

Communication plan

Lionfish invasion



October 2009

STINAPA Bonaire

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1. Summary

Since the start of the nineties the lionfish (*Pterois volitans*;) has been spreading at a rapid pace over the Caribbean Sea. The lionfish is originally from the Pacific Ocean and the Red Sea. It has no natural enemies in the Caribbean and reproduces explosively.

To be prepared for the arrival of the lionfish the Bonaire National Marine Park (BNMP) in cooperation with Reef Environmental Education Foundation (REEF) organized 2009 a workshop in 2009. Based on this workshop a Lionfish Response Plan was developed in July 2009. This action plan is also used by the Bonaire National Marine Park to limit the damage the lionfish is causing. It is impossible to stop the lionfish's march or to exterminate it entirely. Therefore the action plan is aiming at controlling the problem.

The biggest communication problem is that many target groups have little to no knowledge and awareness of the phenomena and the possible consequences. Even so the commitment of many is necessary to be able to manage the control of the problem. The issue is to inform and motivate all those concerned in time so that everyone can contribute his or her part to the realization of the action plan.

Regarding communication there is a distinction between primary and secondary target groups. Primary target groups play a role on the local level in sighting and fighting the lionfish. Secondary target groups locally do not have an active role in sighting or fighting but they should be informed. Communication targets are formulated for both target groups. For the primary group these are also quantified and an achievement target is provided.

The intention of the communication message to the target groups, is to the point, convincing and solution aimed.

The choice of the means of communication is pragmatically based, with the emphasis on meetings, press releases and interviews. Posters and flyers make up the printed materials.

2. Action plan

2.1. Background

Since the beginning of the nineties the lionfish (*Pterois volitans*) is spreading at a rapid pace in the Caribbean. The lionfish is originally from the Pacific Ocean and the Red Sea. The fish has no natural enemies in the Caribbean Sea and reproduces explosively. There is no question if this fish will reach the seas around Bonaire, but when.

Besides the rapid reproduction, the great appetite is another nature of the lionfish. This is why its presence has a quite negative influence on the biodiversity and the ecosystem. So there is a question of an invasive species of fish. Furthermore the lionfish is also a menace for the human being because of the venomous spines the fish is armored with.

To be prepared for the arrival of the lionfish the Bonaire National Marine Park (BNMP) in cooperation with Reef Environmental Education Foundation (REEF) organized a workshop on Bonaire in 2009. This workshop was financed by the Dutch Caribbean Nature Alliance (DCNA). Based on this workshop the St. Eustatius National Marine Park manager developed a Lionfish Response Plan in July 2009. Elements from this action plan are also being used by the Bonaire National Marine Park to limit the damage the lionfish causes. It is impossible to stop the lionfish march or to exterminate the fish. So the action plan is aiming at controlling the problem.

For more information about the lionfish, its spread over the Caribbean and its consequences you are referred to the Lionfish Response Plan, further on referred to as the action plan.

2.2. Action plan (Lionfish Response Plan)

In the action plan the problem is defined, the goals are determined and the implementation of the different activities is described.

- *Problem definition*

The arrival of the lionfish on the Bonaire reefs causes the following problems:

- negative influence on the biodiversity;
- negative influence on the ecosystems of the coral reefs;
- negative influence on the reef fishery;
- negative influence on (diving)tourism and water recreation;
- threats for the health of swimmers, divers and fishermen.

- *Goals*

The action plan main goal is to control the negative consequences the lionfish has on the ecosystem, the community and the economy.

Derived goals aiming at:

- Communication and tuning;
- Education and information;
- Research and development;
- Planning and evaluation;
- Management.

- *Phasing*

The action plan consists of two phases:

1. the preparation phase, this is the phase before the lionfish has been sighted in the Bonaire seas;
2. the control phase, this is the phase after the lionfish has been sighted in the Bonaire seas.

- *Implementing the action plan*

In the action plan activities are mentioned that should contribute to the control of the lionfish invasion. The activities vary from field research and laboratory research to information exchange and publicity. The implementation is resumed in the following tables.

Table 1: Implementation of the preparation phase (Step 2 not to be executed till the lionfish arrival has been confirmed)

Action	Step 1	Step 2
Education and information for fishermen	x	x
Education and information for divers	x	x
Education and information for STINAPA employees	x	x
Public information	x	x
Fine tuning with other parties and organizations		x
Prey fish research		x
Planning and evaluation: designing protocols	x	
Planning and evaluation: lionfish detection		x

Table 2: Implementation of the control phase (as soon as an action is implemented it should be continued)

Action	Step 1	Step 2
Application of control instruments	x	x
Fine tuning with other parties and organizations	x	
Specimen analysis	x	X
Continued prey fish research	x	X
Continuation of information and education	x	X



3. Communication problem

The rapid spreading of the lionfish over the Caribbean is a phenomenon with huge consequences for the biodiversity and the ecosystems. Besides this march has huge consequences for the recreation, the tourism, the fisheries and hence for the economy. There are also threats for the health of namely the swimmers, the divers and the fishermen.

The spreading of this invasive fish species is not to be stopped for its rapid reproduction, the lack of natural enemies and a surplus of food. It is only a matter of time before the problem presents itself in the Bonaire waters.

The only thing we could do is trying to control the problem. This means that we should start right now with preparations, so we are prepared to deal with the problem when it is here. Different target groups are involved in this. Each target

group demands its own approach. The main communication problem in this is that many target groups have little to no knowledge and present understanding of the phenomenon and its possible consequences. Yet the input of all those involved is necessary later on, to keep the problem under control. It is a matter of getting all those involved informed and motivated on time so everyone can give his or her contribution to the implementation of the action plan.

4. Target groups for communication

Regarding communication primary and secondary target groups are distinguished. Primary target groups play a role on the local level in sighting and fighting the lionfish. Secondary target groups locally do not have an active role in the sighting or fighting but they should be informed.

Primary target groups

- Diving centers employees
- CURO members
- Non CURO Diving schools
- Local divers
- Visitor divers
- Reef fishermen
- Policy officials nature, environment, fisheries (MNB, LVV)
- STINAPA employees
- BNMP volunteers
- CIEE Bonaire (Council on International Educational Exchange)

Secondary target groups

- Water sports people (namely swimmers and snorkelers)
- Doctors, nurses, first-aiders
- Tourism sector
- Press members
- Inhabitants and visitors of Bonaire
- Local and national government
- National and regional nature organizations
- National and regional scientific institutes

5. Communication targets

5.1. Aims for primary target group:

Reach:

At least 95% of the primary target groups have taken notice of one or more means of communication.

Knowledge:

At least 90% of the primary target groups are aware that the lionfish is expected early or later in the Bonaire seas and know the threats this includes.

At least 90% of the primary target group know the contents of the action plan and know what is expected from them.

Attitude:

At least 90% of the primary target group is willing to contribute to the action plan.

Behavior:

At least 85% of the primary target group implements the actions of the action plan.

5.2. Aims for the secondary target groups:

Knowledge:

The secondary target group is aware that the lionfish makes up a threat to our nature and economy.

The secondary target group is aware that the lionfish has venomous spines and therefore should not be caught nor touched.

The secondary target group knows how a sting from the lionfish should be treated.

The secondary target group knows how and who should be warned when the lionfish is sighted.

Attitude:

The secondary target group is aware that the lionfish arrival in our seas is a serious matter and is willing to render assistance to STINAPA.

6. Message

Primary target groups message

- The lionfish makes up a serious threat to the biodiversity and the ecosystems on our reefs;

- And is so also indirectly a threat to our diving tourism, our water recreation and our reef fisheries.
- Although we cannot render the lionfish harmless, but we can get the problem under control.
- For this STINAPA has set up an action plan.
- We also expect your assistance in the execution.

Secondary target groups message

- The lionfish makes up a threat to our nature and our economy.
- The fish has venomous spines and should therefore not be caught nor touched.
- STINAPA has set up an action plan with which the problem is being kept manageable.
- Call STINAPA at once when you spot a lionfish at the phone number [hot line].

7. Intonation, setting and languages

The intonation is to the point, convincing and solution aimed.

In the visual part of the means of communication, a picture of the lionfish is central.



The most important languages are Papiamentu and English, depending of the target groups. This can be supplemented with Dutch as the occasion arises.

In the means of communication the motto and logo of the covering information campaign “Nos ta biba di Naturalesa” is used.

NOS TA BIBA DI NATURALESA



Traha huntu na un desaroyo duradero pa Boneiru

Communication sender is STINAPA Bonaire. This is made visible by the logo and a colophon.



8. Phasing

In the communication phasing there is a match with the action plan phasing. The action plan has two phases:

1. the preparation phase, this is the phase *before* the lionfish is sighted in the Bonaire seas;
2. the control phase, this is the phase *after* the lionfish is sighted in the Bonaire seas.

9. Communication activities and means of communication

9.1. Means matrix

Nr.	Means of communication	Target groups	Aims	Phase	Edition format
1.	STINAPA Workshops	STINAPA	instruction	1	5
2.	Press conference Action plan start <ul style="list-style-type: none"> • PowerPoint presentation • press releases • press documentation 	Press	Publicity Action plan	1	1 3
3.	Information meetings diving centers	diving centers	instruction	1 / 2	2
4.	Poster diving centers	diving centers	publicity	1 / 2	100 / A3 / fc
5.	Flyer diving centers	diving centers	instruction	1 / 2	1.000 / A4 / fc
6.	Information meeting fishermen	Fishermen	instruction	1 / 2	3
7.	Poster fishermen	Fishermen	publicity	1 / 2	100 / A4 / fc
8.	Information meeting tourism sector	tourism sector	publicity	1 / 2	1
9.	Press release local divers	Press	appeal	1	1
10.	Information meeting volunteers, BNMP, CIEE, MNB, local divers	volunteers, locale divers, CIEE, MNB remaining interested persons	instruction	1	1
11.	Press release sting treatment	Press	instruction	1 / 2	1
12.	Interview radio/TV	Press	publicity	1 / 2	?
13.	Press release 1 st sighting	Press	publicity	2	1
14.	Press release reporting sightings	Press	instruction	2	1
15.	Web page STINAPA site	All	publicity	1 / 2	1
16.	Articles in Makubekèn	All	publicity	1 / 2	4

9.2. Description means of communication

1. Workshops STINAPA (Papiamentu)
The STINAPA employees and eventual BNMP volunteers should be familiarized with the action plan, protocols, forms, means of communication and such alike.
2. Press conference start of action plan (Papiamentu, English, eventually Dutch)
Contents of presentation, press releases and press documentation:
 - description of the lionfish
 - spread over Caribbean
 - reproduction and feeding
 - behavior
 - consequences for nature and economy
 - health threats fishermen, divers and water lovers
 - action plan aims
 - action plan target groups
 - action plan phasing
 - means of communication
 - appeal for assistance
 - hot line
3. Information meetings diving centers (English)
Diving centers employees get instruction about the protocol for the lionfish sighting. To reach as many employees as possible there will be at least two meetings.
4. Poster diving centers (English)
The A4- or A3 format poster appeals to report sightings and refers to the flyer for more information.
5. Flyer diving centers (English)
The flyer (folded A4) is available at all diving centers and contains information about the problem, how to act at sighting and how to act when stung.
6. Information meeting fishermen (Papiamentu)
There will be three meetings for the: Playa Frans, Playa and Lac fishermen.
7. Poster fishermen (Papiamentu)
The poster (A4) in fact is a combination of poster and flyer. The poster appeals to report sightings. On the backside there is concise information about the problem, how to act at sightings and how to act when stung.
8. Information meeting tourism sector (English)
Meeting to get the tourism sector informed about the action plan.

9. Press release local divers (English)
Appeal to local divers to do and report sightings at STINAPA.
10. Instruction meeting BNMP volunteers and such alike (English)
Meeting to inform volunteers about the action plan and eventually to instruct about protocols, forms, means of communication and such alike.
11. Press release sting treatment (Papiamentu, English, Dutch)
Instruction what to do when stung.
12. Radio & TV interviews (Papiamentu)
Interviews to be given to the most important radio and TV stations.
13. Press release 1st sighting (Papiamentu, English, Dutch)
Announcing the first sighting in the Bonaire seas.
14. Press release reporting sighting (Papiamentu, English, Dutch)
Announcing how and where sighting should be reported.
15. Web page STINAPA site (English, Papiamentu)
A special page about the lionfish.
16. Articles Makubekèn (Papiamentu, Dutch)
Information about the problem and the action plan. Instruction about sightings and how to act when stung.

10. Organization and implementation

The communication plan is being discussed and approved by the STINAPA staff and board. The implementation is being organized and coordinated by the Department of communication and education. They prepare presentations, make up texts and take care of the production and distribution of the means of communication.

11. Budget

At the moment estimated at Nafl. 25.000,-

This sum is not included in the 2010 budget. Due to the worldwide financial crisis, we foresee no growth in the incomes for 2010. The budget for 2010 is a minimal budget to maintain the management of the parks. All additional expenses like for information and communication were left out. The STINAPA board will have to decide about financing this communication plan.

Appendix A: Lionfish Action Protocol

Lionfish Action Protocol

This protocol outlines the actions to be taken in the event of a reported lionfish sighting, on lionfish collection dives, on preyfish surveys, and during specimen processing. Lionfish are toxic animals that cause a very painful sting. All actions should be completed with extreme caution. **IF STUNG BY A LIONFISH RINSE AREA IN NEAR SCALDING HOT WATER FOR THIRTY MINUTES. APPLY DISINFECTANT SUCH AS IODINE, HYDROGEN PEROXIDE SOLUTION, OR RUBBING ALCOHOL AND SEEK EMERGENCY MEDICAL ATTENTION IMMEDIATELY.**

Follow the outlines of this protocol precisely.

If a lionfish is reported by phone or in person:

FILL IN LIONFISH SIGHTING FORM:

1. Note name, address, and contact information of the person reporting
2. Note activity of person when sighting was made (fishing, diving, snorkeling, swimming etc.)
3. Note time of sighting
4. Note location where lionfish was reported by site/ location name
5. Note particulars on sighting location and nature of sighting i.e. depth, location on site where lionfish were spotted, number of specimens, and activity of specimens while sighted.

If a lionfish is brought into STENAPA offices or collected:

FILL IN LIONFISH SIGHTING FORM:

1. Note name, address, and contact information of the person delivering specimen
2. Note location where specimen was caught
3. Note time when specimen was caught
4. Note fishing method used when specimen was caught (hook and line, fish traps, spearfishing)

5. Note bait type used to catch specimen
6. Store specimen in a secure cooled area such as ice filled cooler or fridge until specimen can be processed
7. Follow processing protocol while processing

LIONFISH CAN REMAIN ALIVE FOR QUITE SOME TIME OUT OF THE WATER. DO NOT ASSUME THAT A LIONFISH OUT OF THE WATER FOR A SIGNIFICANT PERIOD OF TIME IS SAFE TO HANDLE. ALWAYS USE EXTREME CAUTION WHILE HANDLING LIONFISH. A LIONFISH CAN STILL STING WHEN DEAD.

When on species collection:

Items to bring on collection trips (in addition to usual dive related equipment):

1. **Lionfish Specimen Collection Data Sheets**
2. Collection nets
3. clipboard
4. PVC gloves
5. Cooler filled with ice
6. Thermos with hot water or hot packs (in case of sting)
7. First Aid kit (already onboard but double check)
8. Pliers

While on dive:

One member of dive the team designated as specimen collector (carries nets and wears gloves); one diver to photograph specimen and record information on Lionfish Specimen Collection Data Sheets, other divers to act as safety divers and to ensure a visual is always kept on specimen

Follow collection procedure as learned in practical training

When back on board:

Remove specimen using pliers and wearing PVC gloves

Store specimen in cooler

If specimen needs to be euthanized use Eugenol Solution

When On Preyfish Surveys and Lionfish Sweeps:

Items to Bring:

1. **Preyfish Survey Data Sheets**
2. Tape for Transect Lines
3. Clip Boards
4. Pencils

Survey Dives should be conducted by a minimum group of 4 divers.

Two divers lay out 50 m transect line and wait at the end of the transect line. Diver counting fish species waits five minutes after transect line is laid and then counts fish species recording information on data sheets, another diver accompanies recording information on substrate composition. Transect line is rolled up by divers who rolled out line initially.

When on Lionfish Sweeps:

On day to day diving operations lionfish sweeps can be conducted. During lionfish sweeps pay attention to overhangs, under ledges, and in overhead areas for the presence of lionfish. If a lionfish is sighted note depth, dive site, water temperature and approximate location on the reef.

ALWAYS PRACTICE SAFE DIVING PROCEDURES

When lionfish specimen is being processed:

Items to bring while processing:

1. Lionfish Processing Data Sheets
2. Measuring tape

3. Filet knife
4. Container for stomach content analyses
5. Vials containing DMSO solution for genetic samples
6. Surgical Scissors
7. Latex Gloves
8. Tweezers
9. Dissection board

Use lionfish data sheet to record relevant information

Safely discard carcass after processing (one specimen should be preserved in formaldehyde solution for display purposes)

LIONFISH CAN REMAIN ALIVE FOR QUITE SOME TIME OUT OF THE WATER. DO NOT ASSUME THAT A LIONFISH OUT OF THE WATER FOR A SIGNIFICANT PERIOD OF TIME IS SAFE TO HANDLE. ALWAYS USE EXTREME CAUTION WHILE HANDLING LIONFISH. A LIONFISH CAN STILL STING WHEN DEAD.



Lionfish Sighting Form

Please fill out precisely

Date: (dd/mm/yy) ___/___/___

Time: _____

Name of reporter: _____

Telephone #: _____

Location of sighting:

Dive Site:

Did you mark the location?: y ___ n ___

Distance from the mooring: _____ meters/feet.

Orientation: North – South – East – West

Depth: _____

Date of sighting: (dd/mm/yy) ___/___/___

Time of sighting: _____

Number of specimen observed: _____

Data recorded by: _____

The Lionfish Are Coming!! Dive Industry information night



Lionfish do not belong in our waters and can have a very negative impact on our fish population and coral reef.

But there is more that you need to know!!

Come to the

Presentation & Information session

where you will get more information and the opportunity to ask questions.

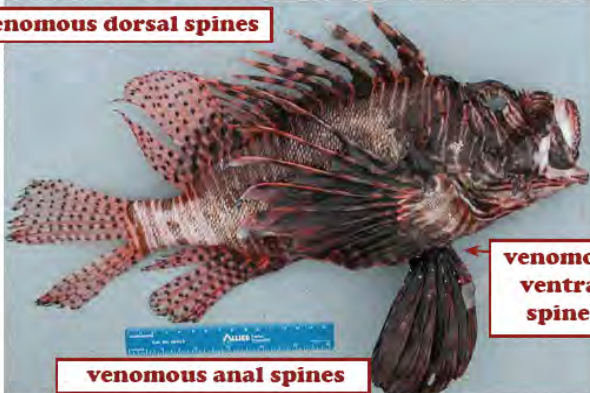
Date:

Location:

Time:

Divers, Have You Seen Me?

venomous dorsal spines



venomous ventral spines

venomous anal spines

The venomous Indo-Pacific 'Lionfish' is regularly observed in habitats within the southeast region (Florida to North Carolina) and the Bahamas. These fish are not native to Atlantic waters and may have a negative impact on native fish populations. **All of their spines are venomous and can cause extreme pain!** If stung, immerse wound in hot water and seek medical attention as soon as possible.

Identification:

- Lionfish have distinctive red, maroon, and white vertical stripes;
- Fleshy tentacles above eyes and below mouth;
- Fan-like pectoral fins;
- 13 long separated dorsal spines;
- 10-11 dorsal soft rays;
- 3 anal spines;
- and 6-7 anal soft rays;
- An adult lionfish can grow as large as 18"

Lionfish are a major threat to local fish species. Because fish do not see lionfish as a predator they have no natural defense against it. Lionfish can kill all the commercial fish in local waters, destroying local fishing population and coral reef.

IT IS VERY IMPORTANT THAT IF YOU SEE OR CATCH A LIONFISH YOU REPORT IT IMMEDIATELY TO THE BONAIRE NATIONAL MARINE PARK: 717-8444 or 786 8444



Lionfish underwater

IF CAUGHT DO NOT THROW FISH BACK.

IF STUNG IMMEDIATELY IMMERS WOUND IN HOT WATER AND SEEK MEDICAL ATTENTION IMMEDIATELY

Handle with Extreme Caution: If sighted report location, depth, and description to the Bonaire National Marine Park: 717-8444 or 786-8444



Bonaire National Marine Park