

# Lionfish Response in Puerto Rico

## Rico



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# Invasion Status in Puerto Rico



- First confirmed sighting: Nov. '08 in Vieques.
- First report at Fisheries Lab – Apr. 8, '09
- First confirmed capture: Apr. '09 in Dorado by Terry Chevako
- Largest to date: 15.75" (400 mm) from Aguadilla.
- Current greatest abundance: West coast (extensive insular platform)
- Total reports/captures to date: ~1,500 lionfish.
- 15" lionfish of 1.9 lbs. has been caught at 400' depth by deepwater snapper fisher.
- Lionfish caught in fish traps have been reported at FRL from Cabo Rojo and Juana Diaz from ~200 ft.

# Lionfish research in Puerto Rico

Total of 141 samples have been processed at the lab for different purposes:

- Gonad histology by FRL biologists
- Gill Tissue for DNA (Dr. Morris, Beaufort Lab. N.C)
- Heads for otoliths (Dr. Morris, Beaufort Lab. N.C)

No information about reproduction yet.

Stomach contents is composed mostly by the following species:

- \* Cardinal fish
- \* Creole wrasse
- \* Chromis sp.
- \* Royal Grammas
- \* Shrimp
- \* Damselfish
- \* Labriidae



In a study of parasitic fauna, at least one isopod was found in the opercular region.

23 lionfish from 115'  
in Aguadilla (west coast)  
Aug. 6, 2010



- 3 of these measured 15"
- (3X more were seen on same dive)



# Strategies/Plan

- No formal Strategic Plan yet.  
Our operational plan: Kill every one we see. Encourage others to do same.
- **REGULATIONS:** Since 2004, we have prohibited the importation of lionfish and other potential invasives.
- **RESPONSE TEAMS:** We have a formal DNER response team that monitors and removes lionfish from the San Juan area public beaches and bridge supports, and responds to sightings from other areas. Volunteer groups cover most of the north coast, Vieques and Desecheo. Commercial fishers and ornamental collectors help on the west coast.
- **TRAINING:** We support and encourage NGO's such as Scuba Dogs, Vieques Conservation and Historic Trust and EcoTono to train others about collection methods and adopt areas for removals. We are supportive of everyone and anyone who will help.
- **PROMOTE CONSUMPTION:** We encourage lionfish derbies and lionfish sale and consumption. TV, radio and press help. We're contacting well-known chefs to do a tasting to be covered by press, and UPR will help with a Marketing Plan for lionfish.
- **RESEARCH & EDUCATION:** We encourage and support lionfish research in Puerto Rico, by DNER, REEF and others. We prepare and distribute fliers and posters.
- **TEAMWORK:** We maintain close contact and cooperation with REEF and other groups and agencies.

# Successes

- After initial near hysteria, the public has been informed about lionfish, their ecological impact and their toxic spines.
- We have some limited areas under good control through removal efforts.
- We have excellent relations with the media, and they disseminate information about the issues.
- We have one restaurant selling lionfish, and another interested, so far. They take fish  $\geq 9$ ".
- We've had two privately (very loosely) organized derbies, and more planned (with REEF and EcoTono).
- REEF and EcoTono have conducted workshops all over the island. We have a good quantity of well trained responders. EcoTono gives credits towards purchase of scuba equipment for each capture.
- REEF and Simon Frasier U. are conducting valuable research in PR.
- One local high school gives community service credits to students who collect lionfish. Community Service is a requirement for the National Honor Society.



# Challenges

- Long-term control; maintaining energy levels, interest and morale.
- Dealing with pressure to offer economic incentives to fishers to catch the species.
- How to increase mortality to the point where populations begin to decline.
- How to involve commercial fishermen when the value of other species is higher.
- Changing traditional fisheries management mind-set to take into account this new species
- How to focus fishing effort on lionfish without increasing fishing effort on already overfished native stocks as well?
- How do we deal with the lionfish in very deep water?
- Coordinating within and outside the island with very diverse groups.

# Funding

- DNER has a promise of \$5,000 from the Caribbean Fisheries Management Council to purchase collection materials and reproduce educational materials.
- All collections, derbies and control efforts to date have been made with personal equipment and materials of everyone involved; whether agency or private personnel.
- We need funds to properly equip a small army of response personnel around the island. Very few people have needle proof gloves.
- We need funds and/or sponsors for derby prizes and promotion, deep water collection gear.



# Needs

- Information as precise as possible on the distribution and abundance of lionfish within PR territorial waters and habitats. Where should we concentrate our time and efforts? What are the best techniques to use in each? Are there predictable spawning aggregation sites that we can target for intensive removals?
- A successful plan to efficiently overfish lionfish, in the shortest time possible, at all depths, and keep them in that condition (or worse) forever.
- Identification of any serious potential predators of lionfish among the native fish community that we should be protecting. Some divers report that blennies, morays, octopus, and graysby grouper show potential to consume lionfish.

# Conclusion

- The perception is that the lionfish are increasing rapidly in abundance in PR. No good data on how fast abundance is increasing.
- Very small lionfish have been captured in shallow waters in recent weeks, probably coinciding with peak spawning in summer.
- Ornamental fish collectors are complaining that royal grammas are being consumed by lionfish. This was the major ornamental fish species exported by Puerto Rico. Lobster fishers also complain about juvenile lobster predation by lionfish.
- We need some continuing source of funding to help with control efforts, including sponsoring of derbies.