

**TERMINAL MISSION REPORT**

**SATELLITE TAGGING AND BIOPSY SAMPLING CAMPAIGN  
MEGASAT REPRODUCTION AREA – North West Indies (N.W.I)**



## A - Synthetic description of the project



Monitoring of the annual migration of humpback whales (*Megaptera novaeangliae*) in the area of the Northern Lesser Antilles (Saint-Martin, Sint-Maarten, Anguilla, Saba, Statia, Saint-Barth) with deployment of :

- 1 – Satellite telemetry in order to document :
  - Movements in the area of the Northern Lesser Antilles
  - Movement between the feeding areas and the tropical breeding areas
- 2 – Sampling of skin and blubber of the two species *Megaptera novaeangliae* and *Physeter macrocephalus* in order to conduct genetic analyses (sex, identification of individuals, affiliation), ecotoxicologic analyses (organic and non organic pollutants) and isotopic analyses ( $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$ ) the latter allowing for tracing feeding sources.

For the manager of the Natural Reserve of St Martin, that initiated and led the project, the goal was, according to the objectives specified by its management plan, to:

- start a training on biopsies and tagging for the 7 staff of the Reserve ;
- develop a catalog of the identifications made through photo ID, biopsies and tagging ;
- get knowledge of the movements of humpbacks whales in the MPA during the breeding season in order to better manage economic activities and transportation of people and goods ;
- raise awareness among the public regarding the presence of the species in the waters of St Martin during almost 6 months a year for humpback whales, and year round for spermwhales ;
- start an education project with the local representation of the Ministry of Education in St Martin and the NGO « My school, my whale » ;
- participate in the research effort undertaken since the creation of the Agoa sanctuary (MoU French MPA Agency/Agoa/Natural Reserve of St Martin)
- participate in the implementation of scientific missions in a regional context (MoU SPAW-RAC/Natural Reserve of St Martin).



Calf close to the coast of Petites cayes in the Natural Reserve of St Martin

## B- Les intervenants et partenaires

Equipe scientifique et technique			
Nom	Institution	Position	Contact
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Responsable Associations			
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Responsables Référents régionaux			
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Kai Wulf	Saba	Manager Marine Park (1 tag provided by the Dutch Min. of Economic Affairs)	<a href="mailto:sababank.science@gmail.com">sababank.science@gmail.com</a>
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Mrs Kafi GUMBS	Anguilla	Senior Officer	<a href="mailto:Kafi.Gumbs@gov.ai">Kafi.Gumbs@gov.ai</a> >
DONS BALISES			
Entreprise Exagone	France	Director Support : 1 tag	<a href="mailto:djouannet@free.fr">djouannet@free.fr</a>

**C- Implementation of and participants in the campaign :**

The campaign took place from March 24 to April 3, 2014

Sunday, March 23 : **Preparation of tagging boat and material**

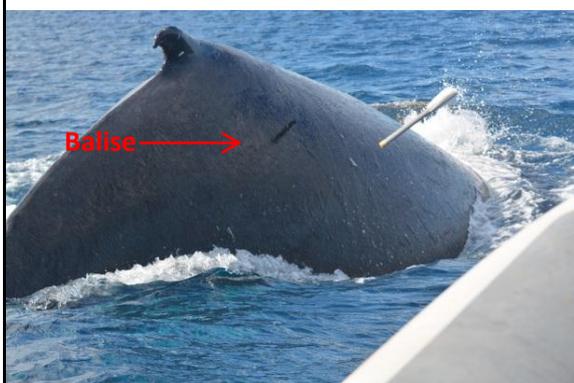
Monday, March 24 : AM : training of MPA staff on theory. Nils, Mikkel, Sabrina and Steeve spend PM on boat to test it and reconnoitre. No whale observed

TUESDAY 25 MARS	DEPARTURE	ARRIVAL	TEAM ON BOARD	DAILY TEAM	DAY 1
	SM (Anse Marcel)	SM (Anse Marcel)	Sabrina FOSSETTE Michel VELY Mikkel VILLUM Nils BERTRAND Nicolas MASLACH HELENE SOUAN Sandra JEAN	Chris JOE Steeve RUILLET Julien CHALIFOUR Romain RENOUX Tadzio B Franck RONCUZZI	

Departure Anse Marcel 8 :30 AM with 3 boats : the catamaran, the patrol vessel of the Natural Reserve, and the inflatable tagging boat (Nils, Mikkel, Sabrina and Jérôme on board)

A total of 4 groups of humpback whales is sighted during the day .

The 1st group composed of a mother and calf sighted just outside of Anse Marchel at 8:20 AM. The 1st tag (#83307, Soca) is successfully deployed on the mother at 8:50PM. Reaction of the mother, i.e fluke flapping, is recorded during tagging. The group was then followed to take pictures of the tag and mother's dorsal fin for identification.



Soca and Joy close to the coast of Wilderness in the Natural Reserve of Saint-Martin (background : Tintamarre islet).



Tagging boat after intervention on Soca close to the coasts of Saint-Martin (Background : beach of Happy Bay).

The 2nd group composed of a mother and calf is sighted in the Anguilla channel at 10:30AM. The calf seeming less than 1 week old, it is decided not to tag the mother. Photo ID is performed. People on the patrol vessel go in water to take submarine pictures.



Mother and young calf in the Anguilla channel

The 3rd group composed of two adults is sighted at 2:03PM close to « Marlin Boulevard ». The individuals are sighted only briefly. No picture could be taken.



The 4th group composed of four adults is sighted at 2:45PM close to « Marlin Boulevard ». The group is probably an active group. Two tags are deployed (#6335 et #22850, Hope). No reaction observed. Photo-ID are taken as well as a biopsy.



Retour Anse Marcel 16h30

Anse Marcel/Anse Marcel

18h30 CONFERENCE SANDY GROUND

WEDNESDAY 26 MARS	DEPARTURE	ARRIVAL	TEAM ON BOARD	DAILY TEAM	DAY 2
LOCATION	SM (Anse Marcel)	SM (MARIGOT)	Sabrina FOSSETTE Michel VELY Mikkel VILLUM Nils BERTRAND Nicolas MASLACH Franck RONCUZZI HELENE SOUAN Sandra JEAN	Chris Steeve Julien Romain R Tadzio Anguilla Team	
<p>Departure Anse Marcel 8 :30 AM with 3 boats : the catamaran, the patrol vessel of the Natural Reserve, and the inflatable tagging boat (Nils, Mikkel, Sabrina and Romain on board)</p> <p>More wind than the previous day. Reserach effort focuses on the waters of St Maarten but no group of whales is sighted.</p> <p>Practical training on biopsies for Romain on the inflatable, and on the catamaran for the rest of the team with handling of crossbow, safety rules and attempts of shooting on targets.</p> <p>Reserach effort resumed in the afternoon north of Anguilla. Nils, Mikkel, Sabrina and Julien on board. . No group of whales is sighted</p> <p>Return Marigot 4:30 PM</p>					
Anse Marcel SXM Marigot					
THUSDAY MARS 27	DEPARTURE	ARRIVAL	TEAM ON BOARD	DAILY TEAM	DAY 3
LOCATION	SM Marigot	SM Marigot	Sabrina FOSSETTE Michel VELY Mikkel VILLUM Nils BERTRAND Nicolas MASLACH Franck RONCUZZI	Chris Steeve Julien Romain R Anguilla Tadzio Anguilla Team	
<p>Departure Marigotl 8 :30 AM with 3 boats : the catamaran, the patrol vessel of the Natural Reserve, and the inflatable tagging boat (Nils, Mikkel, Sabrina and Steeve on board)</p> <p>A lot of wind and swell. Difficult conditions for visual sightings. No group of whales is sighted.</p> <p>Return Marigot 4:30 PM</p>					
Marigot Anguilla Anse Marcel					
FRIDAY 28 MARCH	DEPARTURE	ARRIVEE	TEAM ON BOARD	DAILY TEAM	DAY 4
LOCATION	SM Marigot	St Barth	Sabrina FOSSETTE Michel VELY Mikkel VILLUM Nils BERTRAND Nicolas MASLACH Franck RONCUZZI	Chris Steeve Julien Julien LEQUELLEC Tadzio	
<p>Departure Marigot 8:30 AM with catamaran</p> <p>A lot of wind and swell. Difficult conditions for visual sightings. No group of whales is sighted.</p> <p>Arrival St Barthelemy 3:30PM</p>					
Anse Marcel St Barth			5 PM CONFERENCE		

SATURDAY MARCH 29	DEPARTURE	ARRIVAL	EQUIPE PERMANENTE A BORD	EQUIPE JOURNEE DAILY TEAM	DAY 5
LOCATION	St Barth	St Barth	Sabrina FOSSETTE Michel VELY Mikkel VILLUM Nils BERTRAND Nicolas MASLACH Franck RONCUZZI	Steeve Julien LEQUELLEC Tadzio	

Departure St Bart 8:30 AM with catamaran

Still wind and swell. Difficult sighting conditions but a group of 3 individuals spotted at 11:50PM from catamaran.



Approach and attempt of biopsy from catamaran.



The inflatable is then deployed : biopsy taking on all 3 individuals. Attempt of tagging but Mikkel gives up at the last moment because of rough sea conditions.



Arrival in St Bart at 4:30PM

SUNDAY MARCH 30	DEPARTURE	ARRIVAL	TEAM ON BOARD	DAILY TEAM	DAY 6
LOCATION	St Barth	St Eustache	Sabrina FOSSETTE Michel VELY Mikkel VILLUM Nils BERTRAND Nicolas MASLACH Franck RONCUZZI Steeve RUILLET	Julien LEQUELLEC Tadzio	

Departure St Bart 8:30 AM with catamaran  
 Still wind and swell. Difficult sighting conditions. No whale sightings during the journey to Statia.  
 Arrival in Statia at 4:30PM

MONDAY MARCH 31	DEPART	ARRIVEE	EQUIPE PERMANENTE A BORD/TEAM ON BOARD	EQUIPE JOURNEE DAILY TEAM	DAY 7
LOCATION	St Eustache	Saba	Sabrina FOSSETTE Michel VELY Mikkel VILLUM Nils BERTRAND Nicolas MASLACH Franck RONCUZZI Steeve RUILLET		

Departure Statia 8:30AM with two boats : the catamaran and the inflatable (Nils, Mikkel, Sabrina and Franck on board)

Better sea conditions. Research effort focuses on the area between Statia and Saba. A group of whales composed of two juveniles is sighted in late afternoon on the Saba Bank (i.e approx 5nm south of Saba). Attempted approach and biopsy taking and tagging but with no success. The whales don't let the boats come close.

After 1 hour of attempts, the inflatable leaves the group.



Individuals close to the coasts of Saba.  
 Total research effort = 80nm  
 Arrival in Saba 7PM

TUESDAY APRIL 1ST	DEPARTURE	ARRIVAL	TEAM ON BOARD	DAILY TEAM	DAY 8
LOCATION	Saba	SM Anse Marcel	Sabrina FOSSETTE Michel VELY Mikkel VILLUM Nils BERTRAND Nicolas MASLACH Franck RONCUZZI Steeve RUILLET	...	

Departure Saba 8:30AM with two boats : the catamaran and the inflatable (Nils, Mikkel, Sabrina and Franck on board)  
 Good sea conditions. Research effort focuses first on the Saba Bank where the whales have been sighted the previous day but with no success. Around noon, the inflatable returns to the catamaran and departure for St Martin. No whale is sighted during the journey. At 5:30PM, a pair mother and calf is spotted just opposite Anse Marcel, St Martin. A tag is deployed (#21802), a biopsy is taken as well as photo ID. The deployed tag belongs to the previous generation of tags. The tag has not gone totally under the skin and Mikkel decides to increase the pressure in the shotgun for the next tagging.



Arrival in Anse Marcel at 6:30PM



WENESDAY AVRIL 2	DEPARTURE	ARRIVAL	TEAM ON BOARD	DAILY TEAM	DAY 9
LOCATION	SM Anse Marcel	SM Anse Marcel	Sabrina FOSSETTE Michel VELY Mikkel VILLUM Nils BERTRAND Nicolas MASLACH Franck RONCUZZI F.MAZEAS	Steeve ...	

Departure Anse Marcel 8 :30 AM with 3 boats : the catamaran, the patrol vessel of the Natural Reserve, and the inflatable tagging boat (Nils, Mikkel, Sabrina and Nicolas on board)

Difficult sea conditions. Research effort focuses on the Anguilla channel and « Marlin Boulevard »

A total of 5 groups is sighted :

1st group composed of a mother and calf and an escort, sighted at 10:15AM. Two tags are deployed on the mother and the escort, respectively (#21803 et #6336). Two biopsies are also taken as well as photo ID. The tag on the mother are not gone completely under the skin in spite of a stronger pressure in the shotgun. Mikkel thus decides to increase further the pressure for the escort which has the opposite effect : tag #6336 bounces on the whale, leaving a small scar (cf picture) and sinks. The tagging team does not realise it on the sport but the pictures and videos confirm later the sinking.



The 2nd group composed of a mother and calf is sighted from the catamaran around 11:50PM. No photo IS could be taken.

The 3rd group composed of two adults is sighted at 12:30PM. A tag is deployed (#22849) and this time goes entirely under the skin .A biopsy is taken on the tagged individual and photo ID are taken for both individuals



The fourth group composed of two adults is sighted at 1:20PM. The rough sea conditions and the very active behaviour of the whales make impossible the deployment of the last remaining tag.

The fifth group is sighted from the catamaran during the journey back towards Anse Marcel at 4:45PM. It is actually the pair mother and calf tagged the previous day with tag #21802. Return Anse Marcel 5:30PM

AVRIL 3	DEPARTURE	ARRIVAL	TEAM ON BOARD	DAILY TEAM	DAY 10
LOCATION	SM Anse Marcel	SM Anse Marcel	Sabrina FOSSETTE Michel VELY Mikkel VILLUM Nils BERTRAND Nicolas MASLACH Franck RONCUZZI Steeve RUILLET Julien CHALIFOUR	Steeve ...	
<p>Departure Anse Marcel 8 :30 AM with 3 boats : the catamaran, the patrol vessel of the Natural Reserve, and the inflatable tagging boat (Nils, Mikkel, Michel and Julien on board)</p> <p>Good sea conditions. Research effort focuses on the Anguilla channel and « Marlin Boulevard »</p> <p>A total of 2 groups is sighted :</p> <p>The first group is composed of a mother and calf, it is sighted at 10:10AM from the catamaran. Pictures are taken.</p> <p>The 2nd group initially composed of 4 adults is then joined by 4 other individuals, thus resultin in an active group of 8 whales. The group is sighted at 10:50AM. The last tag (#22853) is deployed. 4 biopsies are taken including one from the tagged whale, and pictures of all 8 individuals are taken.</p>					
					
<p>Return Anse Marcel 3PM.</p> <p>End of campaign 3PM</p>					

Summary : A total of 14 groups of whales was sighted during the campaign, i.e a total of 30 adults and 6 calves (cf Table 1). All groups but two have been sighted in the waters of St Martin and Anguilla. A group (3 individuals) was sighted between St Martin and St Bart and another group (2 individuals) was sighted on the Saba Bank. A total of 6 pairs mother-and-claf have been sighted in or close to the Anguilla channel, including a mother with a very young calf (likely less than one week old). This suggests that the area is a breeding area with active groups, singing males, and a nursery area with pairs of mother-and-calf remaining present in the area several days in a row. The waters of Saba and Statia seem to be more transient, passing areas for whales but more data are needed to confirm this hypothesis.

Table 1 (see below)

**Table 1: Deployment Sheet 2014, MEGARA, Northern Lesser Antilles, Humpback whales.**

Every description of a placement is described on the visible part of the whale in a dive out.

The placement of the tag on the whale is described by three letters in combination:

R, right or L, left – F, front, M, mid ships or B, back – H, high – M, middle or L, low

All tags, except 21802, are mounted with a 240 mm anchor with one set of Tulip13 barbs and an M cutting edge.

21802 is mounted with an M ancho with 2 sets of Tulip13 barbs and S cutting edge

Group #	Nb ind	Tag ID	Tag Type	Date	Time	Position	Place ment	Tag, Biopsy	Comments	Biopsy #
1	2	83307	SPOT5 SWING	25/03	08:50	N18°07,417 W63°03, 681	RMH	MVJ/ -	Mtr+clf, tailslap upon deployment, S-bound, Photo-ids + photos of tag just deployed, calf breaching when we arrived	-
2	2	-	-	25/03	10:30	N18°09,175 W63°02,820	-	-	Mtr+clf, Photo-ids	-
3	2	-	-	25/03	14:03	N18°09,268 W63°03, 465	-	-	2 adults travelling Northwest (320deg), no photos	-
4	4	22850	SPOT5 SWING	25/03	14:45	N18°24,452 W62°59,543	RMH	MVJ/ -	Grp of 4, all quite active, no reaction of tagging. No photo but video Black antifouling makes tags invisible on whales	-
4		6335	SPOT5 SWING	25/03	14:50	N18°24,865 W62°59, 588	RMC	MVJ/MV J	Grp of 4 same as 22850. Very good placement, photo -ids +photo tag.	2014-01, but of unknown animal of grp
5	3	-	-	29/03	11:50	N17°48'15" W62°52'37"	-	-	Grp of 3 individuals travelling west Photo-ids +biopsies on 3 individuals	2014-02, 2014-03, 2014-04
6	2	-	-	31/03	16:50	N17°33'09" W63°16'77"	-	-	Grp of 2 juveniles. Try deploying tag and biopsy but whales do not let us get close. Stopped after 1h	
7	2	21802	SPOT5, Implant	01/04	17:55	N18°06,38 W63°04,49	RMH	MVJ/Fra nck	Mtr + clf, just in front of Anse Marcel, 1 Attempt, ARTS 7m 12 b. Tag not all the way in, Photo-ids +photo tag +biopsy tagged whale	2014-05
8	3	21803	SPOT5 SWING	02/04	10:35	N18°15'54" W62°50' 41"	RMH	MVJ/NM	Mtr, calf and escort, mother tagged. Rough waves 8-10 m/s. ARTS 8 m, 12 b. No reaction. Tag not in all the way, dart broken. Photo-ids +photo tag+ biopsy tagged whale	2014-06
8		6336	SPOT5 SWING	02/04	11:00	N18°16'55" W62°50' 18"	RMH	MVJ/NM	Same grp as 21803, escort. ARTS 8m 13b, dart broken.Good Placement. No reaction. Later photos show scar from tag, but no tag in. Photo-ids + biopsy tagged whale	2014-07
9	2	-	-	02/04	11:50	N18°18'35" W62°54' 58"	-	-	Grp Mtr+Calf. No photos	-
10	2	22849	SPOT5 SWING	02/04	12:30	N18°19,78 W62°54,96	RFH	MVJ/NM	2 adults, biopsy shot just prior to airgun. Photo-ids + photo tag+ biopsy of tagged whale	2014-08
11	2	-	-	02/04	13:20	N18°20'54" W62°56'47"	-	-	2 adults, active group, breach + long apneas. Tried to deploy tag but too difficult to approach the whales	-
12	2	-	-	02/04	16:45	N18°13,112 W62°59.280	-	-	Mtr+Clf with tag #21802 (Grp#7)	-
13	8	22853	SPOT5 SWING	03/04	10:50	N18°16,55 W62°50,58	RMH	MVJ/Juli en	Grp of 4 active whales, good conditions. 1st attempt. 2 grps of 2 joined first grp. 8 whales in total. Photo-ids +photo tag+biopsy tagged whale + Additional biopsies from grp: 2014-10, 2014-11 and 2014-12	2014-09 2014-10, 2014-11 and 2014-12
14	2	-	-	03/04	10:10	N18°13.186 W62°56.142	-	-	Mtr+Clf, photo-ids	-

### **E-Objectives of the project**

The campaign was an actual success and all objectives initially specified have been reached. Each specific objective, along with the results obtained, are described in detail below :

#### ***1 – Develop a theoretical (1 day) and practical (9 days training of the staff of St Martin Natural Reserve on photo ID, biopsy and tagging procedures :***

A half-day theoretical training was done at the beginning of the campaign to introduce the campaign's objectives, the materials and techniques used, as well as the functioning of the tags and the Argos system.

A practical training was carried out on board of the catamaran for all persons present : practical presentation of the use of a crossbow, safety rules, attempts of shooting on targets, preservation of biopsies. Each person was then able to perform one or several biopsies on whales and to prepare the samples for transportation and analysis. Each MPA staff was also able to witness the deployment of a satellite tag and monitor the use of the shotgun used for tagging.



**2 - Deploy 8 satellite tags during the 2014 breeding season on male and female humpback whales and use satellite telemetry to monitor the whales during their migration**

A total of 8 satellite tags was deployed on adult individuals. At least 3 of them were females. The sex of the other individuals will be determined through the biopsies. A tag detached itself immediately after being deployed, probably because of a too high pressure in the shotgun. The other 7 tags all emitted after being deployed, for various durations. The journeys of the whales can be followed live on :

[http://www.seaturtle.org/tracking/?project\\_id=979](http://www.seaturtle.org/tracking/?project_id=979)



**3 - Collect skin biopsy samplings of humpback whales and spermwhales. Collect skin biopsy sampling from satellited tagged humpback whales.**

A total of 12 biopsies was made for a total of 30 adult humpback whales sighted. Five of the tagged whales were taken biopsies from. No group of spermwhale was sighted during the campaign.



**4 - Development of a catalog for identification of the humpback whales of the Northern Lesser Antilles and comparison with existing catalogs in the region.**

Photo ID were taken of 20 adult humpback whales out of a total 30 adult individuals sighted. Most pictures are pictures of the dorsal fin of the individuals. For 12 individuals, pictures of the internal face of the fluke were also taken. All pictures have been sent to OMMAG for them to be included in the photo ID catalog for humpback whales in the French West Indies (<http://www.ommag.info/database/database-sommaire.html>).

**5 - Raise awareness amongst the public and pupils on the protection of cetacens and the presence of those species in the waters of St Martin during almost 6 months a year for humpbacks and year round for sperm whales.**

A public conference was organized jointly by the Rotary Club and the Natural Reserve in St Martin. The Prefect of St Martin and St Bart, Mr Philippe CHOPIN, opened the conference. The conference was a real success, largely publicised by the local media.

A second conference was also organized in St Bart.

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**DISPARITION DE MANOEL MARAGNES = SA FAMILLE OFFRE UNE RÉCOMPENSE (PAGE 3)**

**MISSION MEGARA**

# SUR LES TRACES DES BALEINES

**Mardi dernier, avait lieu une présentation de la mission MEGARA à la MJC de Sandy-Ground avec la projection d'un film sur la pose de balises argos sur les baleines à bosse dans les eaux de Mayotte ; une soirée très appréciée par les nombreuses personnes venues au rendez-vous. La mission MEGARA est en cours et va durer 10 jours, permettant la pose de huit balises argos sur les baleines circulant dans nos eaux. Ceci permettra de savoir quels sont leurs parcours autour de nos îles.**

**PAGE 2**



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**FLASH INFO**

24-03-2014

**CONFÉRENCE**

**Rendez-vous demain soir pour tout savoir sur les baleines à bosse !**

Vous êtes fascinés par les mammifères marins ou tout simplement curieux de la nature qui vous entoure, la réserve naturelle vous invite vendredi soir, mardi 25 mars à partir de 19h au centre culturel de Sandy-Ground pour une conférence sur les baleines à bosse avec les scientifiques de la mission MEGARA.

Où viennent les baleines à bosse qui fréquentent nos eaux ? Que font-elles dans les îles du Nord ? Les cachalots qui fréquentent nos eaux sont-ils les mêmes groupes présents en Guadeloupe et en Dominique ? Nos eaux sont-elles aussi une nurserie pour cette espèce ?

La mission scientifique MEGARA tentera de répondre à ces questions en déployant des balises Argos sur les baleines à bosse lors d'une campagne en mer qui débute aujourd'hui et dure jusqu'au 10 avril 2014 dans les îles du Nord.

En association avec le Rotary Saint-Martin Nord et l'association MEGARA, la réserve naturelle de Saint-Martin organise une conférence demain mardi 25 Mars à 19h00 au centre culturel de Sandy-Ground. L'équipe de MEGARA exposera le déroulement de la mission et les techniques qui seront employées pour atteindre ces objectifs.

Un lot de 20 m présentera la dernière mission effectuée par l'association Megatera dans les eaux de Mayotte. Des images époustouflantes qui nous emmènent au plus près des baleines !

Entrée : 5 euros par personne



**6 - An education project with the Ministry of Education and the NGO « My school, my whale »** was implemented in St Martin with one primary school class and one junior high school class.

The whales equipped with tags are therefore followed by the target classes, within the framework of an awareness programme on marine mammal conservation and marine protected areas. The pupils receive regular updates and pictures of the whales identified by the scientific team. The children thus christened Soca and Joy a mother and its calf that demonstrate, because of their movements since almost three weeks, the high interest of thinking the conservation of those large mammals within the framework of ecological connectivity and therefore of regional cooperation.



These interventions allow the children to better perceive the rôle of their island in the Caribbean geographic context and to be sensitized to the need of protected natural habitats at the regional scale. A similar project is being implemented in St Maarten where a contest was organized to christen another tagged whale.

The websites of the Natural Reserve of St Martin, of the SPAW-RAC and of Megaptera as well as Facebook pages have been and are still being updated regularly.

#### **7- Participation in regional meetings or workshops and symposiums**

The outcomes of the campaign will be presented at :

- LifeWeb-Spain UNEP-CEP Meeting on Scenarios for Transboundary Marine Mammal Management in the Wider Caribbean<sup>2</sup>, 23 - 24 April 2014 in San Juan, Puerto Rico.
- 67<sup>th</sup> GCFI – Barbados - 3 November 2014 - 7 November 2014.

#### **8 - Have a better knowledge of the species' ecology and biology and contribute to the management of the Agoa sanctuary and to the development of MPA conservation and management initiative in the Caribbean region**

The project already contributed numerous and now informations on the species' ecology and in particular with respect to its behaviour and movements in the area of the Northern Lesser Antilles. Cf preliminary results below.

#### **9 - Submission of a report to the International Whaling Commission in 2015**

In preparation

**10 - Participate in the research effort undertaken since the creation of the Agoa sanctuary (MoU French MPA Agency/Agoa/Natural Reserve of St Martin) and participate in the implementation of scientific missions in a regional context (MoU SPAW-RAC/Natural Reserve of St Martin).**

The campaign was a success not only from a scientific perspective but also with regard to the regional collaboration and involvement of regional partners. All partners could embark on board of the catamaran and some of them had the luck to sight whales and/or to witness the taking of biopsies and the deployment of tags.



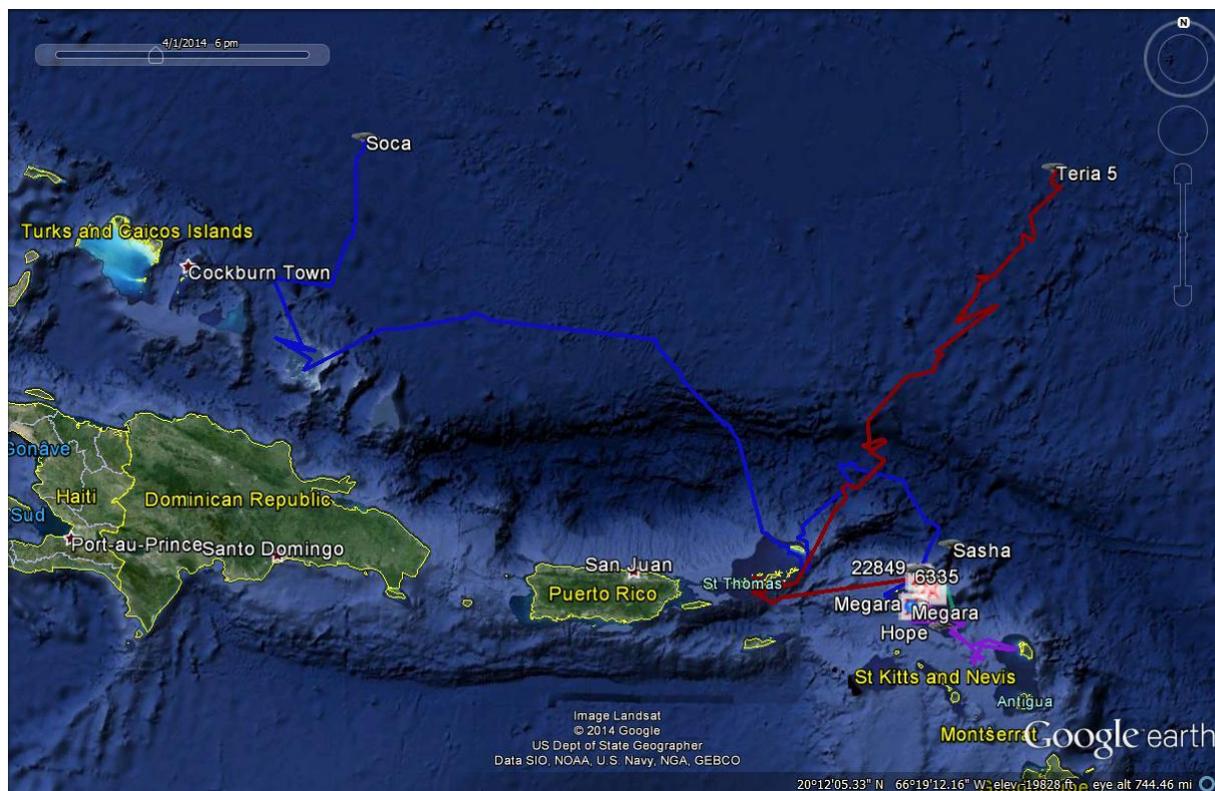
Sighting of a humpback whale by the Megara team in the Natural Reserve of St Martin



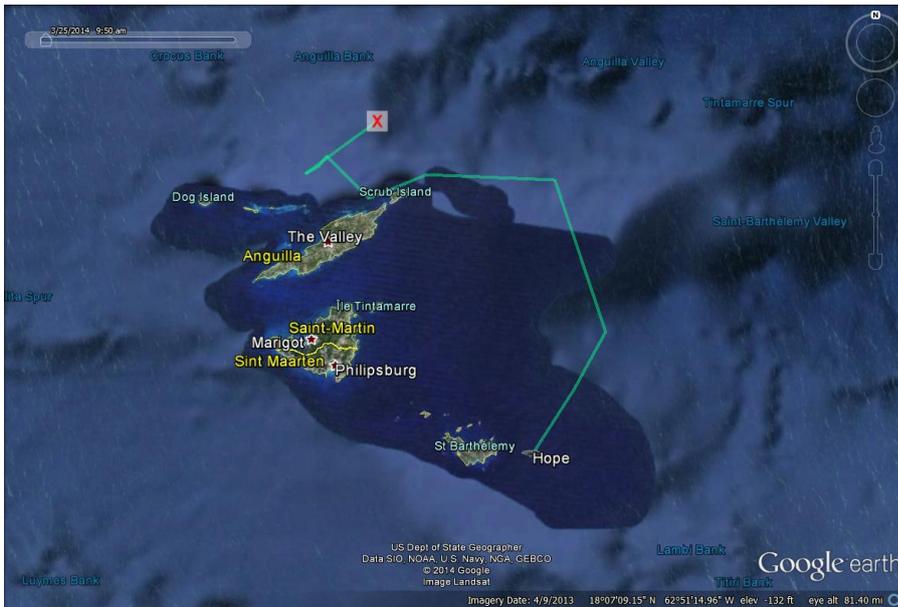
## F- Preliminary results

### 1- Satellite-tracked movements

A total of 8 satellite tags was deployed on adult humpback whales for the first time in the waters of the Northern Lesser Antilles. The results obtained from those satellite tags provide important information on the movements of the species between the various islands in the area, and emphasizes the importance of regional collaboration for efficient protection of the species in the totality of its breeding area. One tag (#6336) detached itself immediately after being deployed.



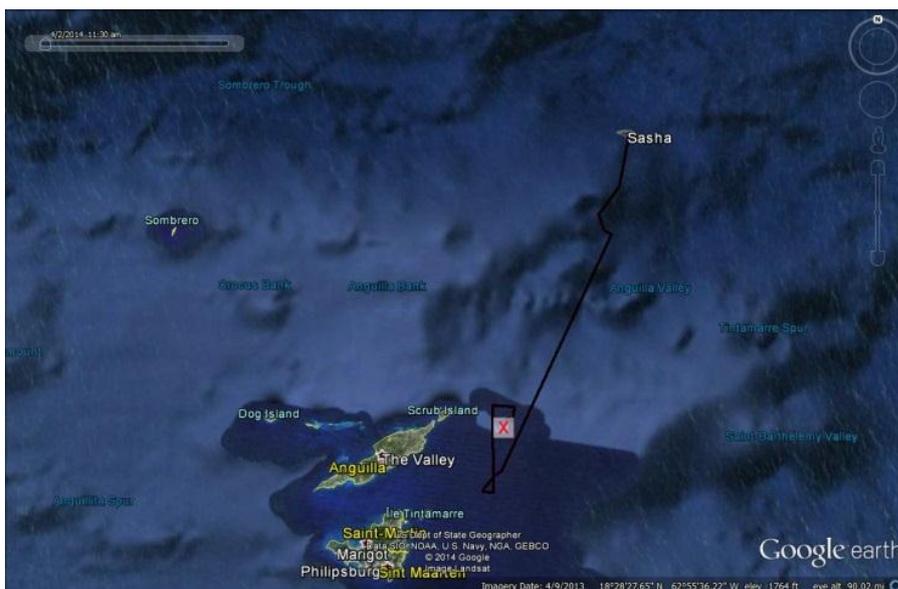
A second tag (#6335) emitted for a few hours only. The whale was part of an active group of 4 whales and it is likely that the tag was damaged by a breach of the whale or by an interaction with another individual of the group. The whale was close to the Anguilla Bank when the tag stopped emitting.



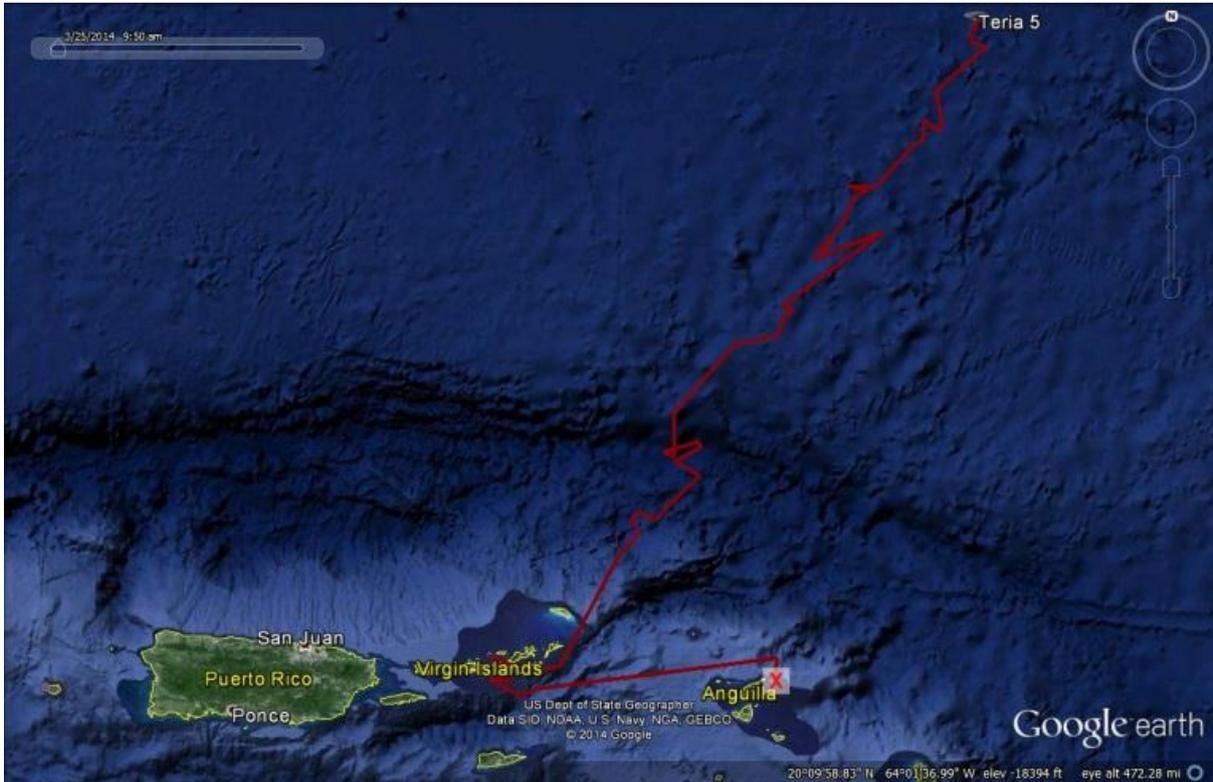
A third tag (#22850, Hope) emitted during 24h. In the meantime, the whale, tagged North of Anguilla, travelled approx 100 kms and arrived in the waters of St Bart. The tag stopped emitting while the whale was at a distance of 6kms from the Eastern coast of St Bart.



Two tags emitted during a total of two days each. Tag #22849 was deployed North of Anguilla on a adult on unknown sex. For 48h the whale remained in the same area, i.e less than 25 kms from the coasts of Anguilla and close to the Anguilla Bank. The whale coeverd approx. 160Kms in 48h.

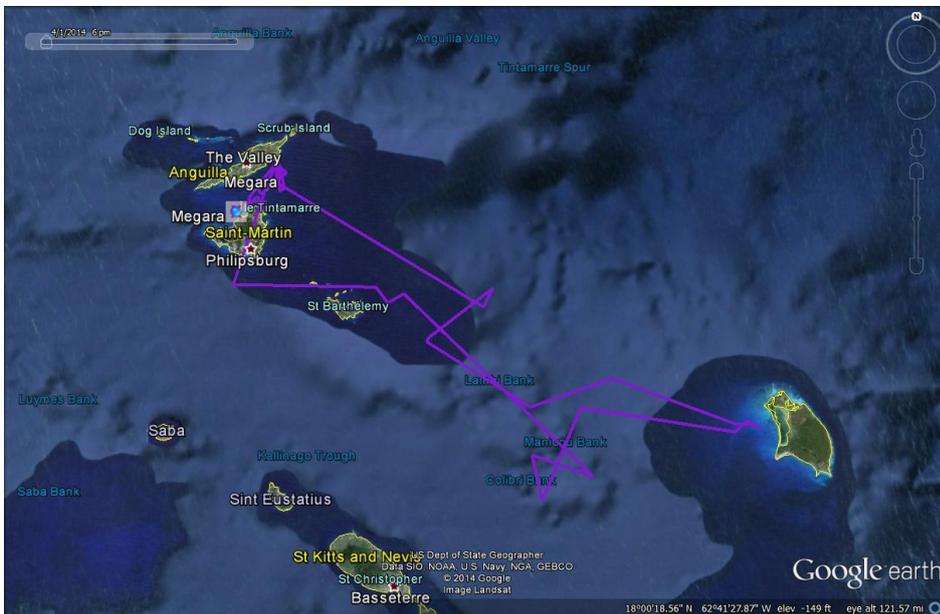


Tag #21803 (i.e. Sasha) was deployed on a mother accompanied by its calf and an escort in the Anguilla channel. The tag worked perfectly for two days and then abruptly stopped, maybe damaged by the calf. This whale seemed to have started its migration North when the tag stopped emitting. The whale was 83kms North-East from St Martin.



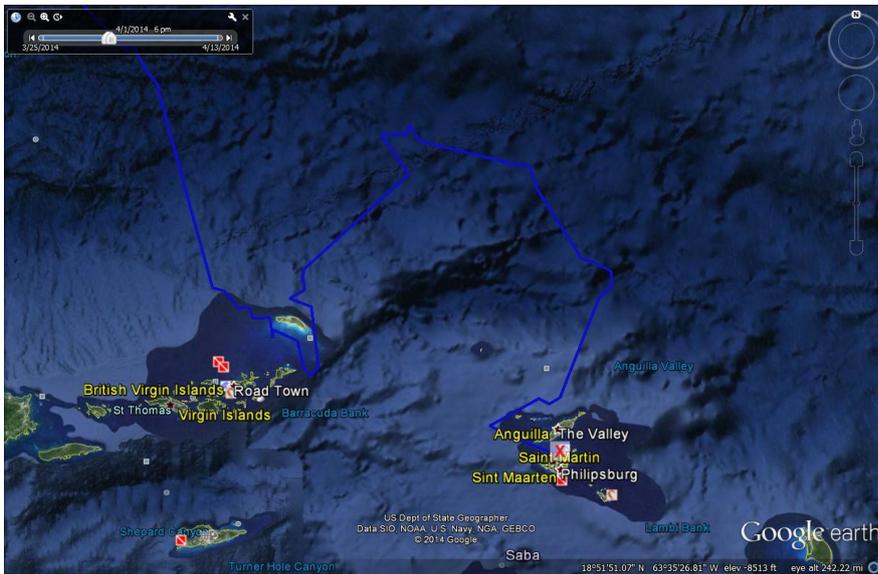
The last three tags have respectively emitted during 12 (#22853, Teria 5), 14 (#21802, Megara) et 21 (#83307, Soca) days and are still emitting.

Teria 5 was tagged on « Marlin Boulevard » on April 3rd 2014. The whale was part of an active group of 8 individuals and it is possible that Teria 5 is a male. This will be confirmed by the results of the biopsy. After being tagged, Teria 5 left the waters of St Martin and Anguilla and crossed towards the British Virgin Islands that it reached after one day swimming. After less than two days spent in this area, Teria 5 started its migration North-East (~35deg) on April 7th.. Teria 5 is currently about 775kms from the BVI and 695kms from the location it was tagged. Teria 5 has covered more than 1240 kms.



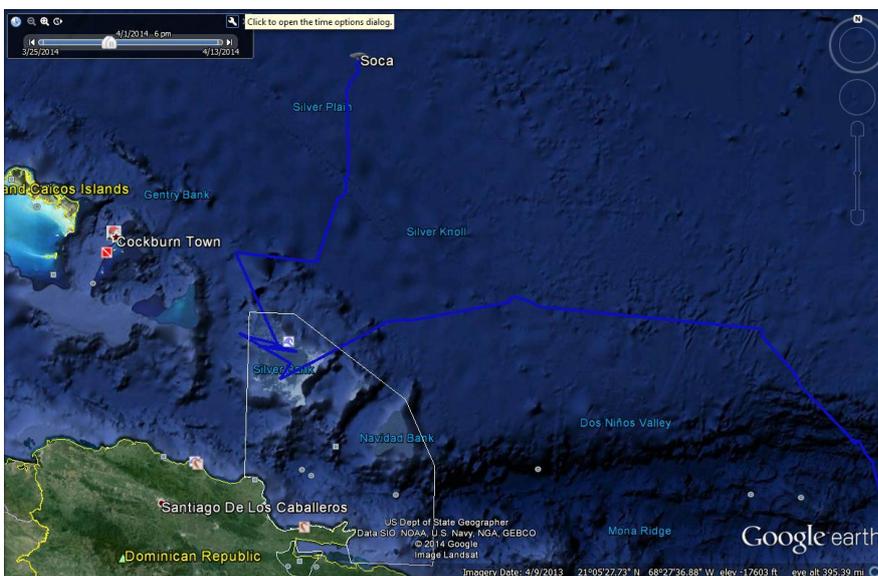
Megara is a mother accompanied by its calf. It was tagged in the Anguilla channel just in front of Anse Marcel, St Martin, on April 1st, 2014. After spending two days in the Anguilla channel, Megara travelled towards St Bart that it reach in a few hours, then continued its route towards the waters of Barbuda that it reach after 24 hours. Megara remained for about 4 days at less than 60kms of the coasts of Barbuda, apparently on the Colibri and Manicou Banks. It

then followed the same path during its travel back to St Martin, which took two days. It then remained for four days in the Anguilla channel, and now seems to move North-West (~340deg) and is currently 6kms from Anguilla. Megara covered so far a total of 480kms.

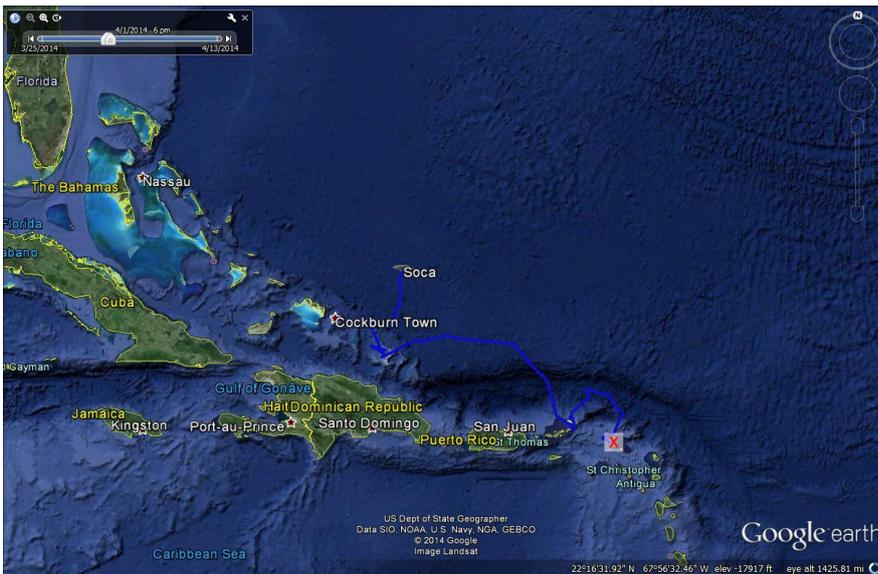


Soca is a mother accompanied by its calf. It was tagged in the Anguilla channel just in front of Anse Marcel, St. Martin, on March 25th, 2014.

24 hours after the tag was deployed, Soca left the waters of St. Martin and first moved North, North-West, then after 3 days changed direction and went back south to reach the British Virgin Islands on March 31st, and spent 2 days there.



It then again moved North-West for 3 days then changed directions and started swimming West to reach Silver Bank in the Dominican Republic on April 8th, a major breeding site for humpback whales and a marine protected area.



It then left the area on April 10th and start its migration North (~20deg). It is currently approx 430kms from Silver Bank and covered a total of 1800kms.

[http://www.seaturtle.org/tracking/index.shtml?project\\_id=979](http://www.seaturtle.org/tracking/index.shtml?project_id=979).

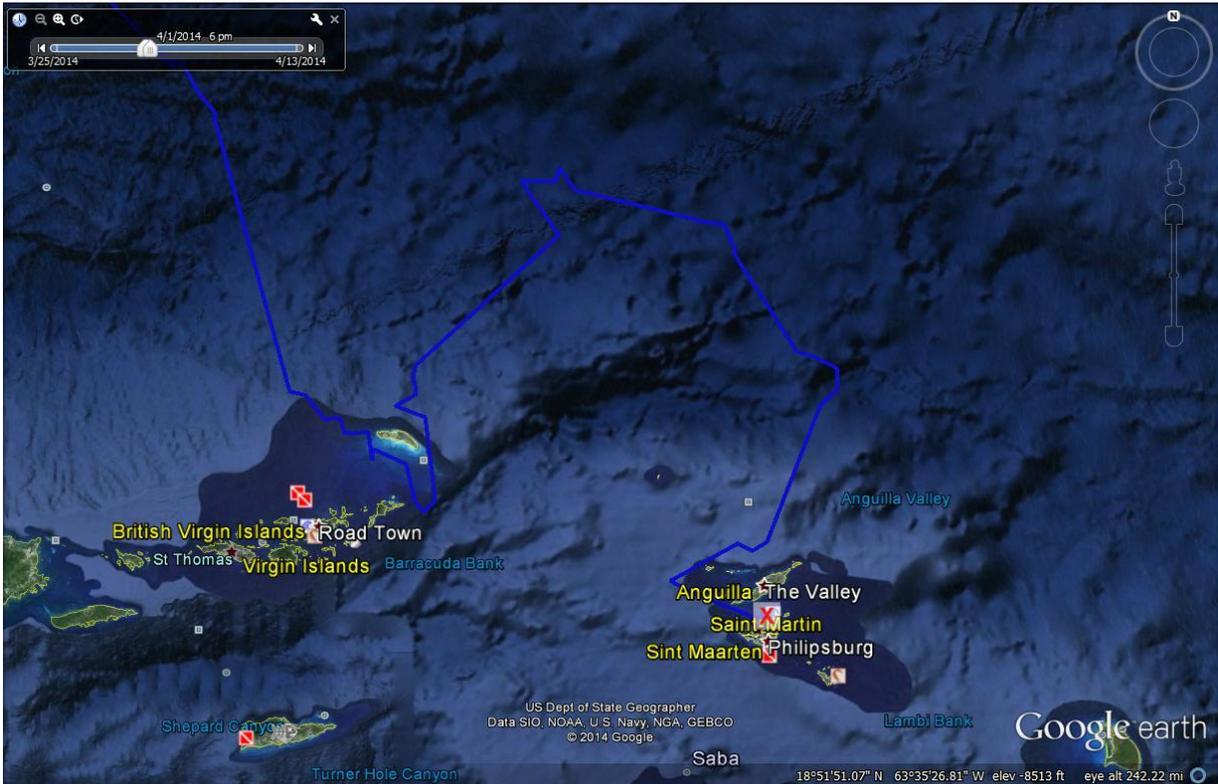
**Those preliminary results place emphasis on several important points:**

Humpback whales seem to use the waters of St Martin and Anguilla as a nursery and breeding ground. Mothers accompanied with calves spend several days in a row there, and come back to the area regularly (cf Megara). Several active groups were sighted and singing males were heard.



Humpback whales move from island to island and it seems that a connection exists between St Martin, Anguilla, St Bart, Barbuda on one hand, and St Martin, Anguilla, the Virgin Islands and the Dominican Republic on the other hand. The species is therefore a shared « resource » among different islands and countries of the Northern Lesser Antilles and Great Antilles.





Humpback whales pause or stop-over before starting their migration towards the feeding grounds. Here the Virgin Islands seem to be one of these stop-overs, Silver Bnak potentially being another one.

## 2- Photo-identification

Photo-identification of 20 adult humpback whales were taken out of a total of 30 individuals sighted. The majority of the pictures is of the dorsal fin of the individuals. For 12 of them, pictures of the internal face of the fluke were also collected. Those pictures have been sent to OMMAG so that they are included in the photoID catalog for humpback whales in the French West Indies.





### 3 - *Biopsies*

A total of 12 biopsies was realized for a total of 30 adult humpback whales sighted. Five of the tagged whales were taken biopsies from.

The CITES permits for the transportation of sampling have been requested. The samples will be sent to Dr Per Palsbøll of Groningen University in the Netherlands.

Biopsies will be used to determine the sex and origin of each individual. They will also be compared to a database containing more than 8500 samples collected from humpback whales in the Northern Atlantic.

#### **J- Impact of the project at the regional level and conclusions**

The tagging mission on humpback whales in the Northern Islands is completed since April 3rd but actually, it is only a start. Out of the 8 satellite tags that have been deployed, most have transmitted positions for several days, and 3 are still transmitting as of today. This is a success especially considering the active behaviour of the species during the breeding season. The first tag deployed has been transmitting for 25 days and the movements of this whale and its calf (named "Soca and Joy" by the children of St Martin) as well as those of the other tagged whales, already improve the knowledge of the species behaviour during this season. Amongst the important results already obtained, the idea that each island would "own" a specific group of whales that would remain in its waters is questioned. Indeed the movements from island to island of the 8 tagged whales show that some of them have already covered more than 1,700km going through the US Virgin Islands and Silver Bank, while other swim back and forth between St Martin, St Bart, Saba, Statia, Barbuda and St Kitts. It is also confirmed that humpback whales are not only transiting through the Northern Islands, as shown by the males' songs, the repeated encounters of females and their calves over intervals of several days, groups of males following females. All these behaviours show us today that we are in an actual breeding area, a priori active and/or important, and of course transboundary.

It is thus key to implement a strategy of regional cooperation that aims to strengthen conservation actions in this breeding area. The Dutch islands of Statia and Saba will probably classify their waters as a sanctuary in order to better protect marine mammals and in particular humpback whales. Taking into account the outcomes of the campaign, strengthening the links with Anguilla is desirable, within the framework of the relationships between St Martin and Anguilla but also within the framework of the Agoa sanctuary with a view of promoting the conservation of habitats and marine mammal species amongst our partners. Ultimately, a sister sanctuary partnership between the Agoa sanctuary, the sanctuary of the Dutch islands, and the waters of Anguilla would allow for a common strategy for conservation and joint scientific actions on the totality of the breeding ground of humpback whales in the Northern Lesser Antilles.

The results of the mission are therefore very promising if one also adds up the 12 biopsies and the 12 fluke pictures that will be analysed and compared with existing databases.

Beyond the scientific aspects, the mission has also brought together of the MPA managers of the Northern Islands, as well as specialists from Mayotte, Denmark, French Guiana, the US, the Netherlands...

We thank all partners without whom the campaign could not have taken place. We thank in particular for their participation, their expertise, and their ever-lasting motivation, the NGO Megaptera and its Chair Michel Vely.

We also want to thank the members of the NGO "Mon école, ma baleine" ("My school, my whale") for the quality of their intervention in some classes of St Martin, that already want to renew this experience! To be noted that similar interventions will be organised very soon in the neighbour islands.

We now have to continue this work, confirm our findings, improve our knowledge. Thus we are already preparing the organisation of the mission Megara 2015 that will benefit from the experiences and success of the 1st edition.