



# SABA BANK MANAGEMENT UNIT

Activity Report 2016

by Jens Odinga – October 2016

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Saba Conservation Foundation (SCF)

Department:

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## INTRODUCTION

The Saba Bank Management Unit (SBMU) is responsible for the operational management of the Saba Bank. Its current tasks are to perform scientific fisheries monitoring, as well as conduct and support additional scientific research on the Saba Bank. The SBMU also assists other activities within the Saba Conservation Foundation, mainly with regards to the Saba Marine Park. Its ultimate goal is to support and promote the conservation of marine biodiversity on the Saba Bank.

For its fisheries monitoring and most other scientific research projects the SBMU collaborates with IMARES (Institute for Marine Resources and Ecosystem Studies). The tasks within the SBMU are carried out by the Saba Bank Park Officer in close cooperation with the Saba Bank Captain and staff of the Saba Conservation Foundation. Interns and graduates from various universities in the Netherlands, mainly Wageningen University and Van Hall Larenstein University of Applied Sciences, assist in some additional project activities.

The Saba Bank for the larger part falls within EEZ territory of the Kingdom of The Netherlands and is governed by the Dutch Ministry of Economic Affairs. The committee for the joint management of the Marine Biodiversity and Fisheries of the Dutch Caribbean EEZ (EEZ Committee) provides policy advice regarding the Saba Bank to the Dutch Ministry of Economic Affairs. Through this document the SBMU reports to the EEZ Committee on its activities in 2016.

## RESEARCH PROJECTS

### Fisheries monitoring (ongoing)

Commercial fisheries on the Saba Bank consist of a small-scale fishing fleet, consisting of 10 licenses with 8 active fishing vessels, mainly targeting Caribbean spiny lobster and red fish (snapper). To enable status assessments of fish populations, commercial fishing activities on the Saba Bank are monitored through an intensive fisheries monitoring program in collaboration with IMARES. This monitoring program consists of port and onboard sampling of the entire Saba fishing fleet.

Fishing effort is monitored on a daily basis through a trip log. Catch per Unit of Effort (CpUE) for lobster and red fish is monitored through interviews with the fishermen (short interviews). In these interviews additional data is collected on marine mammal sightings and bycatch of shark and lionfish. Data on fishing with other gear types like pelagic trolling and long lining is also collected. Around 30 – 40 short interviews are conducted each month. During port sampling or onboard sampling length frequencies are obtained of lobster, red fish and mixed fish (bycatch species), as well as species composition (long interviews). During onboard sampling data on discards is obtained. Around 8 long interviews are conducted each month (4 lobster, 2 red fish and 2 mix fish).

IMARES is currently analyzing the fisheries data collected since 2011 and a report was expected in September 2016.

### Global Coral Reef Monitoring Network (GCRMN) surveys (ongoing)

Annual coral reef surveys following the Global Coral Reef Monitoring Network (GCRMN) protocol are conducted in the Saba Marine Park. The GCRMN survey in 2016 is a repetition of the initial survey conducted in 2015, both during the months of September until December. During the fieldwork period all 20 dive sites in the Saba Marine Park are surveyed and data and information is collected on:

- Reef fish abundance, species diversity and biomass
- Corals, gorgonians, sponges and algae cover
- Coral health (prevalence of disease)
- Coral recruitment
- Macro invertebrate abundance (algae control)
- Water quality (visibility) and habitat complexity (rugosity)

The above information is obtained from each dive site along 5 transects of 30 meters each. Reef fish abundance, species diversity and biomass is collected using a Diver Operated Video (DOV) system. These videos are later analysed using the software EventMeasure — identifying and measuring the length of each fish present on the videos. The benthic substrate is surveyed by taking pictures every other meter along the transect. Coral Point Count software (CPCe) is used to randomly overlay 25 points on each picture. The substrate, e.g. coral species, sponges, algae etc.) under these points are then identified. This will provide information on the percentage of coral cover at each site. Coral recruits and algae height are also measured along the first 3 transects by placing a 25 x 25 cm quadrant every other meter for the first 10 meters. In these quadrants, the amount of coral recruits is counted and algae height is measured. Data from all 20 dives sites will be compared to last years' data and to data from the rest of the Caribbean.

This project will provide an assessment and trend on the health of reefs in the Saba Marine Park. The standardized GCRMN protocol, which is used across the Caribbean, enables comparisons between regions and locations.

The GCRMN surveys are conducted in collaboration with IMARES and support from interns from Van Hall Larenstein University and SCF marine park rangers. In 2016 these students were Jana Hildebrand, Iris Menger and Aaron Bakker.

### Red Hind surveys (ongoing)

Around the full moons from 1<sup>st</sup> December until 28<sup>th</sup> February a Red Hind spawning aggregation takes place at the Moonfish Bank in the northeast of the Saba Bank. Historically the Moonfish Bank has been heavily exploited and has been completely closed for fishing during this period. A baseline survey has been conducted in the 2015/2016 season and will be repeated for the upcoming season (2016/2017). In this survey the Red Hind abundance, length and biomass is observed between the different lunar cycles. Two different locations on the Moonfish Bank will be surveyed either using the Diver Operated Video (DOV).

### Shark migration patterns (ongoing and upcoming)

#### **Acoustic telemetry – Caribbean reef sharks and nurse sharks (ongoing)**

Shark migration patterns are being studied through a research project supervised by IMARES (Erwin Winter and Ingrid van Beek). The project is to understand more about sharks and their behaviour and to determine genetic relationships between shark species. Since 2014 a total of 28 sharks (21 Caribbean reef sharks and 7 nurse sharks) have been tagged using acoustic telemetry. Sharks have tagged around Saba in the Saba Marine Park, on the Saba Bank, around Sint Maarten and around Statia. In total 32 acoustic receivers or detections stations have been placed around these islands, from which the data will be collected in November 2016. In addition to the acoustic telemetry genetic samples were also obtained from tagged nurse sharks. The following information will be obtained from this study:

- Which habitats are used (e.g. for feeding, nursery), and how strong is site fidelity to these habitats?
- What are seasonal distribution patterns?
- Meta-population structure; local populations or large scale mixing populations?
- Dispersal; do sharks disperse from natal areas, or from areas with high densities?
- Migration: do large scale cyclic movements occur for a substantial part of the population?
- Connectivity; what are exchange rates between local populations, e.g. between islands?

#### **Satellite telemetry – Tiger sharks (upcoming)**

Another shark migration pattern study will be conducted in the waters of Sint Maarten and on the Saba Bank. Through stereo Baited Underwater Video (sBRUV) surveys it has been observed that juvenile tiger sharks inhabit the waters around Sint Maarten and larger adult tiger sharks have been observed on the Saba Bank. These observations are supported by anecdotal information. This project aims to investigate the shark migration patterns of migrating shark species like the tiger shark. Through this study it will also be investigated whether there is a relationship between juvenile tiger sharks on the Anguilla Bank (Sint Maarten waters) and adult mature tiger sharks on the Saba Bank. I.e. is the Anguilla Bank a nursery area for juvenile tiger sharks that later migrate to the Saba Bank and beyond.

For this study satellite and spot tags will be deployed on tiger sharks and other less observed shark species. The project is funded through the Save Our Sharks project and is executed in collaboration with the Dutch Caribbean Nature Alliance (DCNA), Saba Conservation Foundation (SCF), Nature Foundation Sint Maarten, Sharks4Kids and the Florida International University (FIU). In June 2016 the Saba Bank Management Unit and Nature Foundation Sint Maarten have been trained in setting up fishing gear and tagging and releasing of sharks. During the first 2 weeks of October the SCF marine park rangers will be trained, additional fishing gear will be setup and the first tagging will take place in Sint Maarten waters. From 15 until 21 October 2016 the shark tagging will take place on the Saba Bank.

### Lobster and Red Fish Escape Vents (finalized)

During 2015 and 2016 a research project was conducted to investigate a fish trap design with escape vents in lobster and red fish traps with the aim to reduce bycatch. The escape vents are rectangular slots in the fish traps with 3 different sizes. This research project has been finalized in May 2016 and results on this project are expected from IMARES (Martin de Graaf) towards the end of this year.

### Marine mammal acoustics (finalized)

The Saba Bank has been equipped with two acoustic noise loggers over 2015 and 2016 to support marine mammal research on Saba Bank. This research was conducted by Dick de Haan from the Institute for Marine Resources and Ecosystem Studies (IMARES) and facilitated by the SBMU and SCF. Since deployment the acoustic hydrophones have serviced every month and they have been retrieved at the end of August 2016. Due to ceased funding allocations from EZ to IMARES this project has been finalized until further notice. Results from this project are expected from IMARES (Dick de Haan) – expected date is unknown.

## Fisheries developments and suggestions

### Closed season for Red Fish

Since May 2016 several fisheries meetings have taken place. In these meetings several concerns and suggestions by the fishermen have been heard and discussed. The main concerns being illegal fishing and the decline of Red Fish stocks in population and size. The discussion around the setup of a fisheries organization or association for Saban fishermen has been initiated by the Saba Bank Park Officer and was welcomed by all fishermen. During the same period a participatory action research by 7Senses (Madelon Eelderink) was commissioned by DCNA through the Save Our Sharks project. This research interviewed the Saba community, including fishermen, to investigate their views on nature and the marine ecosystems around Saba. The results from this research, have led the Saba fishermen to come up with a fishermen's agreement. In this agreement they agreed on the following:

1. Establish a **fishermen's organization**
2. Establish a **closed season for Red Fish** for 6 months for the entire Saba Bank from 1<sup>st</sup> of April 2017 until 30<sup>th</sup> of September 2017
3. Set a **trap limit** of 25 Red Fish traps from 1<sup>st</sup> October 2017 until the next agreed upon closed season
4. Allow a **maximum of 4 vertical longlines** for Red Fish per fishing boat during closed season for Red Fish
5. **Not intentionally catch sharks and to throw unintentionally caught sharks back alive**
6. Use **bigger mesh sizes**: all fishermen will use 2 inch square mesh wire for at least the trap doors
7. In cooperation with the government and coast guard, arrange **patrolling** for illegal fishing

This agreement was supported by all active fishing license holders and was presented to the local government council. The research was finalized in August 2016.

### Fisheries regulations and enforcement

The regulatory measures in this agreement are in line with conservation goals for the Saba Bank and should be backed up by changes to fisheries legislation. Without a legal basis, the enforcement of these regulations will be impossible. If these regulations were legally implemented, it would be a substantial achievement that would empower the Saba community and send a strong message worldwide; that local fishermen can play a role in fisheries governance.

Other regulations and enforcement issues with regards to fisheries to be discussed are:

- The relevance of the exemption of a maximum of 4 hand- or draglines in current legislation. This exemption complicates enforcement, especially during the Red Hind spawning aggregation season. During this period fishermen from around the region, including non-license holders and foreign, come to the Moonfish Bank to fish for Red Hind. According to the fishermen the fishing pressure during that period puts an immense pressure on Red Hind populations.
- Increased patrols, especially during the Red Hind spawning aggregation season.
- The possibility of implementing a mandatory AIS requirement for commercial fishermen. In combination with the alteration of current legislation, this can simplify legal enforcement.
- The relevance of the requirement of biodegradable panels in fish trap doors. Results from this research on this measure have not been conclusive.

## Other SBMU activities

Other activities by the Saba Bank Management Unit have been AIS commercial shipping monitoring, assisting the Saba Marine Park rangers in yacht and dive mooring maintenance, support the local videographer in the creation of a Saba Bank documentary. In addition the following activities have taken place.

### Boat maintenance

During July and August 2016 overdue maintenance activities have taken place on the Queen Beatrix. A summary of maintenance activities: The engine has been given a complete checkup and transmission and fuel pump have been repaired and worn off parts have been replaced. The propeller was repaired and the hull has been repainted with antifouling. Electronics have been serviced and malfunctioning navigation and depth sounder equipment repaired.

### Visit by Ministry of Economic Affaires delegation including Henk Kamp

On August the 28th, Saba received a visit from a delegation of the Dutch Ministry of Economic Affairs, including its Minister Henk Kamp. The Saba Conservation Foundation and Saba Bank Management Unit gave short presentations on its activities, goals and progress, after which the delegation was taken on a short cruise with the Queen Beatrix. The Minister expressed his gratitude and support for our activities.

### Shark cage

The shark cage has been deployed on the Saba Bank. It is envisaged this shark cage will be used during the Shark Tagging Expedition in October and after this further plans will be developed to use the shark cage, potentially for commercial scuba diving enterprises by a new dive operator on the island. These plans need to be developed together with policy advisors to ensure an adequate purpose.

### Fisheries meetings

See Fisheries developments.

## Yearly Activities 2016

### May 2016

- Transfer of duties with Dahlia Hassel (1 week)
- Port sampling of fisheries
- Fisheries monitoring data entry
- Meeting with fishermen
- Inventory and update IMARES scuba equipment
- Check and clean at coral nursery
- Saba Bank red fish escape vent project
- Organize chum for shark tagging project
- Service acoustic noise loggers
- Sharkweek meetings
- Move ERIKA (donated rescue vessel)
- Organize and conduct GCRMN species ID staff presentation
- Clean Queen Beatrix cabin
- Clean Queen Beatrix hull
- Fix Queen Beatrix front hatch
- Assist in marine park mooring maintenance
- Organize sharkweek Dutch press dinner
- Record Dutch Shark Stanley audiobook
- Search for accommodation for interns for upcoming GCRMN surveys

### June 2016

- Running adaptive management workshop with WNF at STENAPA (Kai participated)
- Introductory meeting with Paul Hoetjes and Guus Schutjes on Statia
- Introductory meeting with Pieter van Baren on Statia
- Port sampling of fisheries
- Fisheries monitoring data entry
- Haul and land red fish escape vent traps
- Talk to fishermen regarding buy back of fish traps with escape vents
- Preparations for shark tagging training on SXM
- Assist in event activities during Sharkweek
- Service acoustic noise loggers
- Preparations for visit by Dick de Haan (IMARES) for marine mammal acoustic research
- Interview with Chizzilala for Saba Bank documentary
- Assist in IT related issues at SCF office
- Assist in marine park mooring maintenance
- Inventory list IMARES research gear
- Back to NL to relocate family



### July 2016

- Back to NL to relocate family
- Port sampling of fisheries
- Fisheries monitoring data entry
- Preparations for visit by Sybrand Buma and family (CDA fraction leader)
- Clean cabin and workspace on Queen Beatrix
- Hike Mt. Scenery and snorkel at Torrens Point with Buma family
- Gauge interest with fishermen in another fisheries meeting
- Organize and prepare fisheries meeting
- Fisheries meeting
- Skype sessions and preparations for upcoming shark tagging expedition
- Take Queen Beatrix out of the water
- Queen Beatrix maintenance: remove engine and transmission, remove frame and canopy
- Clean Queen Beatrix hull
- Assist in marine park mooring maintenance
- Review of TOR on SBMU evaluation
- Search for accommodation for interns for upcoming GCRMN surveys

### August 2016

- Port sampling of fisheries
- Onboard sampling of fisheries
- Fisheries monitoring data entry
- Emergency First Response course
- Emergency Oxygen use course
- Knowledge reviews for Rescue Diver course
- Preparations for visit by Dick de Haan (IMARES) for marine mammal acoustic research
- Retrieve acoustic noise loggers
- Assist Dick de Haan with work on acoustic noise loggers (data transfer, cleaning and storage)
- Queen Beatrix maintenance: assist in work on engine
- Queen Beatrix maintenance: cleaning and sanding of hull
- Queen Beatrix maintenance: painting of hull
- SBMU steering committee meeting
- Meeting with Yves Renard for SCF institutional review
- Organize and prepare fisheries meeting
- Fisheries meeting
- Skype sessions and preparations for upcoming shark tagging expedition
- Assist in marine park mooring maintenance

### September 2016

- Port sampling of fisheries
- Onboard sampling of fisheries
- Fisheries monitoring data entry

- Rescue Diver practical course
- Participate in SCF institutional review workshop (during 1 week)
- GCRMN survey fieldwork
- Meeting with Coast Guard (Glen Werleman and team) and harbor office (Travis Johnson)
- Search and rescue of NIOZ R/V Pelagia research instrument on Saba Bank
- Skype sessions and preparations for upcoming shark tagging expedition
- Prepare presentation for EEZ meeting

#### October 2016

- Attend shark expert workshop on Bonaire
- Attend EEZ committee meeting on Bonaire
- Report on annual Saba Bank Management Unit activities at EEZ committee meeting on Bonaire
- Attend DCNA shark committee meeting on Bonaire (observing for Kai)