



Distr. LIMITED
UNEP(DEPI)/CAR WG.45/INF.30
29 April 2025

Original: ENGLISH

Eleventh Meeting of the Scientific and Technical Advisory Committee (STAC) of the Protocol Concerning Specially Protected Areas and Wildlife (SPA) in the Wider Caribbean Region

Panama City, Panama
30 June – 3 July 2025

Caribbean Marine Mammals and Anthropogenic Activities (CAMAC) Project
Final report of the phase 1, objectives and launch of the phase 2

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Final report of the phase 1, objectives and launch of the phase 2

Interreg
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CAMAC
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Caribbean Marine Mammals and Anthropogenic Activities - CAMAC project

Context

The CAMAC project, for Caribbean marine Megafauna and anthropogenic Activities, aims **to improve knowledge of these interactions and strengthen regional collaboration**. The aim is to provide Caribbean governing bodies and environmental stakeholders with recommendations and tools to reduce the negative impacts of interactions between marine megafauna and human activities. CAMAC promotes the implementation of the SPAW program and the achievement of the SPAW objectives and the COP 12 acknowledge the involvement of the SPAW RAC in the CAMAC project. SPAW COP12 acknowledge the involvement of the SPAW-RAC in the CAMAC project (UNEP(DEPI)/CAR WG.43/INF.36), which promotes the implementation of the SPAW program and the achievement of the SPAW objectives.

Strategic Objectives

To achieve this, five specific objectives have been defined

- to improve knowledge of Caribbean marine megafauna (marine mammals, marine turtles, seabirds, sharks and rays);
- to assess the environmental and socio-economic issues related to interactions between human activities and marine megafauna
- Strengthen regional cooperation and the skills of stakeholders (in particular by reinforcing existing networks);
- strengthen the commitment of young Caribbeans to the conservation of megafauna and marine heritage in general;
 - to make recommendations to the governing bodies in order to support the implementation of the most appropriate policies possible.

SPAW-RAC role

Main project partner, leader and/or contributor to work packages.

General results of phase 1

A total of 190 stakeholders, from 117 organizations of 39 territories of the Wider Caribbean Region were involved in this first phase.

To improve knowledge of Caribbean marine megafauna a marine mammal stranding response training kit has been developed and 142 people have been trained in 8 Regions (Jamaica, Haiti, the Dominican Republic, Puerto Rico, St Kitts, Aruba, Bonaire and Suriname). This inspired the workpackage 2 in CAMAC phase 2 about improving a turtle stranding network.

To strengthen the commitment of young Caribbeans to the conservation of megafauna a Caribbean catalogue containing 79 educational tools have been produced to facilitate their access for teachers. The

catalogue has been translated in 3 languages: English, French and Spanish. It will be used in the school pairing program planned in the CAMAC phase 2.

More than 28 Experts from Caribbean worked on scientific monitoring of marine megafauna and assessing the environmental and socio-economic issues associated with interactions between human activities and marine megafauna. They produced 2 scientific monitoring protocols, and formulate recommendations on the monitoring of interactions between fishing and marine megafauna. These contributions will be implemented during CAMAC phase 2.

Activities summary for CAMAC phase II

1. Develop and implement, in collaboration with Caribbean fisheries organizations, an assessment of the socio-economic and environmental issues related to interactions between fisheries and marine megafauna → WP1 SPAW-RAC leader;
2. Enhance knowledge and monitoring of human-origin impacts on marine mammals and marine turtles, strengthening capacity of the stranding networks → WP2 - SPAW RAC co-leader;
3. Raise awareness on preserving the marine environment via dissemination of educational tools and school exchanges; → WP3
4. Strengthen knowledge on the density and distribution of the marine mammal and seabirds populations present in the Wider Caribbean Region and enhance capacity of Caribbean stakeholders in this field, via a regional field survey; → WP4
5. Enhance knowledge on the taxonomic diversity and distribution of the shark and ray species present in the Wider Caribbean region, and enhance capacity and cooperation of Caribbean stakeholders in this field, via regional field surveys and data sharing; → WP5
6. Develop and disseminate awareness raising and decision support tools developed from the outputs of the project for decision makers, notably on the establishment of new MPAs, marine corridors, and threats mitigation measures. → WP6

Calendar

CAMAC II will take 2 and nine months, from 2025 to 2027.

SPAW-RAC Budget for CAMAC II

425 000€ out of 4.7 million of the total budget for CAMAC II.

ACRONYMS

CAMAC	Caribbean Marine Mammals and Anthropogenic Activities
GCFI	Gulf and Caribbean Fisheries Institute
HOP	Haïti Ocean Project
IWC	International Whaling Commission
MMAP	Marine Mammal Action Plan
MPA	Marin Protected Area
RAC	Regional Activity Center of the SPAW protocol
SPAW	Specially Protected Areas and Wildlife protocol
STAC	Scientific and Technical Advisory Committee of the SPAW protocol
UNEP	United Nations Environment Programme
WCR	Wider Caribbean Region
WWF	World Wildlife Fund

CAMAC

Final report of the phase 1

Objectives and launch of the phase 2

The present document is the final report of the first part of the “Caribbean Marine Mammals and Anthropogenic Activities” (CAMAC) project that were led by the SPAW RAC in partnership with AGOA Sanctuary (OFB) and the launch of its phase II.

I. CONTEXT

1. Following the recommendations of the SPAW COP 12 decision 1 and SPAW STAC 10 recommendation 3 :

SPAW COP12 acknowledge the involvement of the SPAW-RAC in the CAMAC project (UNEP(DEPI)/CAR WG.43/INF.36), which promotes the implementation of the SPAW program and the achievement of the SPAW objectives.

2. SPAW COP12 encourage the SPAW-RAC to include interested Contracting Parties to the extent possible and identify opportunities for CAMAC to support such interested Contracting Parties in achieving SPAW objectives, including those outlined in the Update of the Action Plan for the Conservation of Marine Mammals in the Wider Caribbean Region.

The SPAW RAC is involve as co-leader in the implementation of the CAMAC project.

II. INTRODUCTION

1. The CAMAC project is a response to a priority issue identified in several recommendation documents drafted in recent years in the framework of the SPAW protocol: **strengthen knowledge and regional collaboration to provide the governing bodies of the Caribbean and environmental stakeholders with recommendations and tools to reduce the negative impacts resulting from interaction between human activities and marine megafauna in the Caribbean region.**

The five years project “*Caribbean marine MAminals and anthropogenic ACTivities*” (CAMAC) (2021-2027) was presented during the 2023 Scientific and Technical Advisory Committee (January-February 2023) and the Conference of the Parties SPAW COP12 (Aruba, October 2023).

CAMAC project has 5 main strategic objectives:

1. Enhance knowledge on the Caribbean marine megafauna
2. Assess the environmental and socio-economic issues related to interactions between human activities and marine megafauna
3. Strengthen regional cooperation and stakeholders’ capacities
4. Strengthen the ownership of young Caribbean people to the issues of conservation of megafauna and marine heritage in general
5. Make recommendation to governing bodies

In order to fulfill those objectives and to match INTERREG program, CAMAC project has been phased.

2. CAMAC phase 1 was submitted in response to the latest call for proposal under the Interreg Caribbean 2014-2020 programme. As it was accepted, the project was co-funded of up to 85% of the European Regional Development Fund (ERDF) under the Interreg Caribbean programme for the year 2023. For this first year, the total budget for the project was around 700,000€. The first year of the project is essentially dedicated to developing partnerships and defining scientific protocols. The partners involved in 2023 are the Agoa Sanctuary, which is the project leader, the [SPA W RAC](#) (Regional Activity Centre for the Specially Protected Areas and Wildlife Protocol of the Greater Caribbean Region) and the NGO [Haiti Ocean Project](#).



Figure 1 : CAMAC Phase 1 final Workshop – Nassau Bahamas 2023

3. The second phase of the CAMAC project is planned for a further 3 years between 2024 and 2027.

The total budget for phase 2 is around 4.7millions of euros. SPA W RAC CAMAC budget is around 425 000 euros. CAMAC phase 2 will be devoted to implementing the work plan developed with the partners during phase 1, and to developing and disseminating awareness-raising and decision-making tools based on the results of the project.

4. The lead partner of the project phase 1 was OFB Agoa Sanctuary - Office français de la biodiversité (OFB, French Office of Biodiversity) in close collaboration with the SPA W RAC and the NGO Haiti Ocean Project (HOP).

During phase 1, numerous regional partners were involved such as the OECS (organization of Eastern Caribbean States), the regional Council of Guadeloupe (CRG), WECAFC (Western Central Atlantic Fishery Commission), the Institute of Marine Affairs (RAC of the Cartagena convention of land based sources of pollution), WIDECAST (Wider Caribbean Sea turtle Conservation Network), the Pelagis observatory (University of la Rochelle, France), the NGOs Aruba Marine Mammal Foundation (AMMF), and Mon Ecole Ma Baleine (MEMB), the university of Technology of Jamaica, the DCNA (Dutch Caribbean Nature Alliance).

The co-leaders of the CAMAC project phase 2 are OFB Agoa Sanctuary, SPAW-RAC, WWF Netherlands, WIDECAS and NGO LAST (Latin America SeaTurtle), with a huge participation expected from regional and local fisheries and biodiversity conservation organizations. Phase 2 will be devoted to acquiring knowledge of Caribbean marine megafauna species, in order to propose recommendations to stakeholders. These recommendations will be discussed in workshops and decided in collaboration with regional experts to encourage their implementation. As this project has a strong regional ambition, contracting parties and local NGOs will be invited to take part in the project and will be consulted in order to reconcile human activities with the protection and conservation of marine species. The list from CAMAC phase 1 is extendable within the development of the collaborations during CAMAC phase 2.

III. CAMAC phase 1 Results

Divers groups of experts were created for the different work packages of the project (i.e., fisheries interaction, stranding networks, awareness raising, knowledge enhancement for marine mammals, for sharks, and for seabirds). These groups now bring together more than 110 organizations and 190 experts from the Wider Caribbean Region who contributed to phase I and to the definition of the workplan for phase II.

The main outputs of CAMAC phase I, implemented in 2023, are listed below. The documents can all be downloaded from the CAMAC website (<https://sanctuaire-agoa.fr/editorial/camac-0>) :

- An overview of available information on interactions between fisheries and marine megafauna in the CAMAC area has been completed.
<https://sanctuaire-agoa.fr/documentation/overview-available-information-interactions-between-fisheries-and-marine-megafauna>
- A study of the distributions of the Hawksbill Sea Turtle in the Western Atlantic Inferred from Satellite Telemetry was conducted.
<https://sanctuaire-agoa.fr/documentation/distributions-hawksbill-sea-turtle-eretmochelys-imbricata-western-atlantic-inferred>
- A toolkit for marine mammal stranding response, which consists of a field guide and some field forms, and 5 training videos, including a necropsy video, was developed.
 - English : <https://sanctuaire-agoa.fr/documentation/marine-mammal-stranding-response-toolkit>
 - Spanish : <https://sanctuaire-agoa.fr/documentation/kit-de-formacion-para-la-respuesta-varamientos-de-mamiferos-marinos>
 - French : <https://sanctuaire-agoa.fr/documentation/kit-de-formation-lintervention-sur-les-echouages-de-mammiferes-marins>
- 8 workshops were organized in 8 different territories of the Caribbean to train local networks to stranding response.
<https://sanctuaire-agoa.fr/documentation/camac-report-capacity-building-workshops-marine-mammal-stranding-response>

- A catalogue of educational tools on marine megafauna (79 tools in English, Spanish, French and Creole) CAMACATA was created.

<https://sanctuaire-agoa.fr/documentation/camacata-thematic-catalogue-educational-tools-caribbean>

- The work on elasmobranchs in the Wider Caribbean Region has resulted in the production of a bibliographical review of the state of knowledge on elasmobranchs in the CAMAC area. This review led to the development of an action plan.

- Bibliographic review: <https://sanctuaire-agoa.fr/documentation/camac-elasmobranch-bibliographic-review>
- Priority actions: <https://sanctuaire-agoa.fr/documentation/camac-elasmobranch-priority-actions>

- An action plan to enhance knowledge on marine mammals and seabirds that includes a protocol and the definition of priority areas was drafted.

<https://sanctuaire-agoa.fr/documentation/report-knowledge-enhancement-marine-mammals-and-seabirds>

- A workplan and some recommendations for CAMAC phase II were developed that can be found in the final workshop report.

<https://sanctuaire-agoa.fr/documentation/camac-1-report-final-workshop>

The final workshop of the project for this phase 1 was held on November 4th, 2023, in Nassau, The Bahamas, jointly to the 76th conference of the Gulf and Caribbean Fisheries Institute (GCFI).

Gathering numerous experts on megafauna and fisheries, this workshop aimed at presenting the major outputs of CAMAC phase 1 and discussing the scientific protocols and workplans to be implemented during phase 2.

The workshop successfully completed its objectives as the various round-table activities and discussions allowed a thorough consultation with participants to refine the protocols for phase 2. Based on those results, the CAMAC team validate the final recommendations and workplans published in January 2024 on the project's websites (<https://sanctuaire-agoa.fr/editorial/camac-0> and <https://www.car-spaw-rac.org/?CAMAC-1363>). In parallel, those workplans and associated budget has been used to complete the CAMAC phase 2 proposal and have been submitted to INTERREG during the call for projects in early 2024.

Overall, partners shared positive feedback regarding the CAMAC activities. Through the workshop and the conference, the partners from the Wider Caribbean Region had the opportunity to deepen contacts, share their own experience, and to collectively reflect, announcing a fruitful continuation of CAMAC actions.

IV. CAMAC phase 2 launch

6. General objective

The general objective of the project is to provide **the governing bodies and environmental stakeholders of the region with tools and recommendations** aimed at **strengthening the sustainability of human marine activities, by reducing their impacts on large marine fauna**.

Marine megafauna, which includes marine mammals, sea turtles, sharks, rays, and seabirds, in addition to its key role in the functioning of marine ecosystems, has always been a source of food, economic development (fishing, tourism) and cultural inspiration for the inhabitants of the Wider Caribbean Region. However, these species, both emblematic and indicators of ecosystem health, are sensitive to disturbances, especially of human origin, and a high proportion of them are currently threatened.

7. Phase 2 workplan and outputs

To meet this objective, the action plan of CAMAC phase 2 is :

1. Develop and implement, in collaboration with Caribbean fisheries organizations, an assessment of the socio-economic and environmental issues related to interactions between fisheries and marine megafauna → WP1 – SPAW- RAC leader;
2. Enhance knowledge and monitoring of human-origin impacts on marine mammals and marine turtles, strengthening capacity of the stranding networks → WP2 - SPAW RAC co-leader with WIDECAST and the Association LAST;
3. Raise awareness on preserving the marine environment via dissemination of educational tools and school exchanges; → WP3 – OFB, Sanctuary Agoa
4. Strengthen knowledge on the density and distribution of the marine mammal and seabirds populations present in the Wider Caribbean Region and enhance capacity of Caribbean stakeholders in this field, via a regional field survey; → WP4 – WWF - NL, OFB, Sanctuary Agoa
5. Enhance knowledge on the taxonomic diversity and distribution of the shark and ray species present in the Wider Caribbean region, and enhance capacity and cooperation of Caribbean stakeholders in this field, via regional field surveys and data sharing; → WP5 – WWF - NL, OFB, Sanctuary Agoa
6. Develop and disseminate awareness raising and decision support tools developed from the outputs of the project for decision makers, notably on the establishment of new MPAs, marine corridors, and threats mitigation measures. → WP6– WWF - NL, OFB, Sanctuary Agoa, SPAW RAC? WIDECAST, NGO LAST

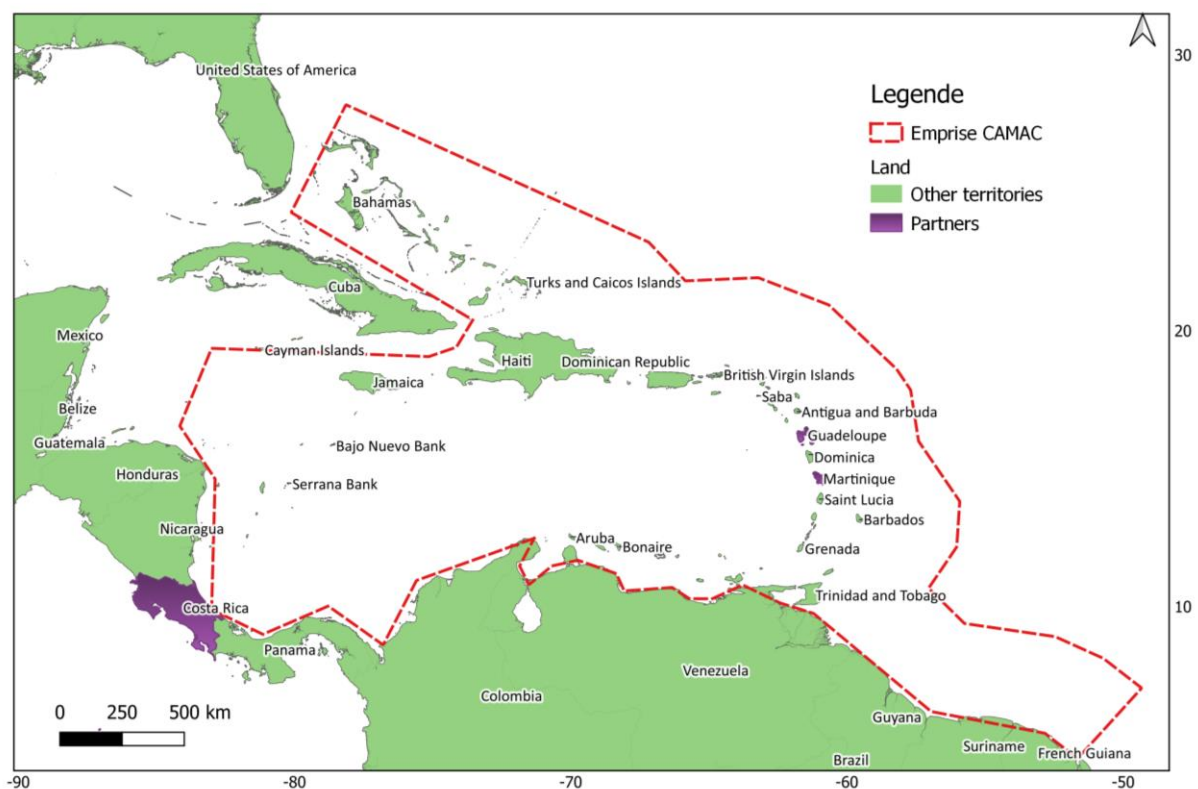
The outputs of CAMAC will help identify critical habitats and migratory corridors for species. Regional cooperation is therefore an intentional and key component of the CAMAC project which explains the obvious involvement of SPAW RAC in the project.

Indeed, this knowledge will support existing and new regional conservation actions carried out by governmental and civil society actors across the Caribbean, such as the Marine Mammal Action Plan for the conservation of Marine Mammals in the Wider Caribbean Region presented during SPAW COP12 which addresses priority threats to those species. CAMAC is answering to the two

major issues highlighted in the MMAP : The management of human interactions and use and Species knowledge and protection, especially with the workpackage 1 and 4. Workpackage 2 contributes in the role of the RAN Widecast for sea turtles conservation.

These achievements will then contribute in regional program such as marine spatial planning, the identification of Important Marine Mammal Areas (IMMA) and Important Shark Areas (ISA), as well as transboundary MPAs for megafauna. The project will also strengthen regional scientific and technical networks for megafauna conservation and support regional policy for better protection of most vulnerable species, via notably the SPAW protocol of the Cartagena Convention and regional fishery organizations such as WECAFC or the CRFM.

A report will be produced for each group of species, i.e. 5 executive reports, plus a document for decision-makers. These reports will be disseminated to public authorities and local and regional decision-makers with the support of regional organization and events .



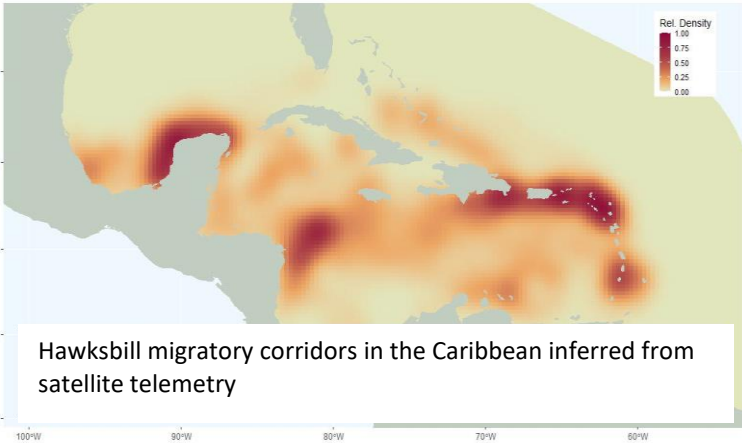
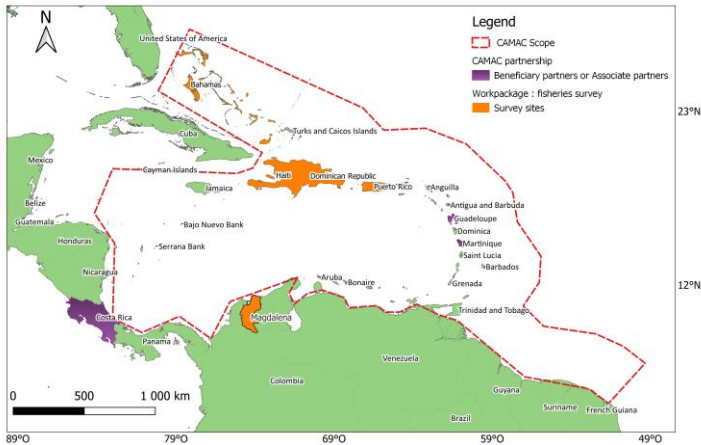
8. The scope of the project evolved to include Costa Rica and the NGO LAST :

9. Launch for CAMAC Phase 2

CAMAC phase 2 will start in **early April 2025**, OFB-Sanctuary Agoa recruits the project manager and the different project officers. SPAW RAC has already hired a project officer for leading Workpackage 1 and working with partners on the other workpackages.

V. CAMAC Phase 1 achievement synthesis and phase 2 objectives

Workpackage	Phase 1 Achievement	Phase 2 Objectives
WP 1 – Interaction with fisheries	<ul style="list-style-type: none"> ▷ Review available data on species distribution and fisheries ▷ Produce a map interaction between megafauna and fisheries (IWC ByRA tool) ▷ Locate hotspots of interactions ▷ Specific and operational recommendations for mitigation ▷ An enhanced interest for the topic in the region ▷ An enhanced capacity for bycatch monitoring ▷ Build partnership with Caribbean fisheries organizations ▷ Define protocols and priority areas for knowledge enhancement (phase 2) <div> <div>28 Fisheries experts</div> <div>21 Caribbean territories</div> <div>Summary maps Species/fish eries interactions</div> </div>	<ul style="list-style-type: none"> ▷ Enhance knowledge in priority areas with interview surveys and embarkments (see map below) ▷ Strengthen phase 1 maps with phase 2 results ▷ Make recommendations for bycatch mitigation ▷ Build a map of statistical interactions and build it with the help of fishermen ▷ Train observer to bycatch survey and data collection ▷ Create a regional database that could be used after the project ▷ Expand this method to other sites in the Caribbean <div> <div>1 Survey protccol deployed on</div> <div>5 Caribbean territories at least</div> </div>

	<p>Hawksbill distribution inferred from satellite telemetry (Maurer & Eckert, 2024)</p>  <p>Hawksbill migratory corridors in the Caribbean inferred from satellite telemetry</p>	<p>Pilot sites for surveys and byRA data collection</p> 
<p>WP 2 – Stranding networks</p>	<ul style="list-style-type: none"> Development of a standardized protocol and a training kit for marine mammals Capacity building, supply of equipment Identify data/sample analyses to be conducted during phase 2 <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid red; border-radius: 50%; padding: 10px; text-align: center;"> <p>142</p> <p>People trained</p> </div> <div style="border: 1px solid red; border-radius: 50%; padding: 10px; text-align: center;"> <p>8</p> <p>regions</p> </div> <div style="border: 1px solid red; border-radius: 50%; padding: 10px; text-align: center;"> <p>Training kit</p> <p>En, Es, Fr</p> </div> </div>	<ul style="list-style-type: none"> Conduct the analyses of data/sample collected by stranding networks identified during phase 1 Training and capacity building for sea turtle stranding networks with partner Widecast <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="background-color: red; color: white; border-radius: 50%; padding: 10px; text-align: center;"> <p>Strengthened stranding network</p> <p>1 database</p> </div> <div style="background-color: red; color: white; border-radius: 50%; padding: 10px; text-align: center;"> <p>1</p> <p>Turtle stranding protocol</p> </div> <div style="background-color: red; color: white; border-radius: 50%; padding: 10px; text-align: center;"> <p>1</p> <p>beach-accessible training materials</p> </div> </div>

WP 3 - Awareness raising	<ul style="list-style-type: none"> ▷ Inventory, translation and dissemination of educational tools available for teachers (catalog) → CAMACATA catalog translated in 3 languages (EN/ES/FR) ▷ Build partnership for twinning program (phase 2) <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid red; border-radius: 50%; padding: 10px; text-align: center;"> <p style="color: red; font-weight: bold;">1</p> <p>Caribbean cataglogue</p> </div> <div style="border: 1px solid red; border-radius: 50%; padding: 10px; text-align: center;"> <p style="color: red; font-weight: bold;">79</p> <p>Educational tools</p> </div> </div>	<ul style="list-style-type: none"> ▷ Implement the twinning between classes (activities in class, correspondence, school trips) <div style="text-align: center;"> <div style="background-color: red; color: white; border-radius: 50%; padding: 20px; display: inline-block;"> <p style="color: white; font-weight: bold;">6</p> <p>Twinning planned</p> </div> </div>
WP 4/5 - knowledge enhancement	<ul style="list-style-type: none"> ▷ Build technical partnership with scientific organizations of the Caribbean ▷ Define scientific protocols ▷ Get official commitment of territories <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid red; border-radius: 50%; padding: 10px; text-align: center;"> <p style="color: red; font-weight: bold;">3</p> <p>Thematic groups of experts</p> </div> <div style="border: 1px solid red; border-radius: 50%; padding: 10px; text-align: center;"> <p style="color: red; font-weight: bold;">2</p> <p>Scientific monitoring protocols</p> </div> <div style="border: 1px solid red; border-radius: 50%; padding: 10px; text-align: center;"> <p style="color: red; font-weight: bold;">1</p> <p>Elasmo branch action plan</p> </div> </div>	<ul style="list-style-type: none"> ▷ Implement the regional survey(s) with partners and protocols identified during phase 1 ▷ Implement analyses of the distribution of species based on existing datasets (sightings, telemetry tracking) <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="background-color: red; color: white; border-radius: 50%; padding: 10px; text-align: center;"> <p style="color: white; font-weight: bold;">2</p> <p>Data collection protocols</p> </div> <div style="background-color: red; color: white; border-radius: 50%; padding: 10px; text-align: center;"> <p style="color: white; font-weight: bold;">For 2</p> <p>Groups of species</p> </div> <div style="background-color: red; color: white; border-radius: 50%; padding: 10px; text-align: center;"> <p style="color: white; font-weight: bold;">Stanard</p> <p>protocol for elasmo branch</p> </div> </div>