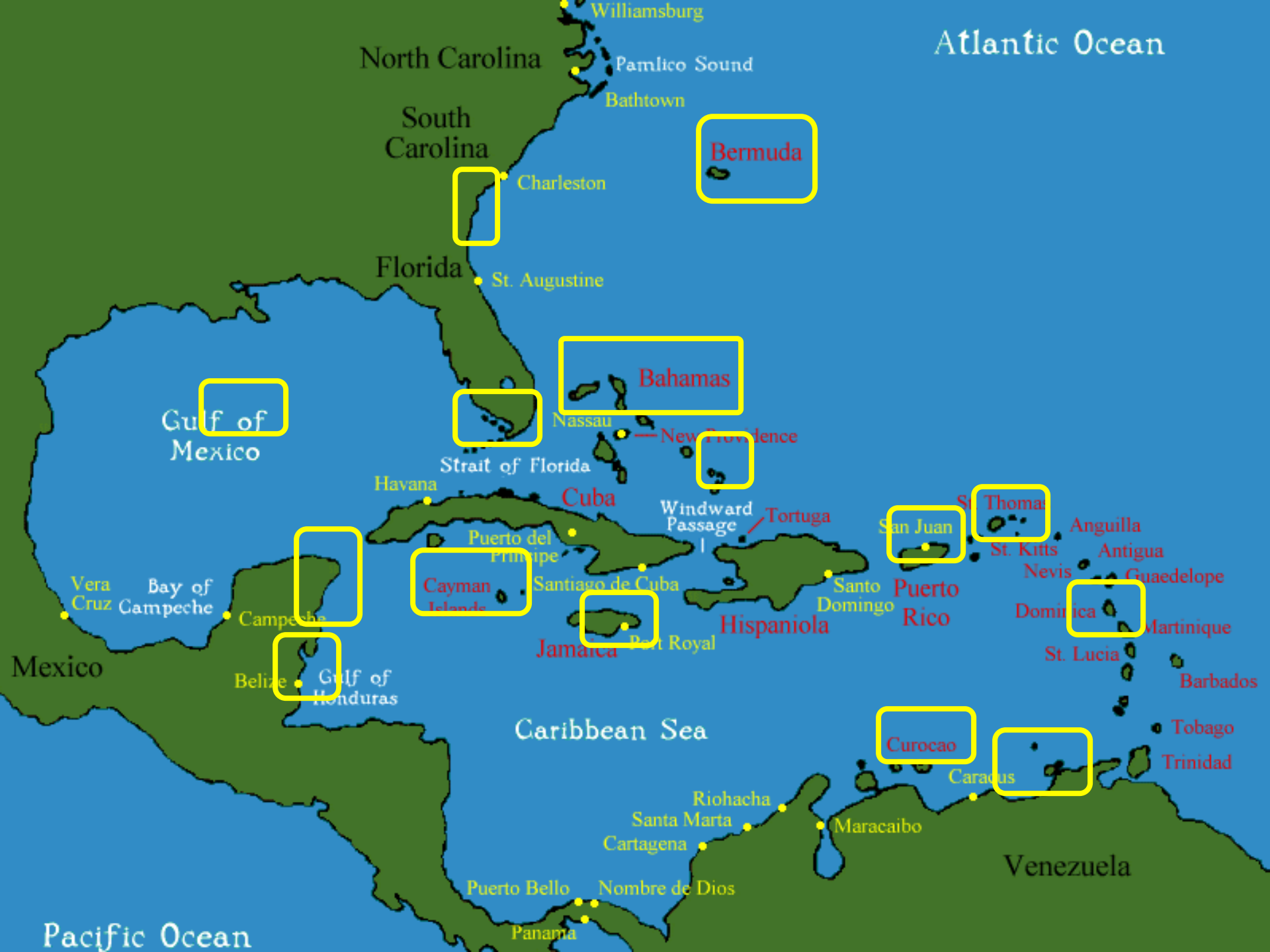
How many fish would these lionfish have consumed?



How many fish would these lionfish have consumed?



*Palm Beach (1,043 LF) =
2.0-8.8 million prey!!!*





ICRI GULF AND CARIBBEAN FISHERIES INSTITUTE
a not for profit 501 (c) (3) corporation

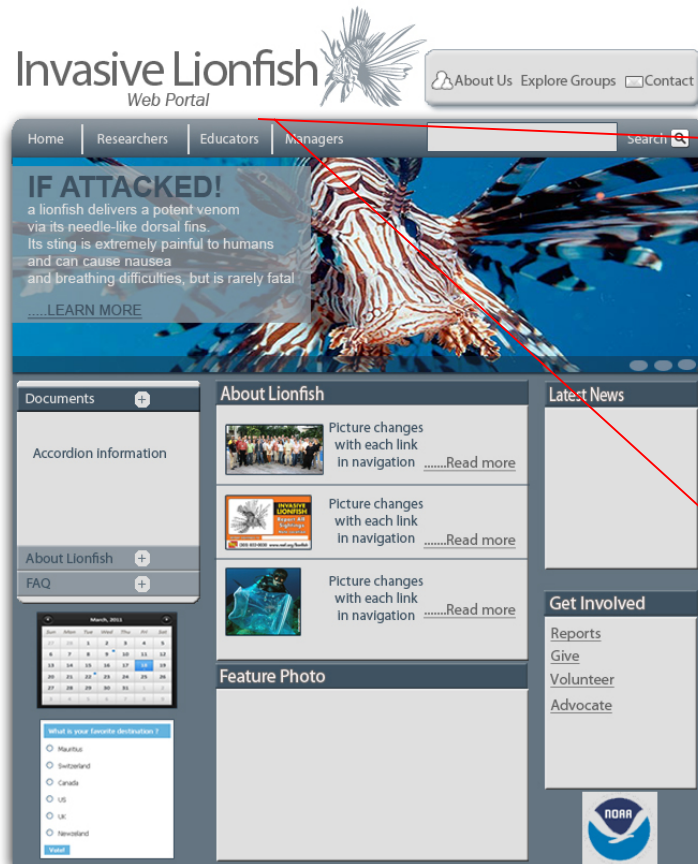
Strategies and Practices for Invasive Lionfish Control

A guide for managers



www.GCFI.org

Lionfish Web Portal

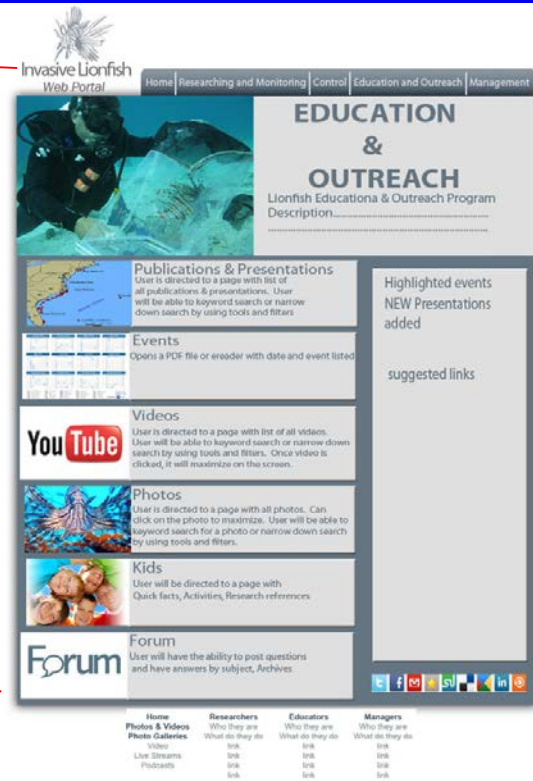


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What do they do
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Who they are
What do they do
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Managers
Who they are
What do they do
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link
link



GCFI Annual Lionfish Session

- 7th year
- 66th GCFI - Corpus Christi – Nov 2013
- Papers, posters, forum



Regional Lionfish Strategy





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.



!Delicioso!



Ciguatera

- Found in some lionfish in USVI (hotspot)
- No known cases of CFP
- Testing through FDA and NOAA
- USVI project - Dr Bernard Castillo
- Regional Workshop
 - NOAA
 - FDA
 - REEF
 - ~16 countries



Thank you!

www.REEF.org

