

Saint Lucia Lionfish Response and Action Plan- First Working Draft

Prepared by: Allena Joseph, Fisheries Biologist

PROBLEM

Goal

Objectives

STAKEHOLDER GROUP CONTRIBUTIONS

Each stakeholder was asked to identify their agency's ability to contribute/ or take a lead role in one of the four components.

- 1) Financing and identifying resources
- 2) Research/ control and Information Analysis
 - opportunistic and targeted detection and removal of lionfish
 - monitoring and data gathering
 - data analysis and reporting.
- 3) Outreach and Education Initiatives
- 4) Developing Policies and Regulations

Their potential to contribute to each component is ranked HIGH, MEDIUM, LOW or NONE. Stakeholders were asked to keep in mind that although most of the public education, research and information analysis is financed under the project "Mitigating the threat of Invasive Alien Species in the Insular Caribbean", Lionfish would still impact on the Marine ecosystem, fishers livelihood and human health. We would then need to determine how stakeholders and agencies can now sustain the activities that are currently ongoing under the MTIASIC Project.

Table1. Invasive Species Stakeholder Responsibilities from Lionfish Stakeholder Workshop, 28-29 March 2011.

STAKEHOLDER GROUP	CATEGORY	DESCRIPTION	ABILITY TO CONTRIBUTE			
			FINANCIAL SUPPORT	RESEARCH AND INFORMATION	EDUCATION AND PUBLIC OUTREACH	MANAGEMENT REGULATION
SCUBA St. Lucia	Private Commercial		Medium	Medium	High	Low
St. Lucia Dive Association	NGO		Medium	Medium	High	Low
Sustainable Development and Environment	Governmental		High (led agency for sourcing external funding)	Low	High	High

Soufriere Marine Management Authority	NGO	Local Fisheries Management Authority. Responsible for Managing the Soufriere Marine Management Authority	Medium	High	High	High
Ministry of Tourism and Civil Aviation-Product Development	Government	Tourism Sector Advocacy Regulations, Product Development, Capacity building and Monitoring	Low	Low	High	Medium
Organisation of Eastern Caribbean States-Environment and Sustainable Development Unit	Inter-Governmental	Provides Regional Response, support and advise to regional Government for implementation of environmental activities within countries	Low	Low	Medium	Low
Biodiversity Unit	Governmental		Low	None	High	Low
Saint Lucia National Trust	Statutory Body	Established to Conserve heritage through Education and advocacy and site development and management	Low	Low	High	Low
Information and Communication Unit	Governmental	Responsible for information gathering and dissemination, conceptualization and or creation of public sensitization material.	Low	Low	High	Low
Ministry of Health	Governmental		Low	Low	High	Medium
Fishers	Individual/Interest Group		Low	Medium	High	None
Fisher Co-operatives	NGO		Low	Medium	High	None
Department of Fisheries	Governmental		Low	High	High	High

Outreach and Education Initiatives

Objectives of outreach and education initiatives are to:

- raise awareness of the potential impacts of the lionfish invasion by describing the biology and ecology of the lionfish, especially as it relates to its rapid spread and impact on local fisheries and marine ecosystems
- educate the public, including school children, on human health issues related to the lionfish as well as the fact that lionfish can be eaten
- increase awareness of the points of contact for reporting lionfish sightings
- increase participation of fishers, divers, and snorkelers in reporting sightings of lionfish,
- train fishers and divers in safe handling and cleaning of lionfish.

To provide support for outreach and education, through the GEF- UNEP project, Mitigating the Threat of Invasive Alien Species in the Insular Caribbean, a variety of materials be made available on the lionfish threat. These included:

- fact cards (available in print and on websites)

- posters (available in print and on websites)
- 30 seconds Public Service Announcements (aired on major television stations)
- Radio and television interviews.
- Need for Bilingual outreach especially on television and radio PSA's and interviews.

Educational Activities

Several government agencies and non-profit organizations have education programs targeting school children and relevant stakeholders and are either currently including information about lionfish in their education programs or are willing to include the information in their programs.

Table 1.

Education Activities	Description of Activities	Funding Source	Responsible Organisations
Primary, secondary and tertiary Schools	<ul style="list-style-type: none"> - Presentations to schools during academic year at least two schools per district. - Presentations are also made upon requests - School exhibitions 	No special funding. Part of normal activities.	<ul style="list-style-type: none"> - Department of Fisheries - Soufriere Marine Management Authority- (SMMA). - Saint Lucia National Trust - Biodiversity Unit
Presentations to Fishers and fisher organizations, dive organisations	<p>Presentations and training on:</p> <ul style="list-style-type: none"> - Background and safety issues regarding lionfish - Training for safe handling and removal of lionfish from sea. - Proper reporting and recording of lionfish sightings <p>Fact sheets, brochures, posters should also be made available to fishers and divers</p> <p>Encourage fishers and divers to assist in carrying out in- water assessments and research on lionfish.</p>	<p>Funding currently being made available through MTIASIC project.</p> <p>Non- profit</p> <p>Annual budget for</p>	<ul style="list-style-type: none"> - Department of Fisheries - SMMA
Education efforts by dive establishments and Fisher Organisations	When teaching SCUBA Training classes inform dive students as well as guests about the Lionfish. Also making information available through the distribution of brochures and posters as well as verbal	No special funding. Part of normal activities	<ul style="list-style-type: none"> - Dive establishment Island wide (coordinated through ANBAGLO)
Education of Public	Through PSA, radio and TV interviews, distribution of	Funding currently being made available through	Department of Fisheries SMMA

	PA materials, news paper and magazine articles, fun walks	MTIASIC project.	ANBAGLO SLNT Min. of Tourism Min. of Health Biodiversity Unit Fisher Cooperatives
	Presentations can also be made upon requests		
Education of Tourist	Information for hotels need to be informative and educational.(not seen as scary) Hotels may also see materials as enhancing the guest experience and safety. Development of a brochure with simple message and picture of lionfish. Airing of PSA on visitors Channel	Funding currently being made available through MTIASIC project for printing of materials, production and airing of PSA.	Min. of Tourism SLTB, SLHTA

Outline of information that is currently available on Lionfish

Table 2: Public Awareness currently available and planned

Education Activities	Description of Activity	Funding source	Responsible organisation
<p>Production and print of Posters.</p> <p>Available at the Department of Fisheries and distributed to Dive establishments, SMMA, Fisher cooperatives.</p> <p>Poster can be posted on doors, walls, landing sites, dive shops, offices.</p> <p>Pull up posters (produced not printed) will be used during school presentations, exhibitions, training exercises, workshops etc.</p> <p>Information exercise books (produced not</p>	<p>Lionfish poster entitled "HAVE YOU SEEN THIS FISH?- LIONFISH"</p> <p>Poster also available on Min. of Agriculture, Lands, Forestry and Fisheries website. http://malff.com/images/stories/press%20releases/Lion%20Fish%20invasion.pdf</p> <p>Three(3) pull up posters entitled:</p>	<p>Funding currently being made available through MTIASIC project for printing of materials.</p>	<p>DOF</p>

printed) to be handed out to students during presentations or given as prizes. Information card. Consist of facts on lionfish and first aid procedures, and steps for reporting sightings(produced not printed)			
Websites	CIASNET Fish and Wildlife USGS non- indigenous aquatic species database REEF website Ministry of Agriculture, Lands, Forestry and Fisheries		
Powerpoint Presentations	Powerpoint presentations are developed in-house designed specifically for school(various Levels) Fishers, dive sectors and general public		DOF

Table 3: outreach through television and radio

Education Activities	Description of Activity	Funding source	Responsible organisation
Radio Month long radio programme “ Several radio stations and call- in programmes provides the opportunity to discuss issues on lionfish. The public can get the perspective from a fisher, dive sector as well as from a management and control point of view (DOF, SMMA)	That’s Life” where Invasive Alien Species issues were discussed- English and creole. (segment on MIAS and lionfish). - The Agenda - News spin - Juk Bois - Radio 100	Funding currently being made available through MTIASIC project for printing of materials, production and airing of PSA	
	Development of radio PSA in both English and Creole		
Television	Production of 2 45seconds animated public service announcements to be aired on television stations: DBS HTS NTN Calabash TV Visitors Channel Choice TV PSA can also be aired during school presentations, public exhibitions, community	Funding currently being made available through MTIASIC project for printing of materials, production and airing of PSA.	

	meetings etc.		
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Responding to sightings of Lionfish

Once invasive species become established in an ecosystem, they are virtually impossible to eliminate. This has been particularly true for marine invasive species. Because of their rapid growth in population in the western Atlantic and the Caribbean Sea. Although the lionfish has not reached the shores of Saint Lucia, the goal is to remove lionfish once sighted. It is anticipated that the opportunistic and targeted removal of lionfish will suppress lionfish populations so that they do not negatively impact local fisheries and marine ecosystems and do not endanger the public.

Proposed form for reporting Lionfish.

Below is a list of questions that maybe considered being included in the lionfish reporting form:

- 1) Submit the completed form to _____
- 2) Name of observer (s) _____
- 3) Name of person reporting if different from observer _____
- 4) Telephone Number (work) _____ (home) _____ (cell) _____
- 5) Did you see the lionfish when you were (circle one or more)
 Scuba Diving snorkeling spear fishing line fishing pot fishing free diving
- 6) Date and time when lionfish was seen/ captured _____
- 7) Location of lionfish- GPS coordinates . latitude _____ longitude _____
- 8) Location of lionfish- Name of Bay or reef _____
- 9) Depth: _____ ft or meters (circle one)
- 10) Was a photograph taken? Yes No (circle one)
- 11) Name of Photographer _____
- 12) Where is the lionfish now (circle one)
 - a) Still alive and left at above location - photo attached no photo (circle one)
 - b) Killed and left in sea - photo attached no photo (circle one)
 - c) Killed and eaten/sold - photo attached no photo (circle one)
 - d) Killed and brought to _____
 - e) Captured alive and: in my aquarium or delivered to _____

Data should be entered into a database and completed forms achieved. This would be done by a fisheries officer from the Department of fisheries. The database should also be made available online or upon request. The forms should also be made available at the Department of Fisheries – offices and data collectors, SMMA, Saint Lucia Marine Police, Dive shops

Response Plan (proposed)

Lionfish sighted outside Marine Reserves

Currently no one has been trained in the proper methods for safely killing/capturing a lionfish as well as the use of the equipments (hand nets, spear poles) to remove it. This has been identified as a need to receive training in the best practices for removing and handling lionfish particularly among key stakeholder groups (Dept. of Fisheries, SMMA, Dive organizations, fishers, etc).

- 1) Once the lionfish is sighted or removed and the sight has been marked or described, it should be reported by calling or visiting one of the following :

a) Department of Fisheries

Telephone number: (758) 468- 4143 or (758) 468- 4140 or

b) SMMA

Telephone number: (758) 459-5500 or

c) Saint Lucia Marine Police

Telephone number:

- 2) Complete the form which is made available at the Department of Fisheries – offices and data collectors, SMMA, Saint Lucia Marine Police and Dive shops . The completed form should be brought to the:

Department of Fisheries
Pointe Seraphine
Castries

Or faxed to (758) 452 - 3853

Any photographs taken when the lionfish was sighted should be attached to the completed form or emailed to the Department of Fisheries for identification and verification at deptfish@maff.egov.lc or to:

Allena Joseph
Fisheries Biologist
allena.joseph@maff.egov.lc

Thomas Nelson
Fisheries Biologist
thomas.nelson@maff.egov.lc

Sarita Williams Peter
Fisheries Biologist
sarita.peter@maff.egov.lc

Once sighting have been confirmed :

- local press release, signed by the Permanent Secretary of MALFF, should be sent to all media houses.
- the report is posed to carib_ias_threat@yahoo.com
- post to USGS non-indigenous aquatic species database: <http://nas.er.usgs.gov/SightingReport.aspx>

Every quarter the data on reported sightings as well as any reports on human injury caused by lionfish (via Ministry of Health) is compiled and provided to the National Lionfish Taskforce.

It should be noted that spear fishing should only be conducted by licensed fishers. According to the Fisheries legislation anyone found spear fishing without a valid licensed would be fined the maximum of 5,000XCD.

Therefore, if a person has not killed or captured the lionfish, they should report the location and other information by calling the above agencies or by filling out the form and faxing it or emailing it as soon as possible. Divers who are not prepared to kill or capture a lionfish, but are willing to report a sighting of a lionfish, can contact the Departments of Fisheries.

It is anticipated that there is a need for a design for a marking system that can clearly mark the site without damaging the surrounding environment.

Lionfish sighted in Marine Reserves

Any lionfish sighted within a Marine Reserve should be reported to:

- d) Department of Fisheries**
Telephone number: (758) 468- 4143 or (758) 468- 4140 or
- e) SMMA**
Telephone number: (758) 459-5500 or
- f) Saint Lucia Marine Police**
Telephone number:

Permission to fish in Marine Reserves

No lionfish may be removed from the Marine Reserves unless permission is given by the Chief Fisheries Officer of the Department of Fisheries.

Within the Soufriere Marine Management Area and the Canaries Anse La Raye Management Area the SMM Authority should be contacted to report any sightings of the lionfish.

Only SMMA staff and registered Dive Leaders (staff specifically covered by valid licenses for dive operators) will be permitted to use spear guns to capture lionfish whether in or outside marine reserves. The Chief Fisheries Officer may issue an official letter of permission to permit such use as part of the disaster response.

Complete the form which is made available at the Department of Fisheries – offices and data collectors, SMMA, Saint Lucia Marine Police and Dive shops . The completed form should be brought to the:

Department of Fisheries
Pointe Seraphine
Castries

Or faxed to (758) 452

Any photographs taken when the lionfish was sighted should be attached to the completed form or emailed to the Department of Fisheries for identification and verification at deptfish@maff.egov.lc or to:

Allena Joseph
Fisheries Biologist
allena.joseph@maff.egov.lc

Thomas Nelson
Fisheries Biologist
thomas.nelson@maff.egov.lc

Sarita Williams Peter
Fisheries Biologist
sarita.peter@maff.egov.lc

Once sighting has been confirmed:

- local press release, signed by the Permanent Secretary of MALFF, should be sent to all media houses.
- the report is posed to carib_ias_threat@yahoogroups.com
- post to USGS non-indigenous aquatic species database: <http://nas.er.usgs.gov/SightingReport.aspx>
- post on NEMO website

ALL lionfish caught dead or alive should be brought to the Department of Fisheries.

Organisations and individuals able to respond to lionfish sighting and remove lionfish (proposed)

Name	Contact Information
DOF	
SMMA	
ANBAGLO/ Dive operators	

Lionfish Capture/ collection Protocol

Care must be taken when capturing lionfish because of their venomous spines. Training in lionfish capture protocol should be provided to key stakeholder groups namely Fishers, Dive operators- licensed dive leaders, Fisheries Officers, SMMA Rangers.

COLLECTION

1. Lionfish are relatively stationary reef fish, thus allowing you to get quite close before attempting to net or spear it
2. Heavy gloves should be worn at all times when handling lionfish in order to reduce the risk of envenomation. **The First Aid Guidelines should be reviewed and appropriate first aid equipment on hand (e.g. Hot packs).**
3. Captured lionfish should be brought immediately to the boat or to shore and placed on ice in a cooler or bucket. (If ice is not available, coolers or buckets should be filled with seawater).
4. Coolers that contain lionfish should be kept closed at all times and stored in a safe location either onboard the vessel or both while in transport in order to minimize the likelihood of accidental envenomation.
5. Lionfish specimen identification cards should be made and taped to the lids or sides of respective coolers or buckets as soon as captured fish have been stored away for transport. Identification cards should include:
 - a. Your name and contact information
 - b. The location of the captured lionfish
 - c. The approximate depth of the water in which the lionfish was found; and,
 - d. The date that the lionfish was captured.
6. Lionfish should be left on ice for at least 30 minutes and should show no signs of movement (check the gills) before you attempt to handle the fish. The use of clove oil to immobilize the specimen is also recommended to ensure safety prior to handling the specimens.
8. Dead lionfish specimens should be placed individually and head-first into separate, resealable heavy duty plastic bags (e.g. plastic Ziploc[®] freezer bags) or plastic containers

Equipment needed for lionfish capture

- Gloves
- Hand nets- size:
- Spear gun or collapsible pole spear
- Fuel for vessels used in responding to reports of lionfish
- Filled scuba tanks for persons responding (Anse Chasnet Hotel, Le Sport)

- Vessel hire to monitor and respond to lionfish reports
- Clear dry bags- to place lionfish during collection.

Training should include:

Accurate lionfish identification

- Accurate reporting
 - How to fill out forms
 - Photographing a lionfish
- How to mark the location of a lionfish if it is not collected or killed
- How to collect or kill a lionfish safely and without damaging habitat
- How to handle a live or dead lionfish
- How to prepare a lionfish for dinner

Appendix

- Members of Lionfish Taskforce and contact.
- Lionfish sighting Report Form
- Map of Saint Lucia
- Public Awareness Materials Produced To- date.