

CARIMAM Project

Kick'off Meeting



Organized by the Agoa Sanctuary,

16th - 17th October 2018, Fort-de-France, Martinique

Interreg
Caraïbes
Fonds européen de développement régional



**AGENCE FRANÇAISE
POUR LA BIODIVERSITÉ**
ÉTABLISSEMENT PUBLIC DE L'ÉTAT

General program

- **15th October**

15h: Meeting of the members of the Agoa Sanctuary management council

- **16th October**

9h-12h: Plenary Session

Presentation of the project

Presentation of the territories and partners

Feedback about REMMOA

12h-14h : Lunch

14h-17h : Workshops

Workshop A : Monitoring and data management : past actions and future needs

or (simultaneously)

Workshop B : Whale watching: overview through the Caribbean

19h : Partner's dinner (Steel Pan)

- **17th October**

9h-12h: Workshops

Workshop A : Monitoring and data management : perspectives for the CARIMAM project

or (simultaneously)

Workshop B : Communication and awareness raising

12h-14h : Lunch

14h-17h30 : Field trip (Domaine d'Emeraude)

Workshop context

The Agoa Sanctuary (named after a Caribbean - Amerindian sea goddess) was established because of the abundance and diversity of cetacean species present in the waters of the French Caribbean islands. 24 of the world's approximately 80 identified cetacean species have been observed here for now.

There are enormous issues at stake across the Caribbean and internationally, to reconcile the protection of these resources and their promotion for the development of sustainable ecotourism business. The attraction of what is sometimes referred to as "blue gold" for sustainable tourism is very strong.

The aim of the project led by the Agoa Sanctuary is to form a network of marine protected areas dedicated to marine mammal conservation in the Wider Caribbean region and beyond. The project also targets capacity-building for managers, development of common management and assessment tools and support for the development of wildlife-friendly and sustainable whale-watching business across the Caribbean.

The network of managers called "CARIMAM" will include partners from around the Wider Caribbean region.

The project, which started in June 2018 and will last until September 2020, counts four beneficiaries (AGOA sanctuary, CARSPAW, Nature Reserve of Grand Connetable and Nature Reserve of St Martin). The Dominican Republic is also applied for complementary FED funds.

Since June, the project team at the AGOA sanctuary gathered the necessary information, started to communicate with the various members of the Caribbean network in the different islands and contacted experts who could assist us in this project.

This meeting was therefore the first opportunity for all stakeholders to meet and to jointly address common issues for the conservation of marine mammals at the Caribbean scale.

CARIMAM Workpackages overview

WP0: project management and coordination	
WP1: Current Status of legislation and threats	
WP1.1: Gap analysis	WP1.2:Cross sector analysis
WP1.3:Caribbean database of legislation and regulation	WP1.4:Transmission of humpback whales flukes catalogs
WP2: Enhance marine mammals knowledge	
WP2.1:REMMOA results dissemination	WP2.2:Scientific cooperation on survey protocols
WP3:Training for Marine mammals protected areas managers	
WP3.1:Strandings intervention and analysis	WP3.2:Disentanglement intervention
WP3.3:Photo identification protocols and techniques	WP3.4:Biopsy samples and DNA analysis
WP4:Toward a common acoustic monitoring strategy	
WP4.1:Definition of a common protocol	WP4.2:Monitoring trials in pilots sites
WP4.3:Knowledge transfert	
WP5:Sustainable development of commercial cetacean watching	
WP5.1:Regional analysis of the commercial cetacean watching	WP5.2:Trainings for commercial operators and states authorities
WP5.3:Awareness tools for commercial operators and general public	WP5.4:Recommendations for a high environmental quality label
WP6:Management plans and measures	
WP6.1:Management plans review and analysis	WP6.2:Measures trials in pilots sites
WP6.3:Developing common long term marine mammals conservation objectives	
WP7:Network's communication strategy	

Scientific and Technical Workshop

Participants:

- Alizé Martin, DEAL Martinique
- Alexina Paya, Metimer
- Argel Horton, Government of Virgin Islands
- Tadzio Bervoets, Foundation for the conservation of nature on St. Maarten
- Jaime Bolanos, Asociacion Civil Sea Vida (Venezuela)
- Hervé Glotin, CNRS université de Toulon (LSIS-CNRS)
- Henry Léa, Sanctuaire Agoa/AFB
- Paul Hoetjes, Government of Netherlands
- Jessica Berkel, St Eustatius National Parks Foundation
- Vincent Ridoux, Pelagis
- Caroline Rinaldi, Association Evasion Tropical
- Steeve Ruillet, Megaptera
- Chloé Theret, Sanctuaire Agoa/AFB
- Nelly Pelission, Association Mon Ecole Ma Baleine,
- Nadia Proia, Grand Port Maritime de la Guadeloupe
- Nicolas Jean Claude, Parc Naturel Regional de la Martinique
- Nina Lysenko, Gobierno de Republica Dominicana
- Marion Peirache, Sanctuaire Pelagos/PNPC
- Sarah Manuel, Bermuda Gouvernement,
- Julien Chalifour, Réserve naturelle nationale de Saint Martin
- Kimani Kitson-Walters, Caribbean Netherland Science Institute
- Ayumi Kuramae Izioka, Saba Conservation Fondation
- Cathy Lacourbas, Breach Antilles Association
- Benjamin Montgolfier, Aquasearch
- Drew Blunt, Wild Me
- Amandine Bordin, GEPOG
- Laurent Bouveret, OMMAG
- Jessica Crillon, Parc naturel marin de Martinique/AFB

Program

- Overview of the CARIMAM main objectives
- Priority ecological issues
- Data base
- Passive Acoustique Monitoring
- Marine transect and photo ID
- Other methods (tracking, biopsy, eDNA)

Workshops synthesis

Manager, scientist and specialist from over 14 islands, France and USA defined together priority ecological issues for the project, implementing recommendation for a passive acoustic observatory at the Caribbean scale, agreeing for using the same platforms for photo Identification, discussing about marine visual transects possibilities and sharing about other methods of monitoring.

Overview of the CARIMAM main objectives

The main objective of the CARIMAM project is to develop a network of marine protected areas dedicated to the conservation of marine mammals in the Greater Caribbean and beyond. This network will aim at strengthening managerial skills and developing common tools for management and evaluation purposes.

The CARIMAM team is here to coordinate, help and/or facilitate the different actions in the Caribbean, but these actions remain to be done by the different members of the network.

Thus, before executing different protocols it is critical to first define together the main ecological issues at the Caribbean scale. This step will help us building the best suited protocols.

Priority ecological issues

A large panel of monitoring methods has been used independently in the different islands. However the presence of some species suspected to use our water is still unsure for many of them. Data on seasonality is very sparse, and any information about abundance is lacking for the great majority of species in the Caribbean.

The present scientist and MPA manager collectively agreed on the need to focus first on the diversity and seasonality of all the marine mammals species at the largest scale possible in the Caribbean. This shared baseline will serve as a stepping stone for working as a network with all the islands and will allow us comparison in the long term for conservation purposes. If it is not possible for every island to participate, it has been suggested to work as different geographical units, gathering islands in the same geographical context together.

To ensure the continuity of the actions over time, the participants agreed that protocols used will need to first be chosen on their price, simplicity of use, and reproducibility. Afterward, the maximum of islands will need to be involved and the exchanges increased. The precision of the results, the time required, and the replicate will be considered later.

Need for particular attention has been expressed by different islands for: *Orcinus orca*, *Megaptera novaeangliae*, *Physeter macrocephalus* and *Pseudorca crassidens*. When possible, protocols will maximize data acquisition and prioritize data analysis on these species without neglecting the others.

Considering the timeline and the budget of the project, studying the abundance on all the islands has been considered not feasible for now, in order to achieve the other actions.

Protocols will be oriented towards developing a better understanding of anthropogenic impact, to use well adapted management measures for conservation purpose.

Data base

Lea Henry, had presented what will be achieve in CARIMAM for Data Management. A form will be shared and will be used to create a common documentary data base. Maps will be created to facilitate the visualisation of the studies accomplished in the Caribbean. The Teamwork platform has been chosen as a collaborative platform. Some managers have expressed their preferences for a mailing list.

Passive Acoustique Monitoring (PAM)

Passive acoustic monitoring (PAM) is a constantly evolving method that has the advantage of being able to study continuously species often difficult to observe over time. It also makes it possible to study the anthropogenic noises as well as to extract sounds for communication purposes. However its price (material and analysis) is often a constraint and the methods of analysis are varied. The range of detection according to the species is variable, which implies a careful thinking about the deployment distribution sites. The need of diver and boats to deploy and recover the hydrophones also needs to be considered.

Prof. H. Glotin presented his work in the PELAGOS sanctuary, Corsica, Peru, Chili, Fukushima and Canada. His studies focused on dolphins, humpback whales, sperm whales and orcas. His field of expertise is using machine learning methods to analyse bioacoustic data and processing big data to classify species (up to 1500 bird species or different mysticetes).

He presented the hydrophone he is using and a collaborative annotation plateforme « DYNITAG » that he proposed to use in the project:

<http://194.167.251.152:8004/>

User : demo

Passeword : thedemo





Hydrophone JASPBLUE - SMIoT (Scientific Microsystems for the Internet of Things) - presented by H. Glotin

Following the discussion, it was noticed that no song identification catalog of all the species does exist in the Caribbean and that it need to be one of the first objective of the project.

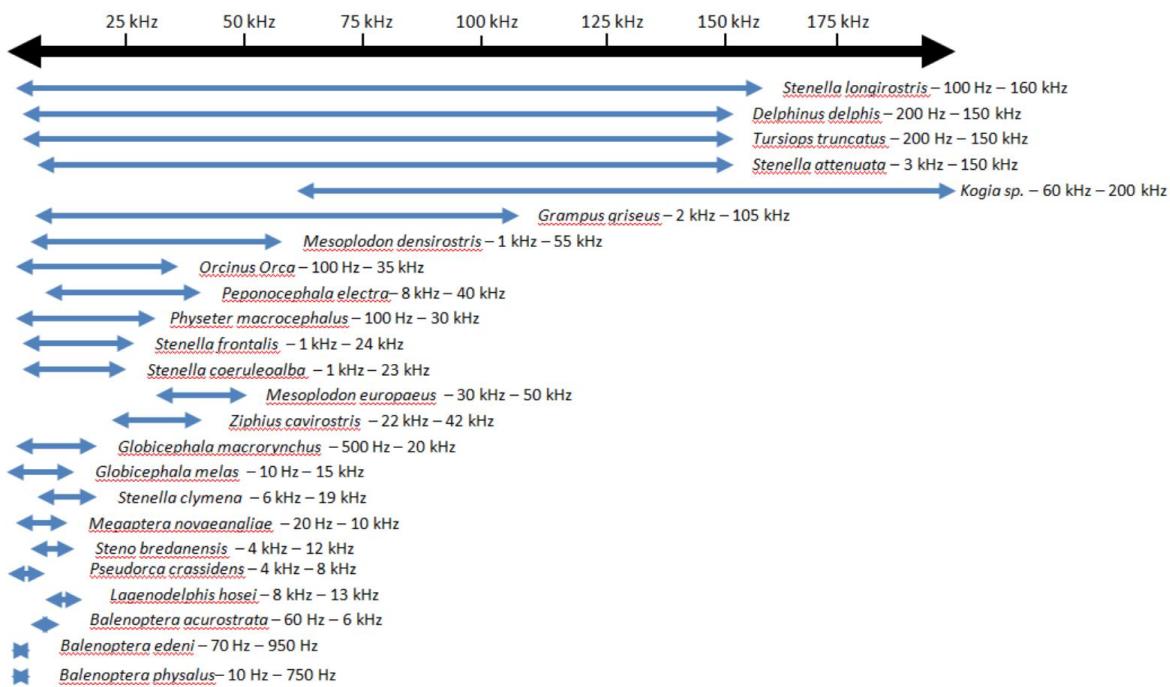
Several recordings have been done in the Caribbean by some NGOs or research groups. Work will be done in order to share this data (through MOUs), especially when they are associated with visual identification.

The participants asked if it was possible to modify the budget of the project in order to install more hydrophones on the different islands. Prof. H. Glotin indicated that he could use the speed of his new algorithm to allow us to reduce the analysis costs.

Material characteristics need to correspond to the wishes expressed in the precedent topic. It must be as cheap as possible (> 4500€) while being very easy to use and allow to record all the species of marine mammals in the region. To achieve this, the hydrophones will require to record species until 150kHz (Fe = 300kHz), have an omnidirectional microphone, allow at least 1,5month with 1/3 recording (low energy consumption and enough storage), be waterproof until at least 60m and have a low volume to facilitate handling by divers.

The sampling period of recording, the number of hydrophones and the localization still need to be determined. However they should fit the constraints expressed in « Priority ecological issues ».

The selected analysis method will need to ensure comparable results on all the islands and must thus be constant, fast enough to face the large amount of data, allow collaboration during the analysis, and help identify the maximum number or group of species. Participants find that deep learning, through the development of an open source software, seems to be the best suited method. The achievement of this will depend on the data shared for building a song catalog and the availability of divers and boats in each island to deploy and recover the hydrophones.



Comparaison of cetaceans sounds («Rapport de faisabilité de l'observatoire acoustique Agoa» 2015 – Maxime SEBE et Sophie BEDEL)

Marine transect and photo ID

While the advantage of PAM is the temporal scale, transect is a better method for studying spatial variations. In fact it allows to cover larger geographical zone and takes into account the animals not seen thanks to statistical model. However the constraints are the low temporal variation, time/price, and having well enough trained people.

Due to failure with previous transects campaign majority of the participants showed no interest in doing marine visual transect even if budget is available in the project. Amandine Bordin (GEPOG) is therefore proposing to include the continental slope of French Guyana.

The Obsenmer Application (<http://www.obsenmer.org>) has been presented. It allows to gather data through transects freely, and is already used by some partners of the project. Data is organized and stored online with the possibility to make them confidential. M. Peirache reminds that several French MPA are using it and future development on android is programmed within the next 2 years. CARIMAM could contribute with an english translation of the application.

Solution will be discussed with PELAGIS and other experts around the world to find the best suited method of transect adapted to the project objectives.

D. Blunt, presented the Flukebook application (<https://www.flukebook.org>). Most of the participants seemed interested in using it. Flukebook uses machine learning algorithm to help fast identification of the whales flukes with accuracy. First used on humpback whales it will soon be available for other cetacean species. While everyone owns the data they send to the application, development can be made to share it with other application (as Obsenmer) if accepted. Effort will be made to link other existing catalogs with Flukebook to ensure a large database at the Caribbean scale.

Considering the number of islands and the different tools available for photo ID, everyone agreed to synchronize our effort using the same tools or building bridges between existing tools already used. For those not using photo ID tools yet, Flukebook is recommended for its efficiency.

Other methods (tracking, biopsy, eDNA)

J.Chalifour and S.Ruillet presented the MEGARA mission. The objective is to help identifying migration path of humpback whales that remains unclear for managing purposes using satellite tracking methods. Some participants expressed their inclination to use less invasive methods to answer the same ecological questions. J.Chalifour underlines that this mission is also a platform for photo ID and biopsy and that the impact have been studied in scientific publications showing that we need more tracking information to answer this question.

Participants agreed to work together and share biopsy data. They also expressed the need to work together to help obtain authorizations in reasonable delay.

The organization of a stranding network across the Caribbean with people responsible for each territory could foster cooperation and be a great input of biposy data.

Whale watching Workshop

Participants:

- Caroline Rinaldi, Association « Evasion Tropicale »
- Toa Loiza Lang, Government of Dominican Republic
- Sarah Manuel, Government of Bermuda
- Sandrine Pivard, CAR-SPAW
- Bulent Gulay, Metimer
- Liza Duverger, « Sherazade » whalewatching
- Tiphaine Riviere, Parc Naturel Marin de la Martinique
- Laurent Louis-Jean, Parc Naturel Régional de la Martinique
- Benoit Godeau, « Amphitrite » whalewatching
- Marc Mandron, « Planète Dauphin » whalewatching
- Philippe Eugénia, « Phil Evasion » whalewatching
- Marie-Laure Ciprin, Cluster maritime de Guadeloupe
- Marianne Bricquier, Direction de la Mer Martinique
- Gaelle Lambert, Association « Mon école ma baleine »
- Thomas Alexandrine, Parc Naturel Régional de la Martinique
- Marion Peirache, Parc National de Port-Cros
- Chloe Theret, Sanctuaire Agoa
- Alizee Martin, DEAL Martinique
- Morjane Safi, Aquasearch

Program

- 14h - Icebreaker
- 14h10 - Caracterisation of whale watching activity by groups
- 16h10 - Discussion

Workshops synthesis

Three groups answering global questions about whale watching in the different territories: when, where, what/how, who and why.

When/where

In Martinique: essentially the morning (more comfortable, easier), all week long, all year long (follow the touristic season). The activity occurs on a wide zone, along the Caribbean coast, principally in the North of the island. Started 12 years ago but increasing in the last years (mainly in the last 2 years).

The presence of colony of 800 to 1200 sedentary spotted dolphins easily visible helped the development of the activity.

In Guadeloupe: started 5 years ago, few operators and stagnating. Whale observation occurs at the beginning of the year but there is no sedentary population. Operators work on the Caribbean coast as well, from 200m to 10000m of the coasts.

In Saint Martin: observation of whale from December to May at a certain distance from the coasts (condition less favorable). Activity started recently and not really organized.

In Bermuda: observation of whales from March/April and no trip exclusively for dolphins, too far away from the coast.

In Dominican Republic: observation of whales in the Samana Bay, from January to March. The activity started in 1993 and increased in the last 10 years. Dolphin observation all year long as well and ~ 100 manatees present around the island and observable from observation towers.

Who

In Martinique: Clients are mainly tourists (Europeans or Martinicans coming back to their family), local employees' representative committees and schools. Their number is raising and the demand for information as well (the majority doesn't know anything about the ocean). The public is typically familial but concern more women than men.

Operators are mainly composed of recreational boating who specializes themselves. There are approximately 40 operators, self-employed and/or very small enterprise. ¾ have signed the charter but only part of them seems to respect it. Some of them organize multi-activities trip (fishing, turtle watching...). These enterprises started to organize themselves in the last 2-3 years. To these dedicated operators can be added: stand-alone observers (using rental boats), jet ski operators, diving club and fishermen ("pescatourism") organizing dolphin watching trips.

In Guadeloupe: Clients are mainly tourists from Europe and North America; there are very few locals and almost no schools. Schools need NGOs with a specific agreement to bring children on board. Participants also highlighted the fact that people with disabilities have a restricted access to boat trip and that it need to be taken into account for further development, eventually with an observation on-land or through virtual reality.

In Saint Martin: Clients are essentially tourists, coming from America and E.U. The conditions (high sea) make it difficult for schools and locals are still afraid of the sea. There is few operators, organizing trips mainly on demand.

In Bermuda: Six operators organize whale watching trips but also snorkeling or scuba diving the rest of the year. The Aquarium of the Bermuda proposes a joint ticket: aquarium visit and field trip.

In Dominican Republic: In 2018, 43 permits have been delivered to various companies for a total of 51 boats. The permits are not free and delivered upon a call organized by the government. Their number is stable each year but there is little to none surveillance. There is also illegal whale watching activity organized by helicopter, fishermen or individuals. Cruise ships take also sometimes a slight deviation to show a whale to their clients.

The clients are mainly tourists, around 10 000 from the country and 35 000 from abroad.

What/How

The types of boats dedicated to whale and dolphin watching are really diverse. Two types are considered to pose some issues by the participants: sea scooters/jet skis, and boat from rental companies (problem with the respect of the laws, including security prescriptions).

On most islands whale watching is also feasible from the coast.

In some territories, hydrophones are used as pedagogic tools and sometimes for cetacean detection (in Guadeloupe and Saint Martin). Drones/aerial detection is forbidden in the Agoa Sanctuary. In most territories, operators use radio or whatsapp to exchange information between them.

The distance and duration of observation is variable between the islands: in Dominican Republic, boats can get to 80m from the cetaceans (mother whale and calf) with 3 boats on site; the Agoa charter allows only 100m of distance for whales with 2 boats present at the same time for 10 to 20 minutes maximum. The approach has to be from $\frac{3}{4}$ behind and at maximum 5 knots. Whatever the territory, the participants highlight the lack of surveillance, especially to follow the behavior of the operators.

In northern islands, operators follow dolphins and spermwhales. In Guadeloupe they also show marine birds to observers. In Martinique observation might be more diverse (turtles, bats, reefs...) but the speech isn't always clear.

In some island swimming with marine mammals is accepted but is considered an issue in others.

The type of boats is very variable. In Bermuda, there are 6 tour boats and lots of leisure boats. In Dominican Republic boats should be maximum 29 feets (but it's not respected), there is however no leisure boats. In the French islands there are NGOs boats, passenger's boats and yacht charters. In Martinique specifically, some fishermen are allowed to transport passengers.

Sustainable practices (careening, motor maintenance, waste management...) are becoming slowly more significant. In Martinique, the "Direction de la Mer" is giving an information book to people passing their boating license.

Participants noted the importance of data collected by whale watching operators. In France, Aquasearch is gathering data sent by whale watchers. Citizen science is apparently not really developed and can be developed in the future. Several tools are already available, including NaturaList (related to "faune flore Martinique") or Obsenmer.

Brief of the discussion

The participants noted the apparition of jet-skis used for whale and dolphin watching. The real impact of such crafts is yet unknown. But while they make more noise out of the water, the sounds they emit seem less heard by whale than classical boat propellers. This, together with the elevated speed may increase the risk for collision. These presumptions need to be studied further to really assess the impact of jet skis on marine mammals.

M.Peirache indicates the speed boats and jet skis are totally forbidden in the Italian part of the Pelagos Sanctuary but authorized in the French part. They are managed through an evaluation grid analyzing each activity in regard to species and time.

Swimming with marine mammals is quickly addressed, the participants wondering whether this activity should be forbidden or only strictly regulated.

The participants discussed the status of whale watchers and the regulation of the activity. The Accobams agreement (Mediterranean and Black sea) stipulate a label for whale watchers, in Domican Republic works with permits and the Agoa sanctuary is covered by a charter. The partners wonder what would be the best status to unify the territories in the partnership.

This status is linked to the question of the number of operators. Participants wonder what would happen if the number of whale watching operators continue to grow (especially in French waters). Some participants stated that there will be a natural selection due to the number of clients not been able to grow. They defend the fact that clients from cruising ships (coming from America, amongst other) aren't interested in whale watching because they don't have time (and aren't allow to swim with dolphins). Other participants stated that the demand grows continuously and that hostel capacities are growing as well (new hostels in project). The number of boats is estimated to 120 with 3000 passengers/ year in Guadeloupe and a total of 2 000 000 passengers/year in Saint Martin.

While there need to be further studies on the impact of WW on cetacean, some participants asked how to make a selection on operators, if this needs to be done. Some territories limited the numbers of permits granted. As a parallel, ML. Ciprin stated that the number of visits of the island of Petite Terre (Guadeloupe) is limited and that each operator is granted some specific days to organize his visits. T. Rivière precises that the model of the trip itself needs a rethink (by adding other activities than whale/dolphin watching, like some operators already do) while warning about the risk of activity transfer on other sensitive ecological compartment.

M.Peirache warn that the creation of new operators needs to be anticipated, especially the most fragile, in a context of global/climate/anthropic change also carrying potential impact on marine mammals movements.

Follow up through the CARIMAM project

This workshop highlighted the difference of practices in the different islands linked to the difference in marine mammal's presence.

However, to ensure both a sustainable economic income and allow peoples to see and link with marine mammals, the question of the regulation (including enforcement) makes sense on almost every territory of the Caribbean.

"Regulation" planned in the CARIMAM project can take two forms:

- Awareness raising through the development of pedagogic tools for travel operators
- Creation of a common quality label/brand for whale and dolphins watchers trough the Caribbean. The intended label mentioned in the project is the Accobams' High Quality Whale Watching Label or assimilate.

Both options can be developed simultaneously but both need further discussion work between partners, either to develop an awareness raising message or to find common grounds for a Caribbean whale watching label.

Further discussion will be led during the project to assess the best way to move forward on this point.

Communication and awareness raising Workshop

Participants:

- Audrey Gineau, Parc naturel marin de la Martinique
- Toa Loiza Lang, Government of Dominican Republic
- Paul Hoetjes, Government of Netherlands
- Sandrine Pivard, CAR-SPAW
- Gaelle Lambert, Association « Mon école ma baleine »
- Nelly Pelisson, Association « Mon école ma baleine »
- Argel Horton, Government of Virgin Islands
- Benoit Godeau, « Amphitrite » whalewatching
- Marc Mandron, « Planète Dauphin » whalewatching
- Marie-Laure Ciprin, Cluster maritime de Guadeloupe
- Laurent Louis-Jean, Parc Naturel Régional de la Martinique
- Chloe Theret, Sanctuaire Agoa
- Bulent Gulay, Metimer

Program

- 9h30 – Group Workshop
- 11h00 - Discussion

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Workshops synthesis

3 groups answering a common question:

“In 5 years, the CARIMAM project is totally finished and bears fruits: a network of partners dedicated to the protection of marine mammals has been created. This network raised awareness about the presence of several species of marine mammals in the Caribbean Sea. The main newspaper of your territory published his front page on this subject (marine mammals and the network’s success); what would it look like, what are the main titles and smaller tittles? Is there any quotes? From who? »

No more passports for marine mammals

The participants imagined a first page in which the main subject is the signature of Saint Vincent and the Grenadines to the CARIMAM Sanctuary, covering the whole Caribbean’s islands. In this sanctuary the stakeholders signed a common charter (inspired by the whale watching charter of Agoa but incorporating other activities). Coast guards are integrated in the project. The first minister is interviewed.

Going further than the first page, the participants imagined a newspaper also presenting scientific research in the project (acoustic, citizen science with fishermen, maps of the results in the islands...).

Awareness raising and education is also addressed in this newspaper: knowledge about marine mammals and their protection is nowadays taught in every school. A school boat (“MEMB”) has been inaugurated with a small laboratory on board, bringing children and adults on board. The 15th February is declared Caribbean day of the marine mammals.

The articles close with an interview of Sandrine Pivard from the SPAW-RAC.

Caribbean island together: the secret life of Caribbean whales

The participants created a future going toward a whale sanctuary. The first page of the newspaper underlines the lack of information about these animals and the challenges they face: plastic, oil pollution, noises....

The newspaper describes a sanctuary composed of several protected areas with local protection in the different islands gathered together in a regional alliance. These territories are working together thanks to a regional networking platform.

The first page finished on the struggle still going on with Saint Kitts and Saint Lucia to bring them in the network.

An oasis for marine mammals: « elles bossent »

The participants made up a first page of an imaginary newspaper which state that the whales’ populations are increasing. It underlines the numerous threats existing at the global scale on these species.

Due to the very important mobilization of stakeholders of the Caribbean, the cry for help has been heard and policy makers, NGOS, citizen all agreed on the protection of marine mammals in the Caribbean sea.

In this future, the participants imagined the reinforcement of cooperation between island and countries of the Atlantic through a common sanctuary covering all the North Atlantic. In this sanctuary the same rules would apply, including the interdiction of whales hunting and plastic use.

Discussion and main ideas

Participants agree on the fact that people love whales and that we need to play on this string. Raising awareness about whales can lead to changes at different levels.

The idea of a regional charter or MOU highlights both the united countries and the territories who didn't signed the document.

Participants underline the fact that the governments' vision needs to change, and that the objective of development of harbors and maritime traffic is incompatible with marine mammals' protection. States use minimum means with funds granted to MPAs, NGOs...while pushing economy in a different way.

Participants liked the idea of an international day of marine mammals and of finding a "sponsor" (someone well known through the Caribbean).

The target audience identified by the participants to achieve the vision(s) imagined is mainly:

- Policy makers. A specific message need to be developed to spark their interest, particularly underlining the importance of regional networking.
The British Virgin Islands declared its territorial waters a sanctuary for all shark species partially thanks to the Caribbean Challenge initiative: Ministers met other policy makers from countries that convinced them to finally sign the MOU.
- Professionals and stakeholders (boaters, fishermen, whale watchers, ferry boats...). Specific panels may for example be installed in marinas
- Schools Participants, while recognizing the benefits of raising awareness with children, underline the risk of the multiplication of subjects treated in the schools, making marine mammals only one among others. However, train teachers and multipliers might be an idea.
- Specialists (=CARIMAM network). This includes the creation of an exchange platform and news from everyone every few month. G.Mannaerts indicates that the CAR-SPAW uses an online platform with a part dedicated to CARIMAM. P.Hoetjes precises that Bionews developed in the Netherlands Antilles can also be used to forward some information from everyone.

Workshops Conclusions

- This meeting allowed the network member to meet and work together for the first time.

- Ecological objectives have been defined and the CARIMAM project aims to study the diversity and seasonality of marine mammal species throughout the Caribbean.
- The different members agreed to put together their photo identification catalogs and Flukebook was recommended as a common tool.
- A common database will be created across the Caribbean to share as much information as possible for conservation purposes.
- The monitoring methods used should be as reproducible as possible between the islands. It will have to privilege low price and simplicity of use.
- Passive acoustics will be used by preferring common hardware when possible. Machine learning is seen as a promising analysis method to ensure comparable results.
- The first step will be to create a catalog of species sounds common to the Caribbean.
- Transects methodology are not yet defined in the project with several unwillingness on the method.

- Whales can be a powerful theme to raise awareness about marine environment in general.
- Participants underline the fact that the governments' vision needs to change and that policy makers is the main target for communication.
- Professionals and stakeholders, and schools are secondary targets for the communication of the project.

- The raising number of whale watching operators, as well as enforcement is a central question for CARIMAM partners.
- CARIMAM may offer to facilitate regulation raising awareness raising through the development of pedagogic tools for travel operators and through the creation of a common quality label inspired by the Accobams High Quality Whale Watching Label.

CARIMAM Kick'off meeting 16/17th October – Attendee list

Name and first name	Organisation	Territory	Email address
Morjane Safi	Aquasearch	Martinique	m.safi@aquasearch.fr
Benjamin de Montgolfier	Aquasearch	Martinique	b.montgolfier@aquasearch.fr
Jaime Bolanos	Asociacion Civil Sea Vida (Venezuela)	Venezuela	bolanos.jimenez@gmail.com
Laurent Bouveret	Association « Observatoire des Mammifères Marins de l'Archipel Guadeloupéen »	Guadeloupe	laurent.bouveret@gmail.com
Caroline Rinaldi	Association Evasion Tropicale & CARIBWHALE	Guadeloupe	evastropic@wanadoo.fr
Gaelle Lambert	Association Mon Ecole Ma Baleine	Martinique	monecolema Baleine martinique@gmail.com
Nelly Eplisson	Association Mon école ma baleine	Guadeloupe	nellymabaleine@gmail.com
Stéphane Jérémie	Association SEPANMAR	Martinique	stephane.jeremie@wanadoo.fr
Sarah Manuel	Bermuda Government, Dept. of Environment and Natural Resources	Bermuda	smanuel@gov.bm
Cathy Lacourbas	BREACH ANTILLES association 1901	Guadeloupe	c.lacourbas@orange.fr
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Kimani Kitson-Walters	Caribbean Netherlands Science Institute	Pays-Bas	kimani.kitson-walters@nioz.nl
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CARIMAM Kick'off meeting 16/17th October – Attendee list

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