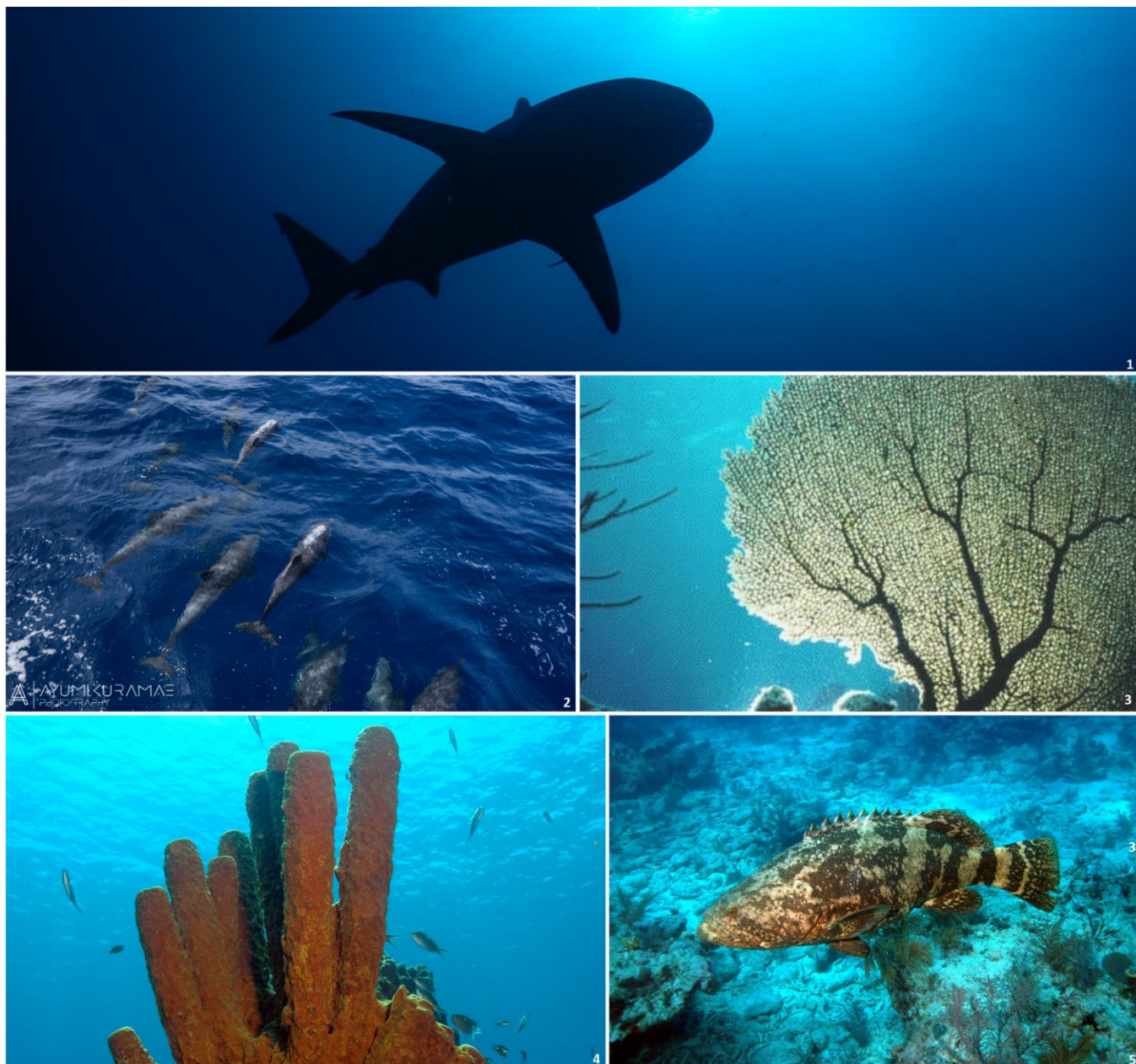


SPAW Protected Areas of the Wider Caribbean



From L to R, Top to Bottom: 1 Caribbean Reef Shark in Man of War Shoal Marine Protected Area: **Credits- Melanie Meijer zu Schlochtern;** 2 Different Dolphin species in Saba Bank National Park: **Credits- Ayumi Kuramae;** 3 Fan Coral in Dry Tortugas National Park; 4 Yellow Tube Sponge in Parque Nacional Submarino La Caleta: **Credits- Adolfo Lopez;** 5 Goliath Grouper in Dry Tortugas National Park



An initiative of the African, Caribbean and Pacific Group of States funded by the European Union



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This publication provides a detailed listing of all the Protected Areas under the SPAW Protocol including necessary details about Purpose of Listing of the Park, Key Species found there, the Management Strategy of the Park etc. It also includes a background about the SPAW Protocol and its Protected Areas, along with an in-depth analysis of the key species found in the Wider Caribbean Region for the purpose of forming Ecological Networks. The publication has been designed to be revised over time based on new or updated information gathered from the individual Protected Areas. For questions and queries about a specific Protected Area, it is advised to consult with their respective manager/curator.



An initiative of the African, Caribbean and Pacific Group of States funded by the European Union

SPAW PROTECTED AREAS OF THE WIDER CARIBBEAN: A Comprehensive Booklet



2020



Hawksbill Turtle on Fish Bowl, Man of War Shoal Marine Protected Area, credits- Leslie Hickerson

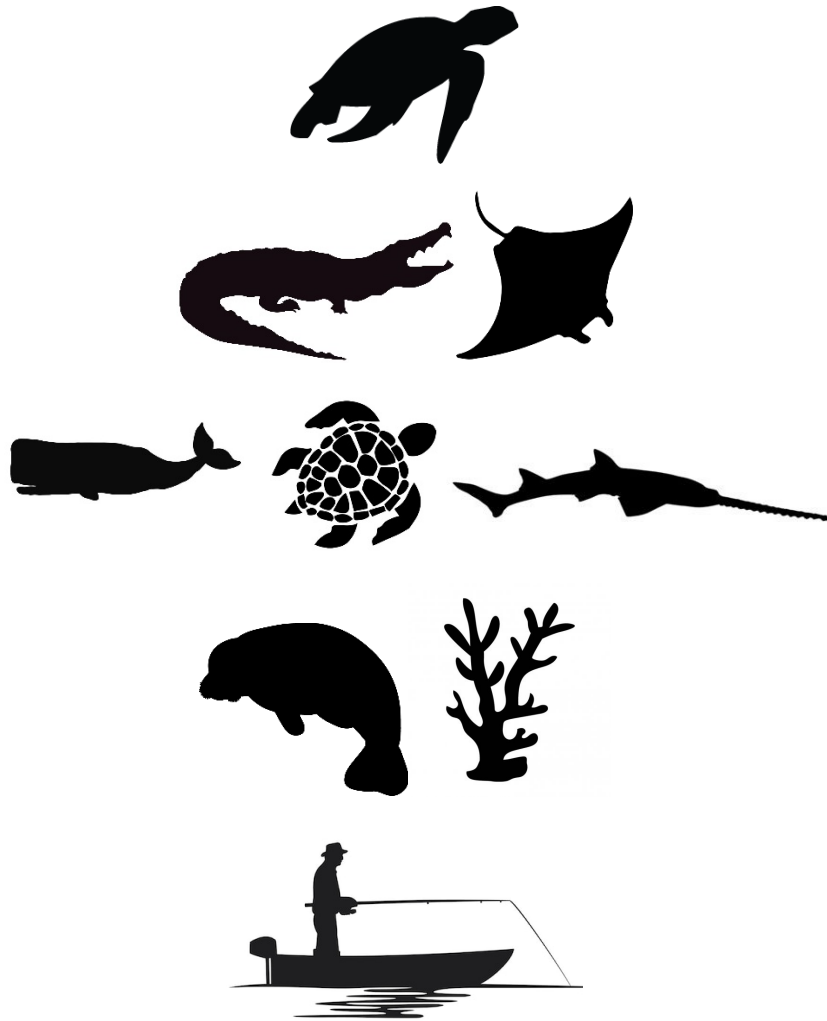


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Acknowledgements

This publication has been developed following an extensive analysis of the various Protected Areas Report submissions for proposed areas for inclusion in the SPAW list. These were extracted from database of protected areas listed under the SPAW Protocol managed by SPAW-RAC. The open source Information provided is great acknowledged. A special thank you is expressed to government personnel and Protected Area managers who assisted with testing and validating sections of the document. Lastly, but most importantly, I would like to extend my sincere gratitude to my supervisor Ms Ileana Lopez who has been the constant pillar of support, motivation and harbinger of new ideas throughout the process.

List of Acronyms

ACCSD	Ambergris Caye Citizens for Sustainable Development
ACP-MEA III	African Caribbean Pacific countries Multi-Lateral Agreements Phase III
AOT	Autorisations d'occupation Temporaires
APPB	Prefectural Biotope Protection Order
CaMPAM	Caribbean Marine Protected Area Management Network and Forum
CBD	Convention on Biological Diversity
CESC	Conseil Économique Social et Culturel
CGSM	Ciénaga Grande de Santa Marta
CITES	The Convention on International Trade in Endangered Species of Wild Fauna and Flora
CLCGSM	Complejo Lagunar Ciénaga Grande de Santa Marta
CR	'Critically Endangered' category under the IUCN Red List
DCNA	Dutch Caribbean Nature Alliance
DTNP	Dry Tortugas National Park
EEZ	Economic Exclusive Zone
EIA	Environment Impact Assessment
EL&I	Ministry of Economic Affairs, Agriculture and Innovation
EN	'Endangered' category under the IUCN Red List
FDL	Forêt Domaniale du Littoral
FKNMS	Florida Keys National Marine Sanctuary
GMP	General Management Plan
GMPa	General Management Plan Amendment
IMO	International Meteorological Organisation
IMP	Integrated Management Plan
IUCN	International Union for Conservation of Nature
MINA	Central Government Department of Nature and the Environment
MPA	Marine Protected Area
NGO	Non-Governmental Organisation
NMS	National Marine Sanctuary
NOAA	National Oceanic and Atmospheric Administration
NW	North West
ONF	Office National des Forêts
OPSC	Old Providence and Santa Catalina
PHMR	Port Honduras Marine Reserve
PNJ	Jaragua National Park
PNLH	Los Haitises National Park
PNSdB	Sierra de Bahoruco National Park
PSSA	Particularly Sensitive Sea Areas
RAMSAR	The Convention on Wetlands of International Importance
RNA	Research Natural Area
RNN	Reserve Naturelle Nationale
RNN-A	Reserve Naturelle Nationale de L'Amana
RNN-KR	Reserve Naturelle Nationale de Kaw-Roura
RNNSM	Reserve Naturelle Nationale of Saint Martin
ROV	Remotely Operated Underwater Vehicle
RUNAP	Parques Nacionales Naturales de Colombia

SAI	Largest island and centre of government, San Andres
SBMP	Saba Bank Marine Park
SCF	Saba Conservation Foundation
SCUBA	Self-contained underwater breathing apparatus
SEMARENA	PNSdB Management Plan
SENPA	National Service of Environmental Protection
SFF CGSM	Cienaga Grande de Santa Marta Flora and Fauna Sanctuary
SINAP	Sistema Nacional de Areas Protegidas
SNSM	Sierra Nevada Mountain System of Santa Marta
SPAW	Specially Protected Areas and Wildlife
SPAW RAC	Regional Activity Centre of the Specially Protected Areas and Wildlife (SPAW) Protocol
STINAPA Bonaire	National Parks Bonaire Foundation
TCMP	Tobago Cays Marine Park
TIDE	Toledo Institute for Development and Environment
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USA	United States of America
USD	United States Dollars
VU	'Vulnerable' category under the IUCN Red List
WCR	Wider Caribbean Region
WDPA	World Database on Protected Areas
WWTP	Waste Water Treatment Plan
ZDUC	Community Right of Use Zone
ZNIEFF	Natural Areas of Ecological Interest Fauna and Flora

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Park biologist surveying Staghorn Coral, Dry Tortugas National Park, USA

1. Introduction

In anticipation of the implementation of the project: “[Enforcing Environmental Treaties in African, Caribbean and Pacific \(ACP\) Countries- ACP-MEAs III](#)” (2020-2024) funded by the European Commission, the Protocol Concerning Specially Protected Areas and Wildlife (SPAW)/Biodiversity Sub-Programme of the Cartagena Convention Secretariat is supporting activities for the ACP countries to better manage their coastal and marine resources towards effective implementation under the related [Regional Seas Conventions and Protocols](#). This will further aim to reinforce the governance frameworks, develop regionally representative networks, reduce the influx of waste (plastics and other forms of human/industrial liquid and solid waste) entering the marine environment of the four regions, and increase awareness/outreach activities, among others.

Under the biodiversity component Result 2.2: 'Development of regional representative networks of Marine Protected Areas', this booklet on MPAs spread across the Wider Caribbean Region, listed under the SPAW Protocol comes as a natural first step. The final expected result is a functional network of SPAW-listed Protected Areas covering interconnected marine habitats and ecosystems for restoring and sustaining the health of the oceans.

With a unique geography consisting of diverse independent nations and foreign island territories and extraordinary marine ecosystems, the Wider Caribbean Region (WCR) is remarkable in its own right. The people of these island nations all share a tight dependence to their marine and coastal environments. The biodiversity of the region play a key role as it provides subsistence, fishing, water, materials, employment, coastal protection and well-being for the people living here. Thereby, Caribbean biodiversity is the ground for the human communities from this region's territories.

Identifying the stakes of biodiversity preservation, [Cartagena Convention](#) was formed in 1983 under the [Caribbean Environment Programme](#) for the protection and development of the marine environment in the region. It is divided into three different protocols, of which one is specifically dedicated to the protection of the region's biodiversity: the SPAW Protocol.

Since the adoption of the [SPAW Protocol](#) in January 1990 and its inception from June 2000, [17 countries](#) (Table 1) have become Contracting parties to the Protocol (Figure 1).

S.No	Name of Country
1.	Bahamas
2.	Barbados
3.	Belize
4.	Colombia
5.	Cuba
6.	Dominican Republic
7.	France (Guadeloupe, Guyane, Martinique, Saint-Barthélemy, Saint-Martin)
8.	Grenada
9.	Guyana
10.	Honduras
11.	Netherlands (Aruba, Bonaire, Curaçao, Saba, Sint Eustatius, Sint Maarten)
12.	Panama
13.	Saint-Lucia
14.	Saint-Vincent and the Grenadines
15.	Trinidad and Tobago
16.	USA (states bordering the Gulf of Mexico, the American Virgin Islands, Puerto Rico)
17.	Venezuela

Table 1: List of contracting parties to the SPAW Protocol

Under the Protocol, there are a total of [35 listed Marine Protected Areas](#) shared among 9 Contracting parties : Belize (3), Colombia (3), Cuba (2), Dominican Republic (4), France (10), Grenada (1), Netherlands (7), Saint Vincent and the Grenadines (1) and USA (4) (Figure 2).

Box 1- What is a Protected Area?

“A Protected Area is a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values”.

- IUCN

Protected areas can be found across different environments from the mountains to sea, across deserts, forests or freshwater lakes. Marine Protected Areas (MPAs) belong to the world’s oceans. The term Marine Protected Areas include marine reserves, fully protected marine areas, no-take zones, marine sanctuaries, ocean sanctuaries, marine parks, locally managed marine areas, among the many types. There are stricter regulations for these spaces in the ocean as compared to the surrounding areas – similar to Protected Areas on land.

Many of these have quite different levels of protection, and the range of activities allowed or prohibited within their boundaries varies considerably too. But all these areas are designated and effectively managed to protect marine ecosystems, processes, habitats, and species, which can contribute to the restoration and replenishment of resources for social, economic, and cultural enrichment.

MPAs come either under national jurisdiction called National waters or under Areas Beyond National Jurisdiction (ABNJ) called High seas. National waters represent an area of coastal water extending out to the limit of the Exclusive Economic Zone at 200 nautical miles from the baseline of a Coastal state. An MPA lying within the national waters of one country is responsible for its management and protection. Figure 1 shows the Wider Caribbean Region map presenting SPAW ratified Contracting parties and their extent of related National waters.



Figure 1: Map showing National waters (dark blue) under the jurisdiction of Contracting parties to the SPAW Protocol (Source: car-spaw-rac.org)

2. About: SPAW Protocol

The Protocol concerning Specially Protected Areas and Wildlife (SPAW Protocol) under the Cartagena Convention works for the protection and development of the marine environment of the WCR. The conservation of marine biodiversity remains the central pillar of SPAW Protocol as it provides a unique legal framework for the conservation of regional biodiversity. The SPAW Protocol also aids in attaining other global agreement's objectives, such as the [Convention on Biological Biodiversity \(CBD\)](#) (for example- [Aichi Target 11](#)) or the [Ramsar Convention](#). Other important regional initiatives have been launched under SPAW's auspices, namely for the reinforcement of protected areas and the conservation of key species, with the participation of stakeholders like governments, NGOs, local communities, etc.

Box 2- Aichi Target 11

By 2020, at least 17 percent of terrestrial and inland water , and 10 percent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

Under this Convention, the Contracting Parties to the Protocol shall endeavour to establish regional, sub-regional and national agreements for the protection of the marine environment of the WCR. The parties shall take the necessary measures to protect, preserve and manage in a sustainable way, areas of the WCR in which it exercises sovereign rights or jurisdiction:

- a) Areas that require protection to safeguard their special value (ecological, cultural etc); and
- b) Threatened or endangered species of flora and fauna, along with their habitats

Besides these two targets regarding species and spaces, the SPAW Protocol also includes various diagonal objectives:

- Establishing impact studies in the case of projects and/or activities that can have a strong effect on the environment;
- The possibility of exempting Parties to the obligations of Protocol in case of traditional or development-related activities;
- Developing scientific and technical research on the protected zones and species listed under the SPAW Protocol, promoting the exchange of information between Parties' monitoring/research programmes, and strengthening the coordination of these programmes;
- It also establishes the principles for elaboration of measures, criteria and guidelines answering to these different goals.

For protecting, preserving and managing these areas and species of relevance, contracting parties establish marine protected areas, with a view of sustaining the natural resources, and encouraging ecologically sound and appropriate use, understanding and enjoyment of these areas, in accordance with the objectives and characteristics of each of them. The Protected Planet website (<https://www.protectedplanet.net/>) is the most up to date and complete source of information on protected areas of the world. It is a publicly available online platform where users can view marine protected areas, access related statistics and download data from the World Database on Protected Areas World Database of Protected Areas (WDPA). For the WCR, Caribbean Marine Protected Areas Management Network and Forum (CaMPAM) database acts as the one-stop repository detailing the numerous marine protected areas in the region. [CaMPAM database](#) consists of fields focusing on identity, legal, biophysical and management parameters. Future plans for the database include developing interactive maps.

3. Why are MPAs listed under the SPAW Protocol?

There are more than 1000 MPAs in the WCR, but only 35 of them feature in the SPAW list. The listing of Protected Areas under the SPAW Protocol, as identified under Article 7 of the Protocol, has been made a priority for the Contracting Parties since 2004 by successive Conferences of Parties. The purpose of this list is to identify those areas that are of particular importance to the Wider Caribbean region, that are to be accorded in priority for scientific and technical research and mutual assistance, as well as to protect the listed areas from activities that would undermine the purposes for which they were listed. The list comprises of areas protected in order to sustain the natural resources of the Wider Caribbean region, and to encourage ecologically sound and appropriate use, understanding and enjoyment.

The listed areas contribute to:

- Protecting and preserving areas, habitats and species with special ecological, cultural and socio-economic values.



Flamingo Tongue Snail, Bonaire National Marine Park, credits- MM Bockstael-Rubio



Goldentail Moray Eel on Mike's Maze, Man of War Shoal Marine Protected Area, credits- Leslie Hickerson

- Preventing species from becoming endangered or threatened.
- Providing for the special needs of threatened, endangered, endemic or migratory species.

Three new sites have registered under the SPAW Protocol during COP 10 (Roatan, Honduras on June 03,2019): Kaw-Roura National Nature Reserve and Amana National Nature Reserve, both in French Guyana, as well as the Mount Scenery National Park of Saba Island, in the Caribbean Netherlands. Two new species have also been added to the Annexes on species requiring protection (1 in Annex II and 1 in Annex III): Largetooth sawfish (*pristis pristis*) and the Silky shark (*Carcharhinus falciformis*). The Annexes fix the list of coastal and marine species of flora (appendix I) and fauna (appendix II), where exploitation is forbidden, and the species of flora and fauna which populations must be maintained at a bearable level (appendix III).

The inscription to the SPAW's protected areas list is dictated by the requirement guidelines and criteria developed by the Working Group dedicated to protected spaces. Diverse evaluation mechanisms and online tools help determine the conformity of proposed MPAs to the requirements adopted by the Contracting Parties of SPAW. The benefits of inscribing MPAs under SPAW are multiple

4. How are they selected?

For an MPA to be listed under the SPAW Protocol, the contracting party under whose jurisdiction it lies have to follow strict guidelines to be assigned as a SPAW listed MPA. Appropriate guidelines and criteria on the requirements for listing Protected Areas under the SPAW Protocol have been developed by a dedicated working group of experts and adopted in 2008. These rigorously followed guidelines and criteria does not allow areas to be allotted as MPAs if it does not serve the objectives of Article 4. Article 4 states that protected areas shall be established with a view to sustaining the natural resources of the Wider Caribbean region, and encouraging ecologically sound, and appropriate use, understanding, and enjoyment of these areas, in accordance with the objectives and characteristics of each of them. It also lays down the protection, planning and management measures for the protected area, along with inclusion of stakeholders and implementation mechanism. This ensures

its fulfilment of biodiversity objectives, long-term protection and management effectiveness. The detailed guidelines and criteria for the evaluation of protected can be accessed through [this link](#). These assigned MPAs are categorised under the [IUCN Protected Areas Category System](#) (Annex I)

A [reporting format](#) that aims at helping Parties prepare their presentation reports on the Protected Areas was also developed, and approved by SPAW Parties at the 6th SPAW COP in 2010. The objective of the report format is to assist the Parties in identifying the necessary information that they must provide according to the Guidelines and Criteria, and to guide their presentation of this information in a way that allows comparisons and compilation. [SPAW RAC](#) also offers a [web-based tool](#) has also been developed in order to offer the possibility to prepare and submit reports on-line by the interested Parties.



Carib Cargo Reef Balls, Man of War Shoal Marine Protected Area, credit- Leslie Hickerson

5. List of SPAW MPAs

Table 2 shows the comprehensive list of the 35 Marine Protected Areas under the 9 different Contracting parties listed under the SPAW Protocol. The list also details the area of extension (in sq. km) of each MPA along with the IUCN Category (I, II, III or IV) it belongs to, Unknown refers to the

MPAs where the IUCN designation is not known (refer to Annex I for detailed explanation). Table 2 is supplemented with Figure 2 where the numerical allotment is mapped as red markers on the Wider Caribbean Region map to show the location of the MPA.

S. No	Country	Protected Area	Extension	IUCN Category	Date of Listing
1	Belize	Hol Chan Marine Reserve	55 km ²	II	10/2012
2	Belize	Glover's Reef Marine Reserve	350 km ²	IV	10/2012
3	Belize	Port Honduras Marine Reserve	405 km ²	IV	12/2014
4	Cuba	Parque Nacional Guanahacabibes	398 km ²	Unknown	10/2012
5	Cuba	Parque Nacional Cayos de San Felipe	2625 km ²	II	03/2017
6	Colombia	Regional Seaflower Marine Protected Area	65,000 km ²	Unknown	10/2012
7	Colombia	Regional Natural Park of Wetlands between the rivers León and Suriquí	6181 km ²	Unknown	12/2014
8	Colombia	Sanctuary Ciénaga Grande de Santa Marta	268 km ²	I	10/2012
9	Dominican Republic	La Caleta Submarine Park	12 km ²	II	12/2014
10	Dominican Republic	National Park Jaragua	1536 km ²	II	12/2014
11	Dominican Republic	National Park Haitises	631 km ²	II	12/2014
12	Dominican Republic	National Park Sierra de Bahoruco	1226 km ²	II	12/2014
13	France	Réserve naturelle nationale de l'Amana Guyane	154 km ²	IV	11/2019
14	France	Ile du Grand Connétable Guyane	79 km ²	IV	10/2012
15	France	Réserve naturelle nationale de Kaw-Roura Guyane	947 km ²	IV	11/2019
16	France	Étangs des Salines Martinique	98 km ²	III	12/2014
17	France	Versants Nord de la Montagne Pelée	789 km ²	III	10/2012
18	France	Parc National de la Guadeloupe	2467 km ²	II	10/2012
19	France	Réserve Naturelle de Petite Terre	10 km ²	IV	10/2012
20	France	Sanctuaire Agoa	138,000 km ²	Unknown	10/2012
21	France	Étangs Lagunaires de Saint-Martin	2 km ²	IV	12/2014
22	France	Réserve Naturelle Nationale de Saint-Martin	31 km ²	IV	10/2012
23	Grenada	Molinière-Beauséjour Reserve	0 km ²	II	12/2014
24	Netherlands	Bonaire National Marine Park	27 km ²	II	10/2012
25	Netherlands	The Quill and Boven National Park St. Eustatius	5 km ²	II	10/2012

26	Netherlands	St Eustatius National Marine Park	27 km ²	II	12/2014
27	Netherlands	Saba Bank National Park	2679 km ²	II	10/2012
28	Netherlands	Saba National Marine Park	8 km ²	II	12/2014
29	Netherlands	Mt. Scenery National Park Saba	3.4 km ²	II	11/2019
30	Netherlands	Man Of War Shoal Marine Park Sint Maarten	31 km ²	II	12/2014
31	Saint Vincent and the Grenadines	Tobago Cay Marine Park	66 km ²	Unknown	12/2014
32	USA	Dry Tortugas National Park	265 km ²	Unknown	10/2012
33	USA	Florida Keys National Marine Sanctuary	99,467 km ²	Unknown	10/2012
34	USA	Everglades National Park in Florida	6110 km ²	Unknown	10/2012
35	USA	Flower Garden Banks National Marine Sanctuary	145 km ²	Unknown	10/2012
TOTAL			333,097.4 km ² / 33,009,740 ha		

Table 2: List of SPAW listed MPAs along with their extension areas and IUCN categories

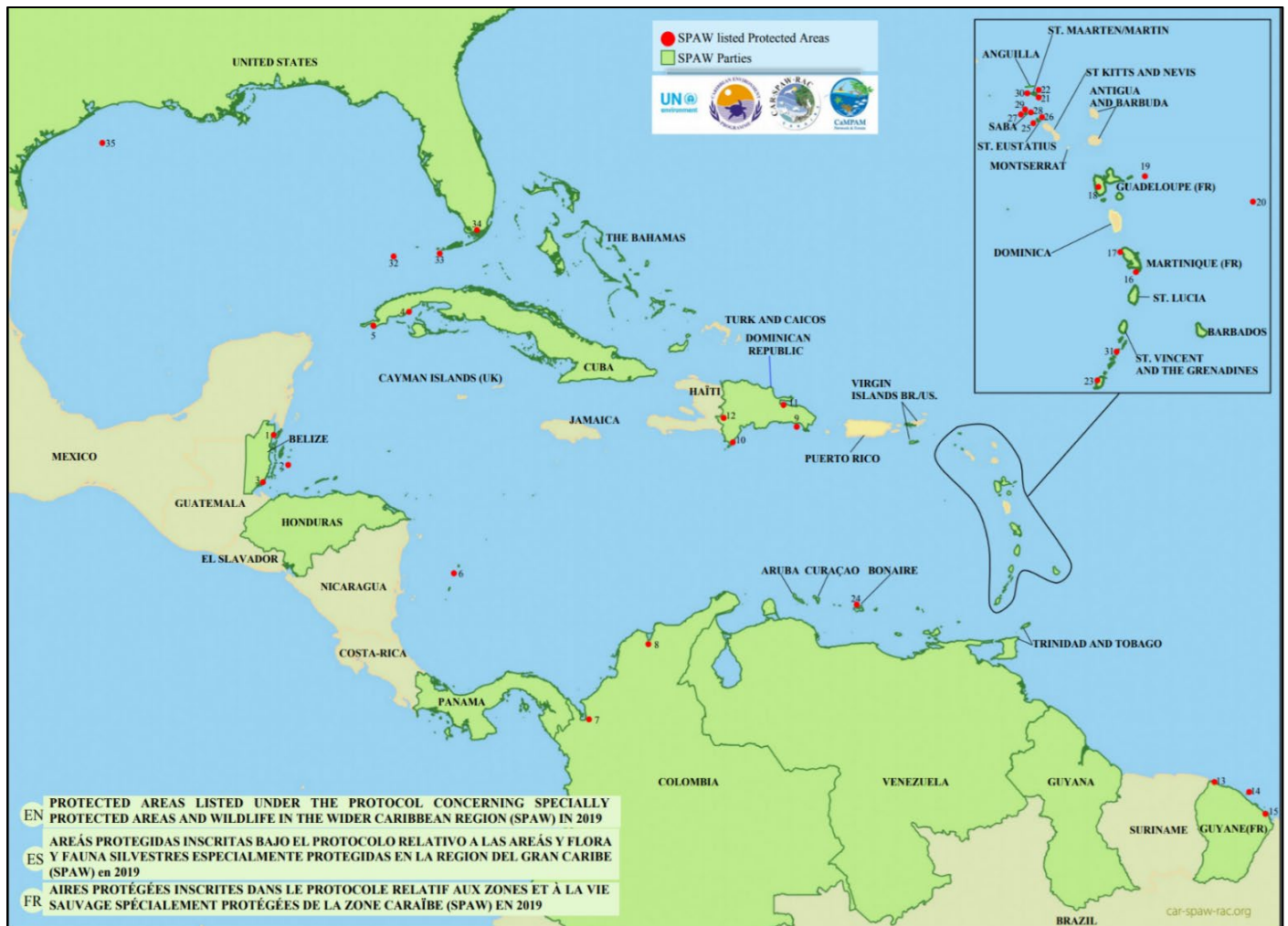


Figure 2: Wider Caribbean Region map showing the location of SPAW listed MPAs with red markers

6. Species under the Lens: Forming Ecological Networks

Under the final expected result of creating a functional network of SPAW-listed Protected Areas covering interconnected marine habitats and ecosystems for restoring and sustaining the health of the oceans (Result 2.2) under the ACP MEA-III Project, the following deliverables and outcomes are of relevance to this booklet:

- Activity 2.2.1- Develop an operational network of SPAW MPAs according to existing guidelines
- Activity 2.2.4- Provide technical support, monitoring and research to Governments to enable their establishment of new SPAW MPAs

As a preliminary attempt at identifying key important species for fulfilling the outcomes, which are important at the regional context as well as having international relevance, a few criteria have been considered before deciding the list. All of these aim towards marine conservation and biodiversity protection in the Wider Caribbean Region: the two central themes of the SPAW Protocol, as well as building possible Ecological Networks of

MPAs in the future. The Contracting Parties of the SPAW Protocol adopted [Annexes](#) to ensure the protection and preservation of endangered species consisting of a list of coastal and marine species of flora (appendix I) and fauna (appendix II), where exploitation is forbidden, and the species of flora and fauna where populations must be maintained at a bearable level (appendix III). Table 3 presents the compiled non-exhaustive list of species, which are based on the below listed criteria:

1. The species must lie under either one of the SPAW Annexes I, II or III
2. The species must have its livelihood linked directly to the marine environment (like feeding, breeding or nesting ground)
3. The species must feature in the IUCN Red list of threatened species
4. The species appear in at least one of the SPAW listed MPAs

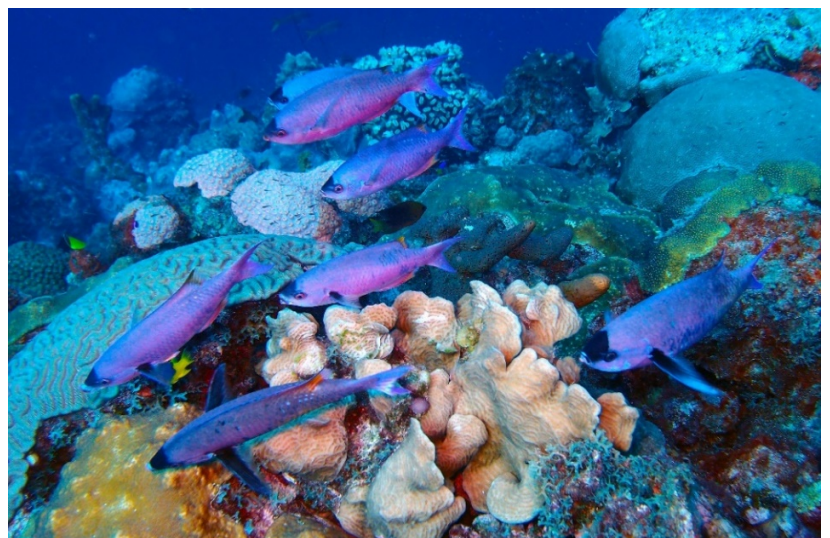
S. No	Scientific Name	Common Name	IUCN Status
1	<i>Crocodylus acutus</i>	American Crocodile	Vulnerable (VU)
2	<i>Pristis pectinata</i>	Smalltooth Sawfish	Critically Endangered (CR)
3	<i>Acropora cervicornis</i>	Staghorn Coral	Critically Endangered (CR)
4	<i>Acropora palmata</i>	Elkhorn Coral	Critically Endangered (CR)
5	<i>Montastraea annularis</i>	Boulder Star Coral	Endangered (EN)
6	<i>Montastraea faveolata</i>	Mountainous Star Coral	Endangered (EN)
7	<i>Eretmochelys Imbricata</i>	Hawsbill Turtle	Critically Endangered (CR)
8	<i>Lepidochelys kempii</i>	Kemp's Ridley Turtle	Critically Endangered (CR)
9	<i>Caretta caretta</i>	Loggerhead Turtle	Vulnerable (VU)
10	<i>Dermochelys coriacea</i>	Leatherback Turtle	Vulnerable (VU)
11	<i>Chelonia mydas</i>	Green Sea Turtle	Endangered (EN)
12	<i>Lepidochelys olivacea</i>	Olive Ridley Turtle	Vulnerable (VU)
13	<i>Epinephelus striatus</i>	Nassau Grouper	Endangered (EN)
14	<i>Rhincodon typus</i>	Whale Shark	Endangered (EN)
15	<i>Carcharhinus longimanus</i>	Oceanic whitetip shark	Vulnerable (VU)

16	<i>Carcharhinus falciformis</i>	Silky shark	Vulnerable (VU)
17	<i>Sphyrna lewini</i>	Scalloped Hammerhead Shark	Endangered (EN)
18	<i>Sphyrna mokarran</i>	Great hammerhead shark	Endangered (EN)
19	<i>Trichechus manatus</i>	West Indian Manatee	Vulnerable (VU)
20	<i>Balaenoptera physalus</i>	Fin Whale	Endangered (EN)
21	<i>Eubalaena glacialis</i>	North Atlantic Right Whale	Endangered (EN)
22	<i>Eubalaena glacialis</i>	Sperm Whale	Vulnerable (VU)
23	<i>Balaenoptera borealis</i>	Sei Whale	Endangered (EN)
24	<i>Balaenoptera musculus</i>	Blue Whale	Endangered (EN)
25	<i>Manta birostris</i>	Manta Ray	Vulnerable (VU)

Table 3: Non-exhaustive list of key important species for WCR



Green Sea Turtle, St Eustatius National Marine Park, credits- Marion Haarsma



Creole Wrasse, Bonaire National Marine Park, credits- MMBockstael-Rubio

7. Statistics and Analysis

DISTRIBUTION BY COUNTRY:

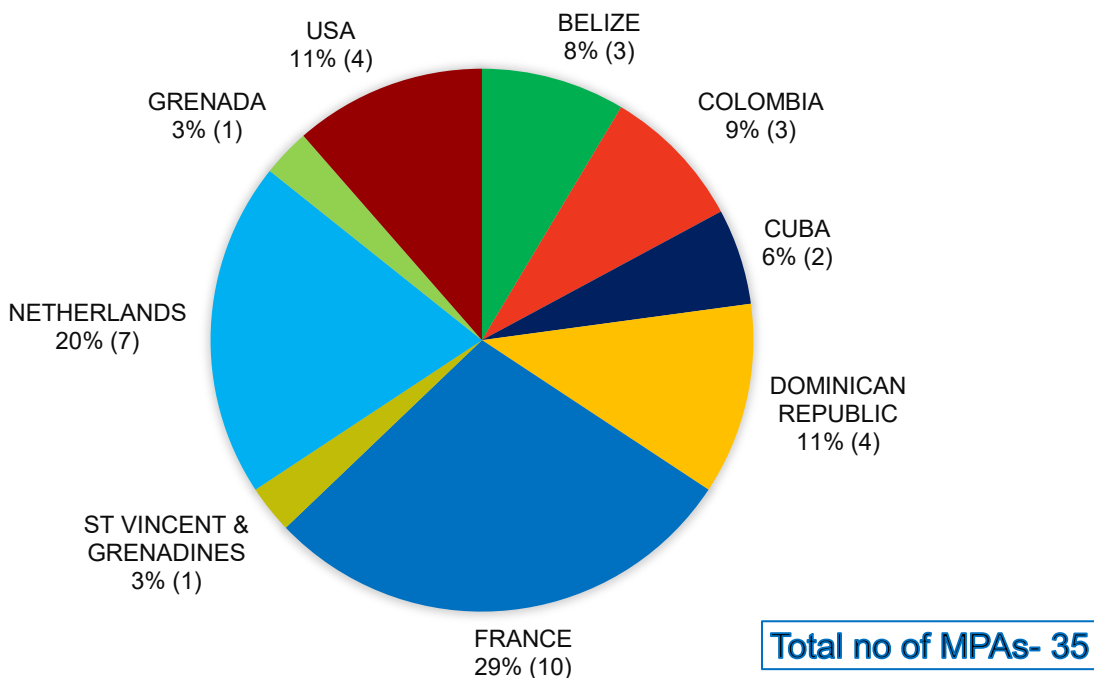


Figure 3: Pie chart displaying distribution of MPAs by country (SPA W contracting party)

DISTRIBUTION BY SIZE:

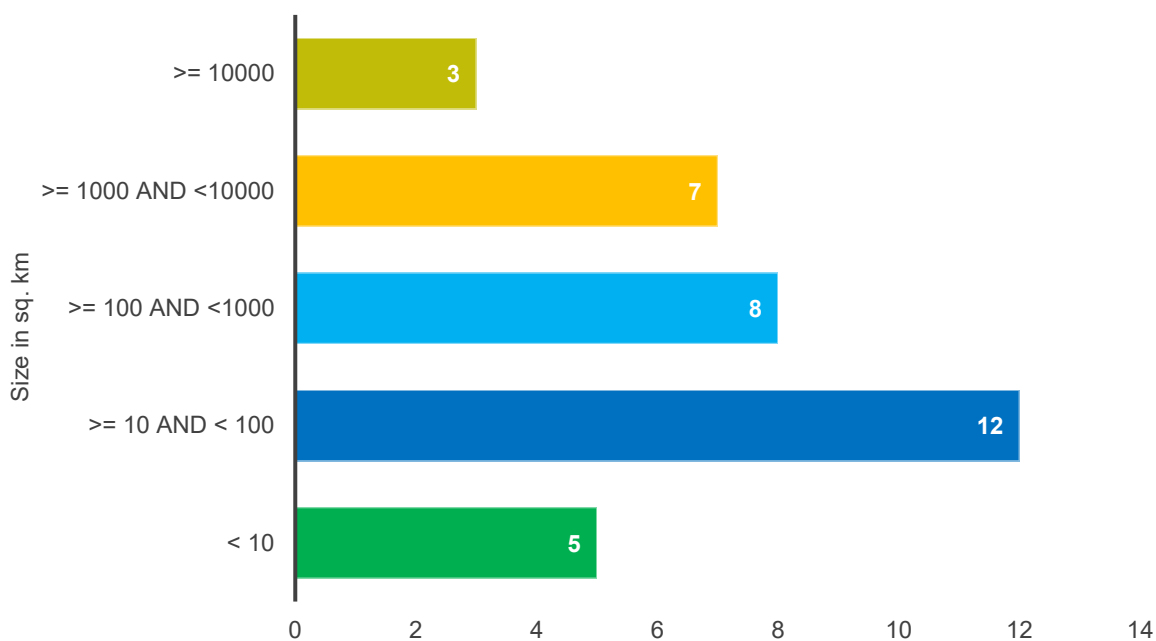


Figure 4: Bar chart showing distribution of MPAs by their size in square kilometres

DISTRIBUTION BY IUCN STATUS (refer to Annex I for detailed categorisation of each):

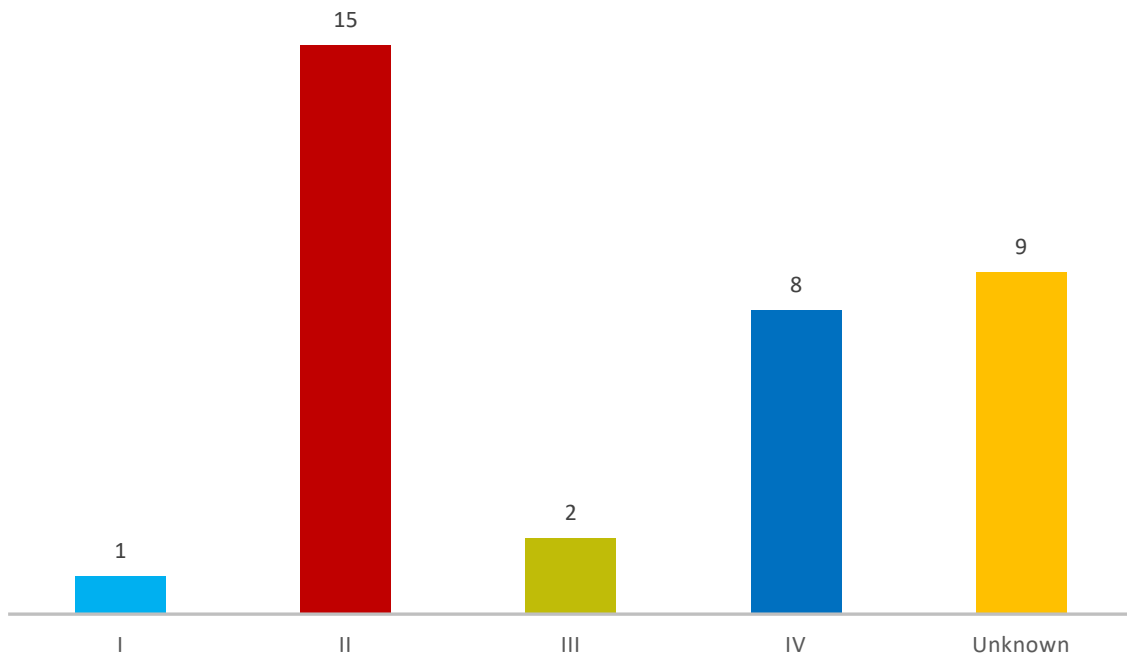


Figure 5: Column chart showing distribution of MPAs by their IUCN Status designation

DISTRIBUTION BY INTERNATIONAL STATUS:

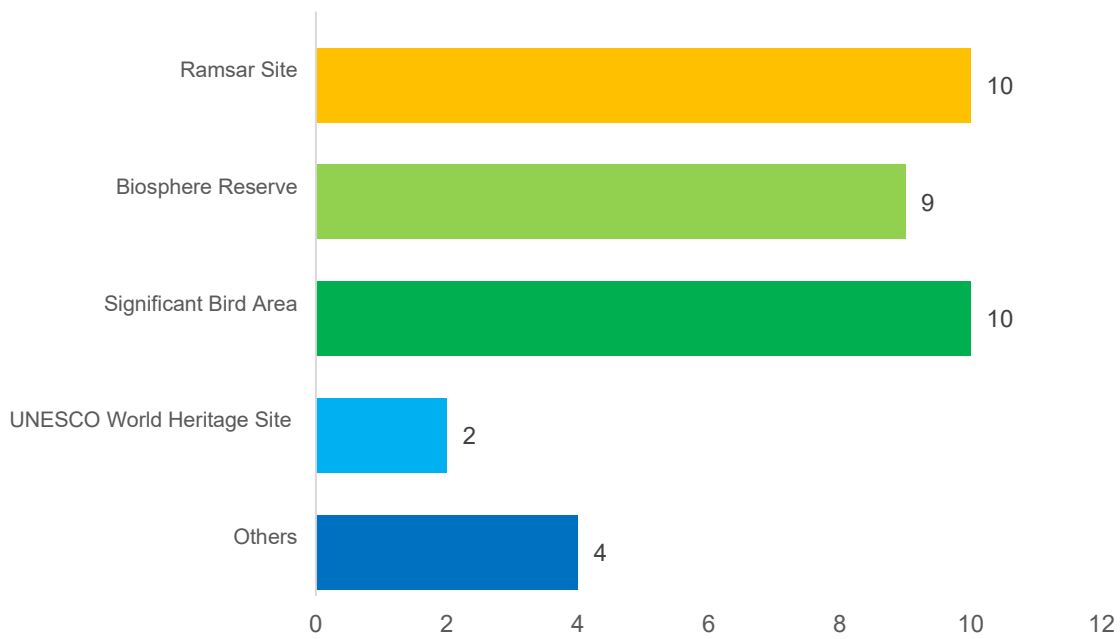


Figure 6: Bar chart showing distribution of MPAs by their International Status

DISTRIBUTION BY KEY IMPORTANT SPECIES / POTENTIAL FOR FORMING MPA NETWORKS:

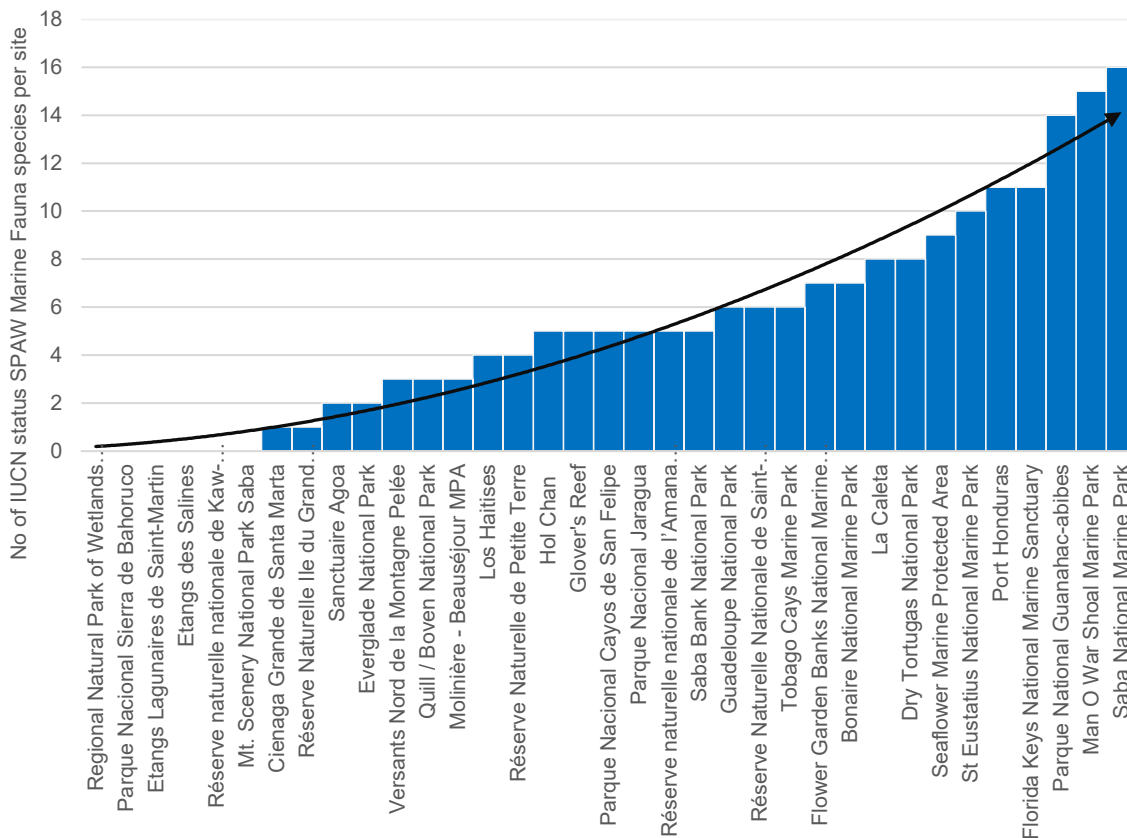


Figure 7: Column chart displaying distribution of MPAs by key important species. The arrow also points towards the potential of MPAs to form MPA networks on the basis of the number of species present on the site

FREQUENCY OF SPECIES OCCURRENCE:

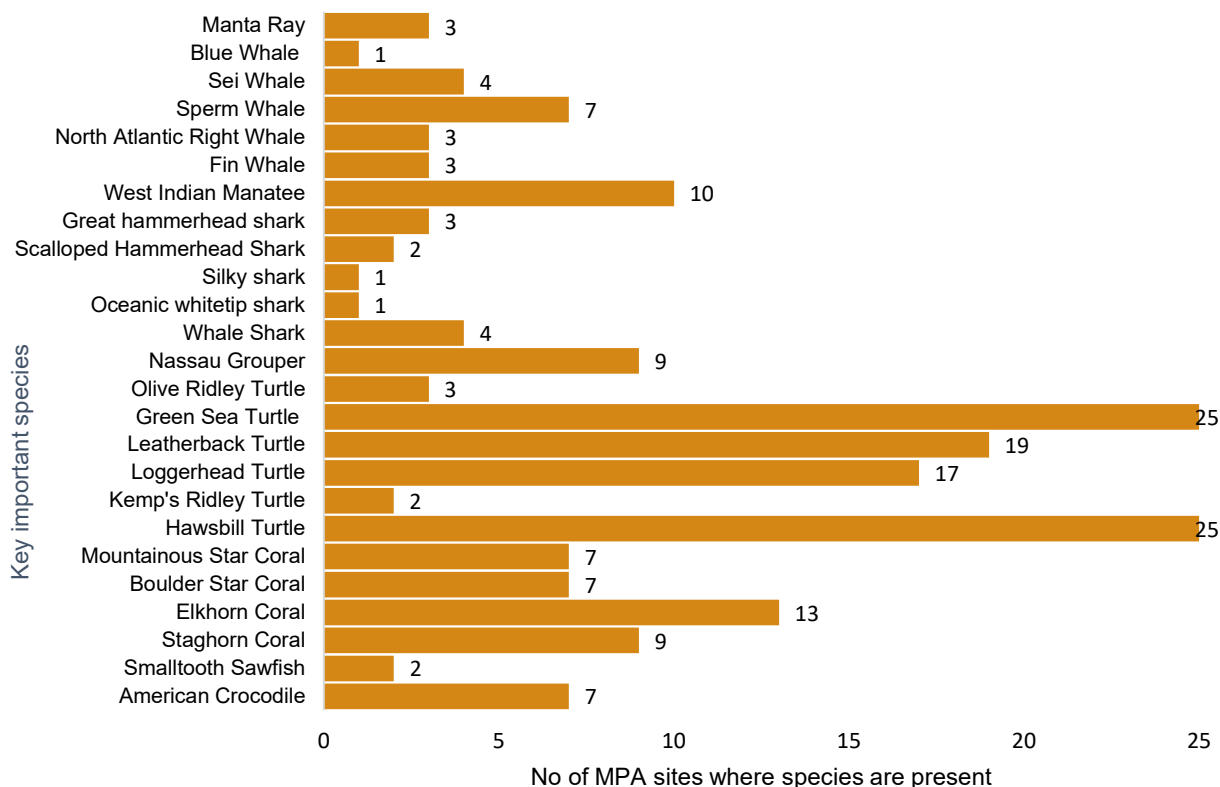


Figure 8: Bar chart showing the frequency of species occurrence among the SPAW MPAs

FREQUENCY OF SPECIES OCCURRENCE AT SPAW SITES



Figure 9: Treemap showing the frequency of species occurrence among the SPAW MPAs, complementing the bar chart

The Treemap in Figure 9 gives a visual representation of the frequency of occurrence of the key species in the various SPAW sites as a complement to Figure 8. Here, each rectangular block represents a different species, and the size of each block is a visual comparative analysis of the frequency of occurrence. Area wise, larger blocks mean higher frequency and smaller blocks means smaller frequency of occurrence.

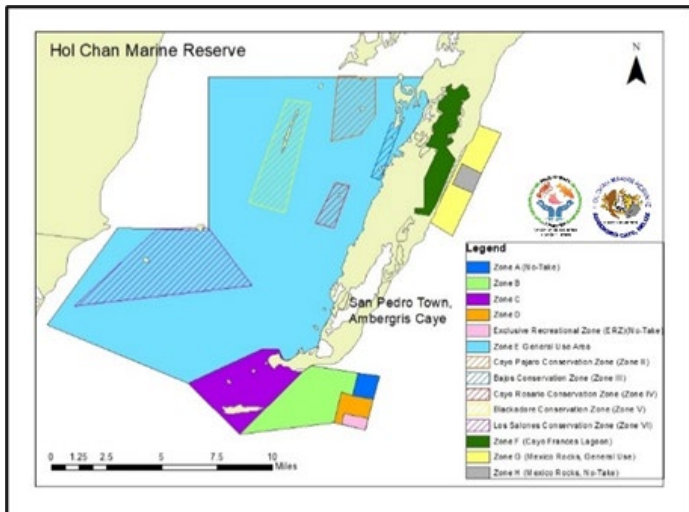
As observed in Figure 8 and 9, the different species of Sea Turtles are the most commonly found species at SPAW sites which are threatened, listed in SPAW Annexes and also have a marine component. Among them, Green Sea Turtle and Hawsbill Turtle are the most common, followed by Leatherback Turtle and Loggerhead Turtle. Corals also feature in a number of SPAW sites with Elkhorn Coral being the most widespread, followed by Staghorn Coral. Boulder Star Coral and Mountainous Star Coral generally occur together and are relatively common as well. Some marine mammals can also be frequently spotted in these SPAW sites like West Indian Manatee which reside in more than 25% of SPAW MPAs. Other mammal species like American Crocodile and Sperm Whale are found in 20% of the MPAs, following suite. Nassau Grouper is a threatened fish species which is fairly commonly found as well across the Caribbean islands.

8. Country wise SPAW-listed MPAs

Below is the list of all the country-wise SPAW Protocol listed Marine Protected Areas:

I BELIZE

1. HOL CHAN MARINE RESERVE



GEOGRAPHIC LOCATION- Longitude X: -88.020058; Latitude Y: 17.875184 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- II

AREA- 414.5 km²

DATE OF ESTABLISHMENT- 07/1/1987

PURPOSE OF LISTING- The purpose is to conserve a small but representative portion of Belize's coastal ecosystem. The marine reserve was established in 1987 as a multi-use protected area. A zoning scheme was developed in order to ensure sustainable use and guarantee its conservation. Hol Chan is divided into eight zones. Zone A includes the coral reef and is the no-take zone where only recreational activities are allowed. Zone B protects the sea grass beds. Fishing is allowed but only to traditional users. Spear fishing and netting are prohibited. Zone C provides protection to the mangrove wetlands. Sport fishing is a common practice in this area as well as in Zone E. Zone D is general use, but has a special management area for recreational use only, locally known as Shark Ray Alley.

Social Aspect: Human presence in the MPA is by daily recreational users who access the Marine Reserve to snorkel and dive. In 2019, a total of 172,037 visitors went to the Marine Reserve. Of this total, 7% were snorkelers and 93% were divers. Tourists generally are from overnight visitors at San Pedro Town and Caye Caulker. Tourism is the principal economic activity in the marine reserve. Tour operators and tour guides are dependent of the protected area to conduct

their snorkeling and diving tours. There are almost 400 tour guides in San Pedro and 80 in Caye Caulker Village. The marine protected area is also an important asset for environmental education awareness for the community members. The HCMR also conducts a yearly environmental monitoring program focussing on coral reefs, seagrass and mangrove.

KEY SPECIES-

- Nurse Sharks • Sting Rays • Loggerhead Turtle • Green Sea Turtle • West Indian Manatee • American Crocodile • Elkhorn Coral • Staghorn Coral

THREATS-

Exploitation of natural resources: Tourism and overfishing

Increased population: Sewage and waste water run-off, unsustainable development, solid waste

Coral disease: Stony coral tissue loss disease

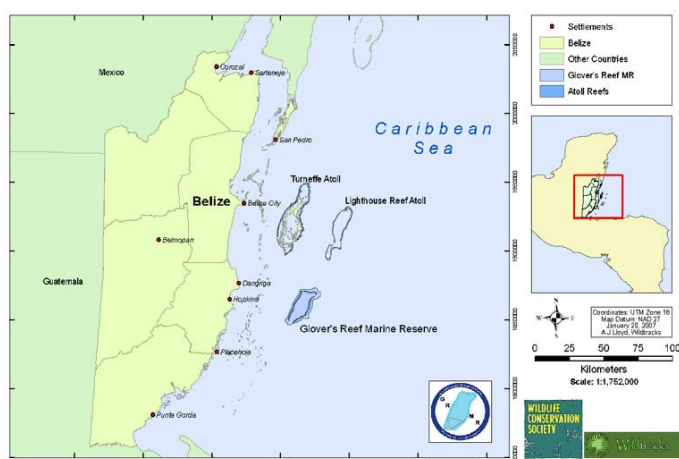
Invasive alien species: Lionfish

Pollution due to tourism development and town expansion

Other: Conflicts with tourism developments has always been a source of contention for the community of Ambergris Caye. The community is not in support of large-scale development that threatens the integrity of the ecosystems on which their livelihoods depend. In 2015, HCMR was expanded for a third time to include all that area on the west side of the Ambergris Caye to within 1km of the mainland coastline. Despite the expansion and declaring of several conservation zones to protect critical habitats, development still threatens within these zones.

MANAGEMENT STRATEGY- Hol Chan was established under the Fisheries Act and management is through a statutory body. Stakeholders are included as members of the HCMR Board of Trustees. Local community representatives include a representative of the local tourism sector, a local NGO, the local business community and the fishermen's cooperative along with the Mayor of San Pedro Town. Participants from other committees include a scientific committee, advisory board or a body of representatives from the local stakeholders, the public, professional and non-governmental sector.

2. GLOVER'S REEF MARINE RESERVE



GEOGRAPHIC LOCATION- Longitude X: -87.791111;
Latitude Y: 16.823056 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- IV

AREA- 350.96 km²

DATE OF ESTABLISHMENT- 01/1/1993

WDPA: 99653

PURPOSE OF LISTING- Glover's Reef is considered not only the best developed biologically, but also to possess the greatest diversity of reef types. It was established as a Marine Reserve in 1993 to provide protection for both the physical and biological resources of the area and is an important fishing ground for traditional conch and lobster fishermen, particularly from the northern coastal community of Sarteneja, and Dangriga and Hopkins in Central Belize. In 1996, it was included as one of seven marine protected areas in Belize to be recognised for their global value, as part of Belize's World Heritage Site.

Social Aspect: The Glover's Reef Atoll is a traditional fishing area for lobster, conch and finfish, with the greatest activity occurring during the opening of the lobster and conch seasons. In 2009, 50 boats were recorded as active within the Atoll, with an estimated total of 130 fishermen. Tourism is becoming an increasingly important economic activity here. Activities concentrate on scuba-diving, snorkelling, kayaking, sport fishing and fly fishing, with the impressive reef structures of the reef edge and the sheltered waters of the inner lagoon providing perfect conditions for these activities.

KEY SPECIES-

● Hawksbill Turtle ● Loggerhead Turtle ● Green Sea Turtle ● Nassau Grouper ● Sharks

THREATS-

Exploitation of natural resources: Fishing (Nassau Grouper, Black Snapper, Queen Conch, Fin Fish, Barracuda, Blackfin snapper, Yellow eye, Yellowtail, Black Grouper, Deep-water Grouper, Jack and Mutton Snapper, Hog Fish)

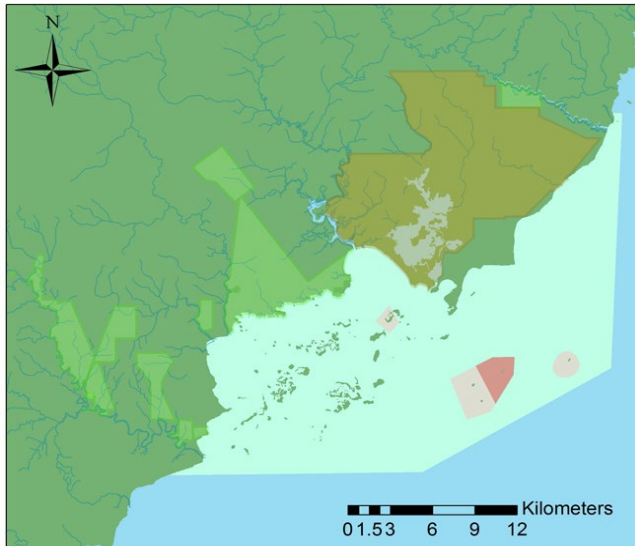
Invasive alien species: Lionfish

Other: Sand flats and seagrass beds that are Queen Conch habitats

Pollution: **Solid waste** detrimental to marine wildlife like plastics to sea turtles, solid waste originating from international shipping, particularly from cruise shipping and freight shipping. **Liquid waste and sewage:** leaching of nutrients and chemicals into the ground water or freshwater lens of the cayes, which then permeate through the sandy soil into the sea. Groundwater is an important source of freshwater on the cayes and is also important for supplying the mangrove areas with fresh water. If the groundwater becomes polluted, these ecosystems are affected. The leakage of sewage from resorts can cause algal blooms due to nutrient enrichment.

MANAGEMENT STRATEGY- The Marine Reserve has clear zones written in the legislation that allow for extractive / non extractive use, and conservation protection, with use concentrating on fishing, tourism, and research. The Statutory Instrument was updated in 2001, and currently designates five different management zones: the General Use Zone, Conservation Zone, Wilderness Zone and Seasonal Closure Zone (covering the Nassau Grouper spawning aggregation area from December to March during the peak of the spawning season). Management responsibility for Glover's Reef Marine Reserve is held by the Fisheries Department within the Ministry of The Blue Economy and Civil Aviation. On site management presence is done by 4 staff operating from their station located on Middle Caye for site-level management of the area. The Wildlife Conservation Society provides assistance to the Fisheries Department through collaborative research and monitoring activities and hosts the Fisheries Base on Middle Caye. An active Advisory Committee assists the Fisheries Department with management recommendations and is composed of representatives from the major stakeholders.

3. PORT HONDURAS MARINE RESERVE



Legend

 PCNP	 No Take Zone
 TPPL	 Preservation Zone
 PHMR	

GEOGRAPHIC LOCATION- Longitude X: -88.573837; Latitude Y: 16.196872 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- IV

AREA- 405 km²

DATE OF ESTABLISHMENT- 01/25/2000

PURPOSE OF LISTING- The Port Honduras Marine Reserve (PHMR) is unique along the coast of Central America in lagoon system size and the number of in-shore mangrove islands. This ecological system is in relatively pristine condition and includes three related components: coastal and tidal wetlands, marine lagoons, and mangrove islands with associated shallow banks and fringing coral reefs. Almost all of the coastal and island vegetation, including mangroves, is intact. The purpose of PHMR is the maintenance of coastal ecosystem functions and natural resource values, including water quality and nursery habitats of the area, in order to protect biodiversity and traditional fishers' livelihoods. Studies identified the area from the Bladen Nature Reserve to Port Honduras as a potential protected corridor from the Maya Mountains to the sea, preserving a wide range of biodiversity. Rapid Ecological Assessments revealed that PHMR serves extremely important ecological functions of regional significance. The Marine Reserve provide breeding and nursery areas for juveniles of many species. The "no-take" zones of PHMR serve as seeding ground for areas that have been depleted. PHMR is also an important nursery area for a variety of species, including the critically endangered goliath grouper.

Social aspect: The only two communities that directly border the reserve are Punta Negra with less than 20 inhabitants and Monkey River with roughly 200 inhabitants. The larger town of Punta Gorda is 4km away. Key stakeholders of the Port Honduras Marine Reserve include local fishers, tour guides, tour operators, hotel and restaurant owners, local residents, recreational users of the protected area, tourists, local and

national politicians and large-scale investors. Punta Negra has great potential for eco-tourism, being in a beautiful beach location close to the cayes, but remoteness and lack of infrastructure are barriers to realizing this potential. The Port Honduras Marine Reserve and surrounding area has been the subject of archaeological investigation for over 30 years and several archaeological sites have been identified and reported.

KEY SPECIES-

- American Crocodile • Staghorn Coral • Elkhorn Coral • Boulder Star Coral • Mountainous Star Coral • Hawksbill Turtle • Loggerhead Turtle • Leatherback Turtle • Green Sea Turtle • Nassau Grouper • West Indian Manatee •

THREATS-

Exploitation of natural resources: Fishing (Groupers, snappers, sharks, lobster, conch, sea cucumber), **Agriculture, Tourism** (It is possible that large scale cruise ships may come to Toledo, in which case all tourism sectors would increase) and **Industry** (There is potential for oil exploration in the near future. An oil exploration company has applied to conduct an EIA for seismic testing and exploratory drilling).

Increased population

Invasive alien species: Lionfish

Pollution: marine plastic trash is a significant problem. Toledo lacks a properly contained landfill. Leachate from a dump site near to Punta Gorda is likely impacting the Rio Grande, which drains into Port Honduras.

MANAGEMENT STRATEGY- PHMR is managed under a co-management agreement between the Belize Fisheries Department and the Toledo Institute for Development and Environment (TIDE), a non-profit NGO. PHMR is zoned for multiple use. A general use zone comprises 97.8% of the MPA while 3.2% lies within five replenishment (no-take) zones. One of these zones is also off limits to all visitation except for research and emergency rescue. Key legislation for management include:

1. The Fisheries Act is the principal governing legislation to regulate the fishing industry, and is directly concerned with maintaining sustainable fish stocks and protecting the marine and freshwater environments.
2. The Environmental Protection Act (1992) was developed with the aim of ensuring that development initiatives within Belize are planned for minimum environmental impact – important in the context of Port Honduras Marine Reserve, with privately owned / leased cayes located within the Marine Reserve.
3. The Wildlife Protection Act falls under the Forest Department and provides protection for a number of marine species (West Indian manatee and dolphins), with the prohibition of hunting and commercial extraction.

II COLOMBIA

4. CIÉNAGA GRANDE DE SANTA MARTA FLORA AND FAUNA SANCTUARY (SFFCGSM)



GEOGRAPHIC LOCATION- Longitude X: -74.454346;
Latitude Y: 10.694368 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- I

AREA- 268 km²

DATE OF ESTABLISHMENT- 06/6/1977

PURPOSE OF LISTING- The CLCGSM Ecoregion has undergone a process of degradation of the natural system as a consequence of the construction of two roads, causing a variation in the hydraulic conditions of the system due to the interruption of the water exchange between the Magdalena river and the flood zones (mangroves and swamps) and between these and the sea. This has resulted in the hyper salination of certain lagoons and soils and consequently the death of extensive mangrove areas. In addition to this problem is the environmental deterioration of the basins of the rivers coming from the Sierra Nevada Mountain System of Santa Marta (SNSM), which (most of the western slope) flow into the body of water called Ciénaga Grande de Santa Marta (CGSM). To the south of the Ciénaga Grande de Santa Marta, is the Sanctuary of Flora and Fauna of the Ciénaga Grande de Santa Marta (SFFCGSM), a breeding ground for birds and fish and a shelter for forest species. The SFFCGSM, as the core element of the Ramsar Biosphere Reserve and Wetland Complex of the Lagunar Complex, requires, by mandate of Law, the formulation of the Management Plan. The strategic geographic location of the Sanctuary presents all the conditions of connectivity with the area of influence at the local and regional level, for which the institutional strengthening of

the Regional System of Protected Areas (SIRAP) is essential. This establishes coherence with the protected areas of the Sierra Nevada de Santa Marta subregion such as PNNNSM and Vía Parque Isla de Salamanca (VIPIS).

Social aspect: Inside the protected area, there are no settlements of human populations. In its vicinity are three palafitic towns: Bocas de Aracataca, Buenavista and Nueva Venecia. There are about 430 fishermen who enter the high waters to carry out fishing and hunting tasks. From the cultural point of view the main feature is the amphibian or palafitic culture. The human group of palafitic peoples is made up of a semi-palatite people (Bocas de Aracataca) and two palafitos themselves (Buenavista and Nueva Venecia). The predominant ethnic feature is the mestizo, whose origin is closely linked to the settlement of the aborigines of the lower Magdalena. Its historical antecedents are made up of the councilors referenced since 362 AD, a relatively late settlement date in the Colombian Caribbean.

KEY SPECIES-

- American Crocodile •

The biodiversity of the Ciénaga Grande de Santa Marta ecoregion has been outlined in various documents and studies that have been carried out and that indicate the existence of at least 276 species of terrestrial plants, 12 of aquatic plants, four species of mangrove, 300 types of Phytoplankton algae, 144 species of fish, 102 species of mollusks, 26 of reptiles, 19 of mammals and more than 200 of birds

THREATS-

Exploitation of natural resources: Fishing (pressure in the Ecoregion Large Swamp of Santa Marta) and Agriculture (agricultural expansion have affected the water exchange necessary for the maintenance of the ecosystems)

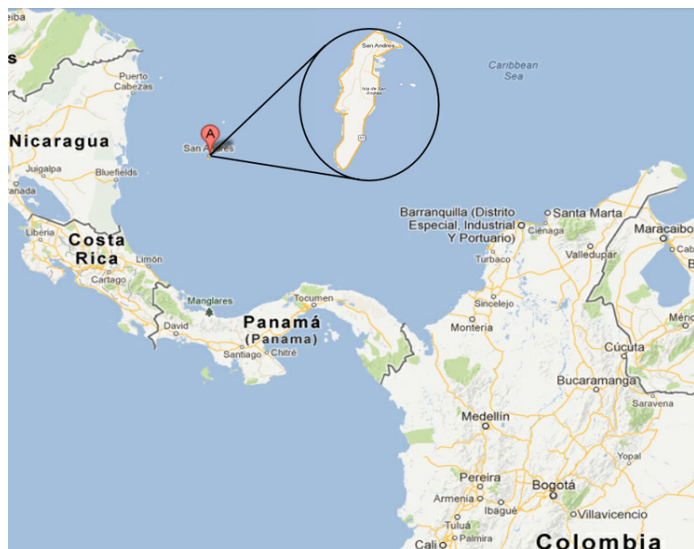
Invasive alien species

Pollution: Rivers are misused principally for industrial waste and wastewater. Inadequate use of agrochemicals and the direct shedding from sewage to the basin of the rivers that descend from the Sierra Nevada Santa Marta and Magdalena river

Other: Silting of bodies of water.

MANAGEMENT STRATEGY- There is Environmental Management Plan document for the protected area of the SFFCGSM, adopted by the Ministry of Environment, Housing and Territorial Development of the Republic of Colombia, through Resolution 021 of January 23, 2007. The Plan document of Environmental Management for the protected area of the SFFCGSM, was formulated by the technical team of the protected area, with technical supervision of the central level of National Parks Naturales de Colombia and with the participation and consultation of different regional entities in a planning process strategic, given that they are related to the Park System National Naturals. SFFCGSM as the core element of the Reserve of Ramsar Biosphere and Wetland of the Lagunar Complex requires the formulation of the Management Plan, which must be linked to the Ramsar Biosphere Reserve and Wetland Management Plans and the Territorial Planning Plans of the Municipalities whose territories are affected by the declaration of protected area.

5. REGIONAL SEAFLOWER MARINE PROTECTED AREA



GEOGRAPHIC LOCATION- Longitude X: -81.71751; Latitude Y: 12.555066 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- Unknown

AREA- 65,000 km²

DATE OF ESTABLISHMENT- 01/27/2005

PURPOSE OF LISTING- The San Andres Archipelago includes 3 small inhabited islands and a number of uninhabited small cays, atolls, banks, and reefs extending for more than 500 km in the Southwestern Caribbean. The largest island and centre of government, San Andres (SAI), is about 800 km northwest of Colombia and 100 km east of Nicaragua. Old Providence and Santa Catalina (OPSC) are 80 km north of San Andres. The Seaflower MPA is part of the Seaflower Biosphere Reserve (UNESCO 2000), which encompasses the total area of the archipelago. The MPA was designed to implement biosphere reserve objectives in significant marine and coastal ecosystems and includes the largest, most productive open-ocean coral reefs in the Caribbean. The MPA includes 2,000 km² of coral reefs, atolls, mangroves and seagrass beds, including: (i) the barrier and fringing reefs, lagoons, seagrass beds, and mangroves circling the inhabited islands; (ii) Courtown (ESE Cay) - a kidney-shaped atoll 6.4 km by 3.5 km; (iii) Albuquerque (SSW Cay) - a circular atoll with a diameter over 8 km; (iv) Roncador - an atoll 15 km by 7 km with a 12-km reef to windward and 30 km² of live coral coverage; (v) Serrana - an atoll 36 km long and 15 km wide with a complex reef system 37 km by 30 km, with 75 km² live coral coverage; and (vi) Quitasueño (Queenena) - the archipelago's largest coral structure, 60 km long and 10 to 20 km wide with a 40-km reef wall and 496 km² of live coral coverage.

Social Aspect: The main uses of the MPA are artisanal, subsistence, and industrial fishing and recreation and tourism (diving, snorkeling, swimming, assorted water sports, marine tours, etc.). The local raizal community identified the establishment of a multiple-use MPA as the preferred approach to address the problems caused by open access to resources, including diminishing resources, user conflicts and political and social marginalization. The raizal identity is inextricably linked with the marine environment. The sense of ownership and belief that their well-being as a people

is linked with the health of the marine environment contributed significantly to the almost universal support for MPA conservation.

KEY SPECIES-

• Elkhorn Coral • Boulder Star Coral • Mountainous Star Coral • Hawksbill Turtle • Loggerhead Turtle • Leatherback Turtle • Green Sea Turtle • Nassau Grouper • Great Hammerhead Shark •

THREATS-

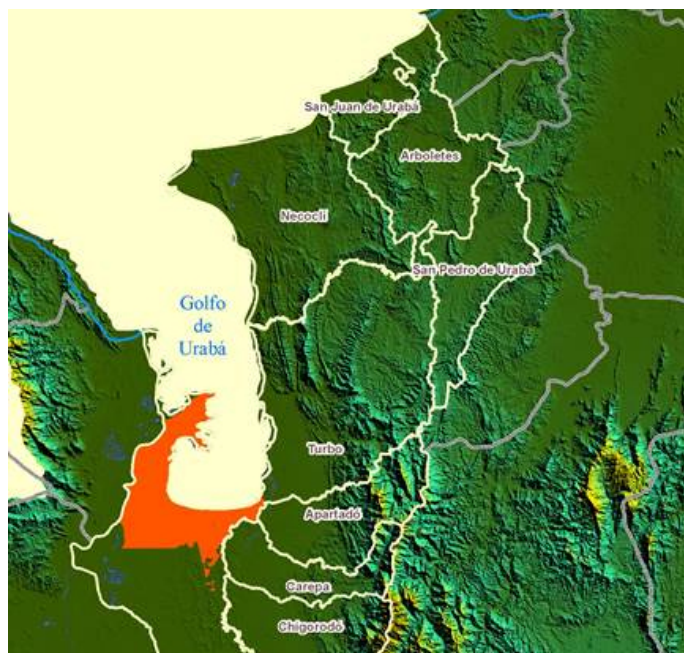
Exploitation of natural resources: Fishing (Artisanal fishers traditionally used fishing methods and practices that were in general sustainable. However, the sheer number of users and growing poverty now mean that even traditional methods contribute to overfishing. Consequently, MPA management measures include closed seasons for key species such as lobster and conch, protection of spawning sites and aggregations, size limits and quotas, and bans on fisheries of threatened and endangered species such as sea turtles, sharks, etc. in addition to the use of no-entry and no-take zones to balance use with conservation. Fisheries are known to be over-exploited) and **Tourism** (Unsustainable tourism practices such as poor diving techniques, groundings from watercraft, and overuse of popular sites, also impact biodiversity and ecosystem condition)

Invasive alien species: Lionfish

Pollution: There is non-point source pollution in coastal waters from uncontrolled dumping of solid waste, discharge of liquid waste, and runoff of contaminated storm water directly into the sea and mangroves or as carried by gullies.

MANAGEMENT STRATEGY- The Seaflower MPA and Integrated Management Plan (IMP) were developed in collaboration with local stakeholders, such as artisanal fishers and water sports operators, along with other institutions with jurisdiction in the marine area. Not only were stakeholders consulted and involved every step of the way, but they had final decision-making power; meaning that they reached consensus and signed formal agreements on MPA objectives, zoning, and management structure. The general goal of the new project is to fully implement the MPA's Integrated Management Plan (IMP). The project's specific objectives are: 1) to implement effective adaptive management in collaboration with stakeholders and in accordance with the IMP; 2) to design and implement sustainable financial mechanisms for the long-term funding of MPA management; 3) to render key economic activities in the archipelago compatible with the objectives, guidelines, and regulations set out in the IMP and associated plans; and 4) to implement a management oriented monitoring and analysis system that supports adaptive management and informed decision-making.

6. WETLANDS REGIONAL NATURAL PARK BETWEEN THE LEON AND SURIQUÍ RIVERS



GEOGRAPHIC LOCATION- Longitude X: -76.803161; Latitude Y: 7.903202 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- Unknown

AREA- 6,181 km²

DATE OF ESTABLISHMENT- 06/16/2011

PURPOSE OF LISTING-

According to the Protected Area's position in the regional context, the wetland the León-suriquí river is part of the wetland complex of the lower and middle Atrato region belonging to the departments of Antioquia and Chocó, which occupy an area of 960,000 hectares and specifically conforms to the dynamics and interaction described in relation to flood plains and deltas at the mouths of the León rivers on the side oriental and Suriquí in the western, also by the influence of the coastal area corresponding to the Gulf of Urabá in the sector known as Bahía Colombia. It stands out basically for the presence of different ecosystems in its interior that relate it as part of the wetland complex of a larger unit but with remarkable characteristics and of great importance from the biological point of view, in addition to its regional geographical position that accentuates its size as a meeting point between the agro-industrial development zone and natural areas that still they preserve relics of habitats of great importance in the pertinent to the conservation of the renewable natural resources of Urabá.

Social Aspect: The main economic activity of the inhabitants of Puerto Girón is fishing. The wetland area between the León - Suriquí rivers has a great historical, cultural and aesthetic value for local communities, since historically and traditionally they have coexisted with this natural space that provides them with abundant possibilities of natural resources for their livelihood. and survival since the socio-economic conditions of the communities settled in the nearby areas are too precarious.

KEY SPECIES-

It is a mixed forest and is practically the last refuge of communication, on the eastern side. The fauna consists of species like Boa, Otter, Jaguar etc which are of non-marine nature.

MANAGEMENT STRATEGY- The Management Plan was made through a contract with the mountain's entity, in 2008; by 2014 the area was is registered in RUNAP, a requirement demanded by the Article 24. SINGLE REGISTRY OF PROTECTED AREAS OF SINAP. According to Decree 2372/2010, which establishes that once the information related in the previous article, the coordinator SINAP must proceed to contrast the correspondence of the referred areas, with the regulation applicable to each category, after which you can proceed to register as areas protected members of SINAP, which to date has already been accomplished.

III CUBA

7. PARQUE NACIONAL GUANAHACABIBES



GEOGRAPHIC LOCATION- Longitude X: -84.541855; Latitude Y: 21.975524 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- Unknown

AREA- 398 km²

DATE OF ESTABLISHMENT- 12/14/2001

PURPOSE OF LISTING-

The Guanahacabibes National Park constitutes the core area of the Guanahacabibes Peninsula Biosphere Reserve. It is located in the portion westernmost province of Pinar del Río, with a land area of 23,880 hectares and a marine area of 15,950 hectares, for a total of 39,830 hectares. Geomorphologically it corresponds to a karst plain of marine origin with geotectonic tilting, giving as a result that its topography is presented with a North coast in the process of submergence and where mangrove, wetland and swamp formations predominate. The South coast is higher and is distinguished for the presence of cliffs and beaches.

This area constitutes one of the most important marine-coastal areas in the country, and its value transcends the Caribbean region as it has breeding sites for different species of fish of commercial interest and the nesting of sea turtles. The protected area presents a great diversity of ecosystems, both terrestrial (semi-deciduous and evergreen forests, coastal vegetation sandy and rocky, coastal and sub-coastal xeromorphic thickets, wetlands, among others) such as marine (coral reefs, seagrasses and mangroves). In the area key terrestrial species (zonzuncito, partridge pigeon, iguanas,

crocodiles and jutías) and marine (high-altitude fish) are identified commercial and conservation value, corals, sea turtles and manatees).

The marine fauna of the protected area is represented by 26 species of gorgonians, 39 of sponges, 42 of corals and 1016 of marine Mollusks. There is a high diversity of reef fish, with 201 species registered to date. The marine area protects two spawning sites for species of high economic value corresponding to the families Serranidae and Lutjanidae.

The area is ecologically connected to the Gulf of México and the Western Caribbean, it is also located within the Mississippi migratory corridor, providing supporting habitats during the migratory season for different birds species, including some threatened and contributing to maintaining the ecological integrity of the Wider Caribbean region. The intense system of marine currents in the adjacent ocean waters favours the dispersal of larvae from reef fish spawning aggregations over a wide area.

The protected area has a special value in a regional context for the conservation, maintenance or restoration of the productivity and biological integrity of natural resources that provide sustainable cultural or traditional activities for local communities.

With respect to the cultural historical part, 42 archaeological sites of different antiquity and cultural affiliation have been documented, predominating those linked to ancient aboriginal communities. The area has an exceptional value as the beginning or end of ancient migration routes, land and maritime; reason why it is considered as a polygon par excellence for conducting scientific research.

Social Aspect: The protected area provides opportunities for traditional activities such as the use of guano from the coast to make artisanal items. Local people cultivate legends related to hidden treasures in the coastal area of the peninsula, which is related to the presence of pirates and corsairs who, during the 17th and 18th centuries, used some sites in the territory as a refuge and centre of their operations in the Caribbean. Other socio-economic benefits of the protected area includes: Beekeeping activities, tourist activities like Contemplative diving and Hiking and Subsistence fishing activity.

KEY SPECIES-

• American Crocodile • Staghorn Coral • Elkhorn Coral • Boulder Star Coral • Mountainous Star Coral • Hawksbill Turtle • Loggerhead Turtle • Green Sea Turtle • Reef Shark • Nassau Grouper • Scalloped Hammerhead Shark • Great Hammerhead Shark • West Indian Manatee • Spotted Eagle Ray • Tarpon • Bonefish •

THREATS-

Exploitation of natural resources: Fishing (In the protected area there is pressure on marine resources due to illegal fishing events carried out by residents of the territory in some localities located in public use areas. These activities are kept under control by the execution of the surveillance and protection programs in the area), **Tourism** (There has been an accelerated increase in visits to the area for diving and hiking activities. In recent years, the number of medium and small vessels arriving in the area has increased, which increases the risk of waste dumping and impact on coral reefs. These threats are kept under control by applying the regulations of the protected area and updating the functional

zoning), **Invasive alien species** (Presence of invasive terrestrial species such as *Casuarina equisetifolia*, which pollutes the sand of beaches, causes erosion and develops an extensive root system that makes it difficult for sea turtles to nest. In recent years, the presence of the species *Scaevola sericea* has been reported, which colonizes extensive spaces on beaches and other areas of the coastline. The native species *Suriana maritima* and *Tournefortia gnaphalodes* have also been found to show an expansive character in sandy dunes. This effect is being evaluated to measure its impact on coastal dynamics.

In the marine sector, there has been the invasion of the Lionfish (*Pterois volitans/miles*). This species is capable of producing a negative impact on reef communities, through direct predation of native fish of ecological and economic importance and other organisms such as macro-invertebrates; this can lead to habitat degradation and ecosystem imbalance.).

Other: The protected area is exposed and highly vulnerable to the impact of extreme meteorological events, mainly hurricanes, which cause destructive winds and intense sea penetrations with relevant effects on the coastal areas.

The area has been exposed to mass arrival events of sargassum, which has negative impacts on sea turtle nesting and decreases the recreational value of the sandy beaches.

Due to its geographical location, surrounded by intense marine currents, the area receives significant volumes of oceanic garbage, mainly plastics, which impacts specific sectors of the coastal zone.

MANAGEMENT STRATEGY-

The Management Plan of the Guanahacabibes National Park is structured in the following groups of programs: protection programs, resource management and conservation programs, public use programs, scientific research and monitoring programs and administration programs.

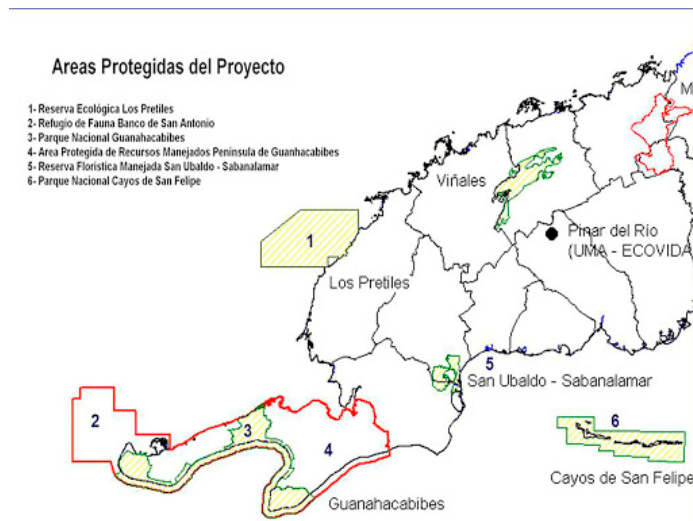
The following are identified as management objectives for the protected area:

1. Preserve the integrity of the ecosystems and habitats that characterize the protected area (semi-deciduous forest, mangrove swamp, sandy coast vegetation, coral reefs and seagrasses).
2. Reduce the conditions of vulnerability of the protected area to the effects of climate change through actions that contribute to mitigation and strengthening of coastal resilience.
3. Ensure the conservation of endemic and threatened species of the area's vegetation.
4. Contribute to the conservation of key species of fauna represented in the protected area.
5. Rehabilitate areas affected by the impact of hurricanes and other catastrophic natural events, applying actions adjusted to the characteristics of each site.
6. Control invasive and exotic species that threaten the integrity of ecosystems, managing the participation of local communities and specialized institutions.
7. Perfect the tourism product of the protected area to provide opportunities for the development of nature tourism modalities.
8. Sensitize decision-makers, economic actors, and local communities about the need to contribute to the

conservation of the area, through dialogue of knowledge and other forms of participation and information.

9. Promote applied research that contributes to increasing scientific knowledge about the values of the area and that provide elements to generate management actions.
10. Evaluate the health of ecosystems and habitats, determine information gaps and establish the baseline of the protected area, through systematic monitoring of its dynamics and the evolution of threats.
11. Increase the level of preparation of personnel directly engaged in surveillance, protection and conservation activities through theoretical preparation and practical training.

8. PARQUE NACIONAL CAYOS DE SAN FELIPE



GEOGRAPHIC LOCATION- Longitude X: -83.5049076; Latitude Y: 21.9487017 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- II

AREA- 2,625 km²

DATE OF ESTABLISHMENT- 11/30/1997

PURPOSE OF LISTING-

The protected area is part of the Canarreos Archipelago and is located 18 nautical miles south of Puerto de la Coloma, which is 25 km from the provincial capital of Pinar del Río and 160 km from Havana. This geographical isolation has allowed the good state of conservation and naturalness of the ecosystems that exist here, which provide the ecological integrity required for the life of different species. This area constitutes one of the most important marine-coastal areas in the country, and its value transcends the entire Caribbean region as it has breeding sites for different species of fish of commercial interest and the nesting of sea turtles on the extensive beaches that make up these cays.

The area boasts an important marine diversity where 40 species of scleractinian corals and two hydrocorals have been inventoried. The presence of the species *Acropora cervicornis* dispersed in the reef plateau stands out, which is relevant for Cuba and for the Caribbean region, as its populations are threatened and listed as Critically Endangered

in the IUCN Red List. Twenty species of gorgonians and 33 of sponges have also been identified. The park inhabits 188 fish species, belonging to 43 families. Marine mammals such as *Trichechus manatus* (Antillean Manatee) and *Tursiops truncatus* (Dolphin) are also observed. Birds are one of the best represented groups of fauna, with 153 species that include terrestrial, marine and aquatic birds. Many are permanent residents, while others are winter or bimodal residents. In addition, three species of reptiles are described as local subspecies: *Anolis luteogularis sanfelipensis* (Chipoyo de Cayo Real), *Ameiva auberi sanfelipensis* (Arrastradera), *Leiocephalus cubensis minor* (Bayoya). Mammals are not abundant, although there is a report of the local endemic species *Mesocapromys sanfelipensis* (Jutiita de la Tierra), possibly extinct. Additionally, the common Jutia Conga (*Capromys pilorides*) inhabits the cays, species that was introduced years ago and the number of individuals have grown rapidly in demographic explosion.

The area is ecologically connected to the Isle of Youth, the gulf of Batabanó and the Guanahacabibes Peninsula. The area is also located within the Mississippi migratory corridor, providing supporting habitats during the migratory season for different species of birds, including some threatened contributing to maintaining the ecological integrity of the Wider Caribbean region. The system of gyres and currents in the adjacent ocean Waters favors the dispersal of the larvae from reef fish spawning aggregations over a wide area. In addition, a lobster population reproduce throughout the shelf edge, seemingly supplying the significant recruitment of this species that takes place in the region.

The Cayos de San Felipe National Park is located in the Fishing Area known as the Lobster Triangle Batabanó- Isla de la Juventud- La Coloma, being this fishing resource the most interesting for the country. The protected area helps to conserve, maintain and restore natural processes such as recruitment that contribute to increasing the abundance of this and other fishery resources, thus contributing to regional sustainable development.

Social Aspect: The protected area has a special value in the regional context, since it provides economic and social benefits related to the subsistence fisheries of 14 coastal communities and to the industrial fishing of the La Coloma port. Although not all of these activities are carried out inside the national park borders, the high connectivity of the area with nearby fishing areas contributes to the maintenance of these fisheries.

KEY SPECIES-

- American Crocodile ● Hawksbill Turtle ● Loggerhead Turtle
- Green Sea Turtle ● West Indian Manatee ●

THREATS-

Exploitation of natural resources: Fishing (Close to the National Park are located three commercial fishing pots and seven recreational fishing bases and an intense illegal activity of marine resources extraction occurs in the park's and surrounding waters, including considerable fishing activity. Furthermore, the use of unsustainable fishing gears and practices, such as fishing of spawning aggregations conducting to the population decline of commercial fish species)

Invasive alien species: *Pterois volitans* (Lionfish), *Rattus tatus* (Black Rat) and *Casuarina equisetifolia*, the latter

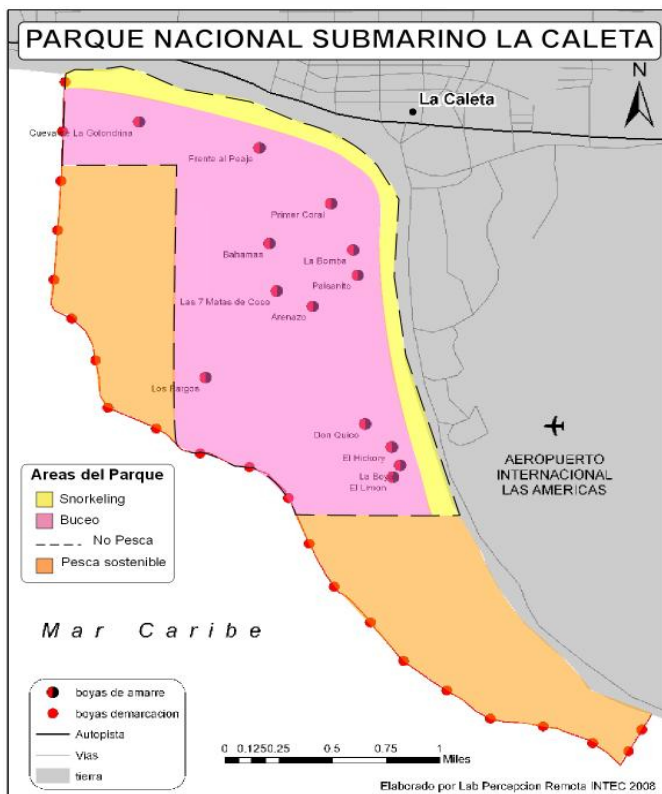
contaminates the sand, developing extensive root systems that hinder the passage and nesting of turtles, in addition to promoting beach erosion. The *Panicum amarum*, a species native to Cuba but with no clear origin in the cays, expansive character in the sand dunes and its impact is being assessed.

MANAGEMENT STRATEGY-

1. Preserve the structure, composition and integrity of ecosystems: semi-deciduous forest and microphile of Cayo Real, mangrove swamps and associated coastal lagoons and coral reefs.
2. Conserve indicator species of the ecosystems selected as conservation objects: *Crocodylus acutus*, *Eretmochelys imbricata*, *Chelonia mydas*, *Caretta caretta* and *Trichechus manatus*.
3. Maintain the stability of the populations of the species selected as conservation objects: *Eretmochelys imbricata*, *Chelonia mydas* and *Caretta caretta*, *Cyclura nubila nubila*, *Sternula antillarum* and *Trichechus manatus*.
4. Provide opportunities for the development of nature tourism and scientific tourism.
5. Control the presence of invasive alien species *Casuarina equisetifolia*, *Rattus rattus* and *Pterois volitans* and continue researching the possible impacts and control of *Panicum amarum*.
6. Raise environmental awareness and knowledge about the values of the protected area of settlers of La Coloma settlement and of other users or visitors to the park.
7. Raise the professional technical level, to face the management activities, through the theoretical and practical training of workers directly linked to surveillance, protection and conservation.
8. Determine knowledge gaps and complete the physical and biotic baseline of the protected area.

IV DOMINICAN REPUBLIC

9. LA CALETA SUBMARINE NATIONAL PARK



GEOGRAPHIC LOCATION- Longitude X: -69.6918409; Latitude Y: 18.4457331 (Locate on the map)

IUCN MANAGEMENT CATEGORY- II

AREA- 12 km²

DATE OF ESTABLISHMENT- 09/25/1986

PURPOSE OF LISTING-

La Caleta Submarine National Park, created on September 25, 1986, and then ratified for the importance and state of health of its coral reefs, as well as a destination for tank diving (SCUBA), and the use of its fishing resources by the community of La Caleta. This area of the southern Dominican coast has special conditions due to its location in the lee of the Caucedo Peninsula, which protects it from the prevailing winds and waves of the southeast. It has been used since pre-Columbian times as a place of settlement of human communities, and ideal for productive activities such as fishing, sailing and more recently diving, and other water sports such as kayaking, open water swimming, and paddle boarding. Also, under these natural conditions, coral reefs thrive vigorously in clear and less polluted waters, serving as refuge and nursery for marine species and especially some with food and economic importance.

Social Aspect: La Caleta is an area used since pre-colonization times by local indigenous people, as one of the most important settlements in the Caribbean. Undoubtedly an area of importance for fishing due to easy access to the sea, and ideal sea conditions for these purposes, also for diving, both activities depend exclusively on the natural productivity of the area. The area of the National Park has archaeological

indications in all its terrestrial part, and that is the coastal strip; so, there was an archaeological cemetery there.

KEY SPECIES-

- Staghorn Coral • Elkhorn Coral • Mountainous Star Coral • Hawksbill Turtle • Loggerhead Turtle • Leatherback Turtle • Green Sea Turtle • Black Sea Urchin •

THREATS-

Exploitation of natural resources:

Unsustainable Fishing

Tourism: It has been a popular site for tourists since 1970s

Fishing nets tangled on hard corals: Materials such as nylon and polyester tangled on corals causing injuries.

Ghost nets (death traps): Abandoned, lost and discarded ghost fishing nets causing a big amount of marine species tangled up to death.

Increased population

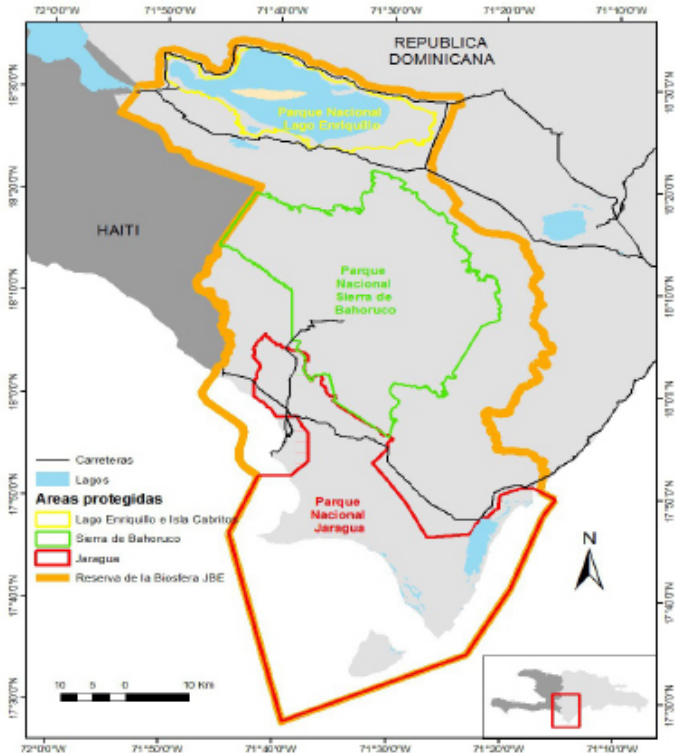
Invasive alien species: Lionfish. Although the promotion of eating Lionfish has resulted in significant decrease in their population

MANAGEMENT STRATEGY-

The park is legally managed under the concept of co-management, where the Ministry of the Environment and Natural Resources shares with the Reef Check Dominican Republic Foundation, through co-management modality. The current management plan is based on some of the following guidelines:

1. Apply the shared management model for managing the MPA according to the shared management procedure of the Ministry of Environment and Natural Resources.
2. Zoning the MPA
3. Create an independent and local sustainable financing system.
4. Structure and train the different user groups.
5. Regularly assess (monitor) the health of ecosystems from the MPA
6. With the initial evaluation and monitoring of ecosystems present in the MPA, determine the impacts present and what can be resolved in the short or medium term.
7. Develop methods to reduce or eradicate the impacts.
8. Implement basic and sustainable economic alternatives for the community.
9. Actively restore or accelerate passive restoration of the ecosystems.
10. Develop and implement promotion programs and marketing of sustainable productive activities to ensure sustainability.
11. Collaboration between the Ministry and Reef Check to protect, clean and guard the MPA.

10. JARAGUA NATIONAL PARK



GEOGRAPHIC LOCATION- Longitude X: -71.528581; Latitude Y: 17.753531 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- II

AREA- 1536 km²

DATE OF ESTABLISHMENT- 11/8/1983

PURPOSE OF LISTING-

The Jaragua National Park (PNJ) contains important samples of the ecosystems of the Antilles, particularly the arid and marine coastal ecosystems. These include different types of natural forests, beaches, dunes, rocky shores, wetlands, sea grass and coral reefs belonging to important biogeographical provinces of Hispaniola and the Antilles that have served as speciation centers for the rest of the Caribbean. This makes its flora and fauna unique, with high levels of endemism. The National Park represents the only portion under protection of low, coastal and marine areas of the "Paleoisla del Sur", one of the two islands that came together to form the current island of Hispaniola about ten million years ago, which explains largely the high number of endemic, rare and restricted habitat found there. With 1,534 km² of extension, it is one of the most protected areas of the insular Caribbean. Includes within its limits the islands of Beata and Alto Velo, as well as the keys called Los Frailes and Piedra Negra. Since 2002, it has been one of the core areas of the Jaragua-Bahoruco-Enriquillo Biosphere Reserve. The PNJ also contains species breeding sites shared with the Caribbean region (turtles, seabirds and flamingos) and receives as well winter to winter migratory species, especially birds of North America.

Social Aspect: The Pedernales province, where PNJ is located, is one of the poorest in the country. It is also one of the most depopulated in the country. There is very little industrial development and almost the entire population depends on agriculture, fishing and the mining sector. The

marine and coastal zone of the PNJ is considered one of the most productive fisheries in the Dominican Republic. The artisanal fishing that takes place there is one of the main economic activities in the area, in consequence of the lack of appropriate salary for agriculture. The park also provides benefits to local communities and the central government by visiting it.

KEY SPECIES-

- Elkhorn Coral
- Hawksbill Turtle
- Leatherback Turtle
- Green Sea Turtle
- West Indian Manatee
- Mangroves

THREATS-

Exploitation of natural resources:

Tourism: Almost all tourism is concentrated in Bahía de las Aguilas beach during weekends or holidays. Not using/exploring other natural resources of the Jaragua National Park,

Industry: Companies that classify used clothing from the United States and tend to burn the ones that nobody buy after a couple of weeks on sale.

Forest Products: The exploitation of forest resources (such as the canelilla de Jaragua), an illegal action that contribute to the reduction of this species.

Increased population

Invasive alien species: feral rats, pigs, goats, cats, cows, and dogs

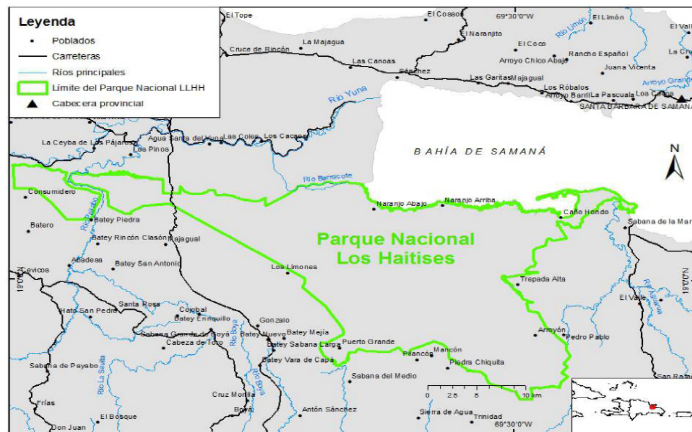
Pollution: solid waste reaching the beaches.

Other: Drug trafficking on the eastern beaches

MANAGEMENT STRATEGY-

The Ministry of Environment and Natural Resources of the Dominican Republic is the entity responsible for managing the park through its Directorate of Protected Areas under which a PNJ administrator operates with local guards (including two supervisors). The PNJ management plan (DNP 1986) presents a good compilation of all existing information as of the date of its PNJ preparation. Contains a description of the context national and regional in terms of environmental characteristics and the detailed analysis of the unity of conservation. In the management plan, a park zoning is demarcated, its management areas defined and the programs required to achieve the general objectives of the park. Currently the United Nations Program for Development (UNDP), acting on request and on behalf of the Project 00071567 "Reengineering of the National System of Areas Protected", is evaluating the offers arising from the request of proposals for the design of management plans and sustainability of protected areas on June 10, 2014 where PNJ is included.

11. LOS HAITISES NATIONAL PARK



GEOGRAPHIC LOCATION- *Longitude* X: -69.621457;
Latitude Y: 19.017847 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- II

AREA- 631 km²

DATE OF ESTABLISHMENT- 01/10/1968

PURPOSE OF LISTING-

Los Haitises National Park (PNLH) was first created as a 208km² reserve in January 1968, later the same surface was elevated to national park. The PNLH is one of the national protected areas that has undergone the most transformations since its confirmation, given the great importance and good health, vegetation is considered one of its main natural values, being one of the places with the highest biological diversity index in its floristic composition. Another of the singular values is that the PNLH houses the last natural population of the Sparrowhawk of the Española, a hawk endemic to the island and considered the most threatened in the world. In the park area endemic, native and migratory species are relatively frequent, some of these with state of conservation in critical danger. Within the caye system of the park, lie the testimonies of the aboriginal presence in the area, evidenced in the large pictographs and petroglyphs that we find there, making PNLH the area of greatest geological interest in the country. The integrity of the Park's great natural value is strongly threatened by anthropic causes, as accelerated processes of deforestation and environmental degradation. Currently, the forest stand is getting reduced to 11% of the territory, equivalent to 136 km² of the 1400 km² reached by the Los Haitises karst system. The Park is also offered as a tourist attraction to thousands of tourists per year, with an impressive landscape of a lot of calcareous hills covered by lush vegetation. It also offers a great opportunity to visit the vast cave system with pictographs and petroglyphs that express the culture of the aborigines who lived there.

Social Aspect: In Sabana de la Mar agriculture, tourism, ecotourism, hiking, fishing and beekeeping stand out; in El Valle, agriculture and agribusiness through the exploitation of wood, palm and citrus forest. The main cultural expressions of the area include the celebration of the patron saint festivities on October 12 dedicated to the Virgen del Pilar in El Valle; the marine festival, the Devotion to Miss Elupina Cordero, bullfight and rodeo of horses, in Sabana de la Mar; patron saint festivals dedicated to San José and atabal festivities, in both communities.

KEY SPECIES-

- Hawksbill Turtle ● Loggerhead Turtle ● Green Sea Turtle ● West Indian Manatee ● Solenodon ● Hutia ● Macaco Palm Tree ● Sparrowhawk of the Española

THREATS-

Exploitation of natural resources:

Fishing: PNLH has fishing pressure since the time of the first settlers

Agriculture: Subsistence agriculture. Other important economic activities outside the buffer zone are rice, cocoa and coffee cultivation; fishing, livestock, dairy, commerce, transport and remittances sent by the emigrated population.

Tourism: National and foreign visitors are received who, in general, do not have a relationship with the local communities since the entire process is carried out by tour operators and intermediaries.

Forest Products: The use of firewood and charcoal persists, however, the number of households that use propane gas as a source is high, which is highly significant to reduce pressure on forest resources.

Increased population: Most of the inhabitants are natives and the oldest emigrants are mainly from the East. There is a high presence of the Haitian population (day laborers and the majority with conucos), but there is some presence of Cuban ranchers.

Invasive alien species: *Penaues aztecus* introduced by the Chinese government in 2000.

Pollution: Agrochemicals in agriculture, fuel leaks from boats

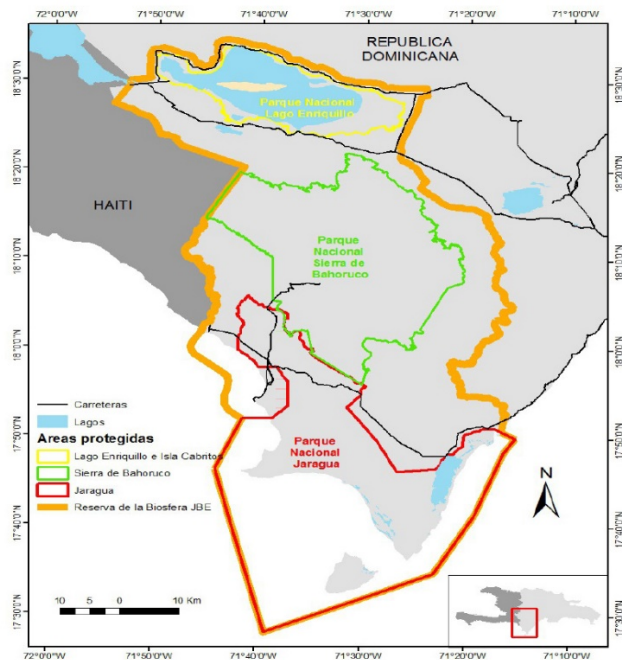
Other: Trafficking of people; sedimentation by the mouth of the Yuna river

MANAGEMENT STRATEGY-

The Ministry of Environment and Natural Resources of the Dominican Republic is the entity responsible for managing the conservation areas of the Dominican Republic through the Vice Ministry of Protected Areas and Biodiversity and its National Directorate of Protected Areas. Currently, the PNLH is legally managed under the concept co-management, where the Ministry of Environment and Natural Resources shares with the Karso Los Foundation Haitises, through the co-management modality, the administration of the PNLH.

The PNLH use and management plan (2013) presents a compilation of exceptional information of scientific and ecological value, where it proposes a strict control of the activities carried out, addressing a management of existing resources to decrease the social tensions generated in the park area.

12. NATIONAL PARK SIERRA DE BAHORUCO



GEOGRAPHIC LOCATION- Longitude X: -71.50409; Latitude Y: 18.348785 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- II

AREA- 1,226 km²

DATE OF ESTABLISHMENT- 01/1/1983

PURPOSE OF LISTING-

The Sierra de Bahoruco National Park (PNSdB) houses an important sample of the tropical Spanish mountain ecosystems. These include extensive dominated forests by pine (*Pinus occidentalis*), broadleaf forests and cloudy mountain forests, from 100m to more than 2300m in Loma del Toro. The PNSdB represents the only portion of mountain ecosystems under protection of the "Paleoisla del Sur", one of the two islands that came together to form the current island of La Española about ten million years ago, which largely explains measure the high number of endemic, rare and habitat species. The view of Bahoruco continues to Haiti, where it is known as Massif de la Selle. Given the wide deforestation existing in Haitian portion of la Sierra, the PNSdB presents the only opportunity to save the unique and exclusive species and ecosystems of the Hispaniola.

Social Aspect: On its southern slopes, the PNSdB provides quality and abundant water to communities and crops throughout the Pedernales River basin, a binational basin shared with Haiti. Thousands of people in various towns (the most important being Pedernales) and through different irrigation systems (e.g. in Los Olivares and Anse a Pitres) benefit. The park also contains unique biodiversity values that place it in a privileged position for the development of nature tourism, particularly flora and fauna, and Mountain tourism (Mountain biking, paragliding, etc.). In addition, its dramatic landscapes, such as the Pelempito pit, attracts visitors from all over the national and international geography.

KEY SPECIES-

24 species of reptiles have been reported, mostly lizards, with species of regional endemism. 112 birds have been reported, including 32 of the 34 endemic species of Hispaniola. The Park acts as a refuge for important populations relict of two endemic and threatened species of mammals: the Solenodon (*Solenodon paradoxus*), and the Hutia (*Plagiodontia aedium*).

THREATS-

Exploitation of natural resources:

Agriculture: Unsustainable agriculture. In some areas, especially on the southern slope of the park, it has been cut and continue to cut forests for the establishment of short-cycle crops, especially beans (peas) and also perennials (avocados). These terrains are extremely rocky and the soil layer thin. Because of this, they have abandoned the place after a few harvests.

Tourism, Industry and Forest Products

Invasive alien species: In some areas of the park there is a significant presence of cats, dogs, ferrets (mongooses), rats and feral pigs, which affect native species and ecosystems

Pollution: Use of dry forest. In several localities, especially El Tunal, the use of dry trunks and diseased trees is affecting species that prefer this type of tree to build their nests.

Increased population: Migratory movements through the Park and temporary settlements of Haitian nationals constitute a threat. Bonfires are normally built in with the consequent risk of causing fires.

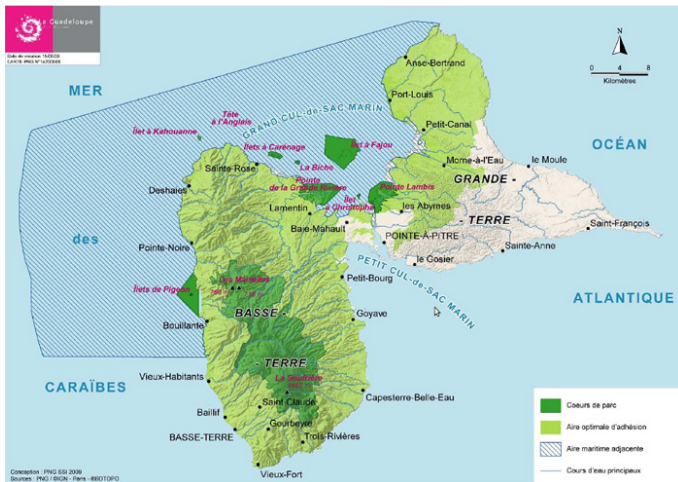
Other: Capture of chicks of birds. The extraction of bird chicks from nests affects several species of birds, particularly the Parrot, the Parakeet, the Cao, the White-tailed Partridge, the Perdiz Perdiz, the Red-legged Partridge, the Ash pigeon, the Turkish Pigeon, the Coronite Dove and the Guaraguao. This practice involves cutting down the tree where the nest is located, which prevents it from being used again for the same purposes.

MANAGEMENT STRATEGY-

The Ministry of Environment and Natural Resources of the Dominican Republic is responsible for managing the park through its Directorate of Protected Areas under which two PNSdB administrators operate with local seat and a park ranger, brigade and forest corps. This Area is also under a co-management agreement with the Ornithological Society of Hispaniola since 2012 and in the 2013 American Bird Conservancy joins this initiative. In 2014, the Tropigas Foundation sponsored the Protected Area. In addition, the technical commission for monitoring is formed by the Ministry of Environment and Ornithological Society. The PNSdB management plan (SEMARENA 2005) presents a good compilation of all the existing information to date of its preparation on the PNSdB. It contains a description of the national and regional context, in terms of environmental characteristics and social issues, and the detailed analysis of the unit conservation.

V FRENCH WEST INDIES

13. PARC NATIONAL DE LA GUADELOUPE



GEOGRAPHIC LOCATION- Longitude X: -61.682739;
Latitude Y: 16.167197 (Locate on the map)

IUCN MANAGEMENT CATEGORY- II

AREA- 2,467 km²

DATE OF ESTABLISHMENT- 02/20/1989

PURPOSE OF LISTING-

When it was created in 1989, the Guadeloupe National Park territory consisted of a central area of 17,300 ha in the forest massif of Basse-Terre and a so-called peripheral area in the three municipalities of Pointe-Noire, Bouillante, and Vieux-Habitants. The decree of June 3, 2009, translation of the 2006 reform, has changed this geography: the "new" National Park now potentially concerns 21 municipalities, or more than half of the department. There are three entities:

■ a "core" area composed of:

1. 17,300 ha in the Basse-Terre forest massif
2. 3,200 ha in the Grand Cul-de-Sac marin (former Reserve Natural)
3. islets Kahouanne and Tête-à-l'anglais
4. land and marine parts of Ilets Pigeon (Bouillante)

The "heart of the Park" areas are protected because of their exceptional biodiversity. These are the only areas where special regulations apply, the aim of which is the conservation of biodiversity, landscapes and in general natural and cultural heritage, the "character" of the heart. The human activities are supervised in order to prevent any degradation of the environment or species.

■ an optimal membership area in 21 municipalities: 16 municipalities of Basse-Terre and 5 municipalities of Grande-Terre located around the Grand Cul-de-Sac marin. This area is not subject to no particular regulations by the park.

■ an adjacent maritime area, equivalent at sea to the membership area. It remains under the jurisdiction of the Maritime Prefect, but the Park national can develop projects with local stakeholders sailor (fishermen, boaters, etc.). The municipalities which will sign the charter will form a zone of strengthened partnership, in which local actors can develop projects in cooperation with Park teams national.

Social Aspect: The protected areas are the support of economic activities for companies established in membership area, particularly for outdoor activities such as hiking, practiced in the Basse-Terre forest massif between the heart and the membership area, but also diving in the heart of the Pigeon islets. On a smaller scale, the major sites (Soufriere, Carbet Falls, Crayfish waterfall ...) benefit from organized and hosted tourist stays.

KEY SPECIES-

- Hawksbill Turtle • Loggerhead Turtle • Leatherback Turtle
- Green Sea Turtle • Olive Ridley Turtle • Sperm Whale • Forest Thrush • Guadeloupe Woodpecker • Epidendrum revertianum •

THREATS-

Exploitation of natural resources: Fishing (there is a lot of informal fishing, which therefore does not fit into current statistics. Crimes can be the subject of non-professionals as well as professionals. We are witnessing an exhaustion both in terms of species of commercial interest (rarefaction, reduction in size, contamination by pollutants, degradation of habitats, etc.) and in terms of other marine organisms (corals, sponges, marine animals, biodiversity in general)),

Agriculture (water pollution, soil and food contamination, land clearing, drying up of wetlands, creation of roads, erosion due to the rambling of animals) and **Tourism** (Overcrowding, erosion, wild access causing landslides, disturbance, destruction, ...)

Increased population: By 2040, the projections foresee a further aging with a stable population of around 404,000

Invasive species: Marine invasive species of Guadeloupe include Lionfish, Bamboo, Caribbean pine, Magnioc ant, Water hyacinth, Water lettuce. Terrestrial alien species include Forest Thrush, Guadeloupe Woodpecker and Epidendrum revertianum (an orchid).

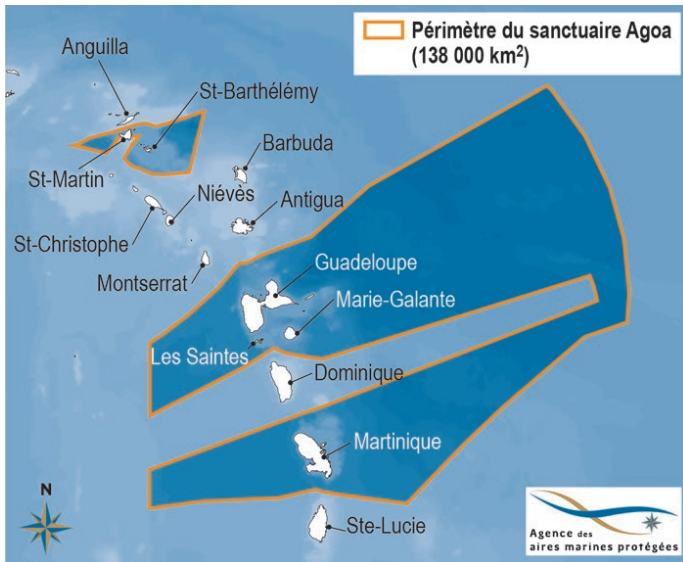
Pollution: Of several kinds: macro-waste, pesticides, chemical fertilizers, ... Chlordecone, they affect many environments connected to each other.

Other: Natural hazards (cyclone) can cause serious damage to coral populations and forest stands.

MANAGEMENT STRATEGY-

The Guadeloupe National Park is a public establishment responsible for managing this territory. This establishment, under supervision of the Ministry of the Environment, operates thanks to a technical and administrative team whose actions are defined by several deliberative bodies (like CESC). There are approximately 80 people from different professional worlds. We distinguish personal technical and administrative staff; and field staff. These have the mission of managing the territory of Park, that is to ensure the police functions of environment, observation and maintenance functions of the environment, scientific monitoring, as well as reception and of pedagogy. In the new Park perimeter, the team guides the municipalities and the actors of the territory in sustainable development actions.

14. SANCTUAIRE AGOA



GEOGRAPHIC LOCATION- Longitude X: -60.908203;
Latitude Y: 16.688817 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- II

AREA- 143,000 km²

DATE OF ESTABLISHMENT- 10/10/2010

PURPOSE OF LISTING-

Encompassing 143256 km² of ocean, Agoa Sanctuary is located in the eastern Caribbean Sea. The sanctuary is designed to ensure the conservation of marine mammals in waters under French sovereignty and jurisdiction in the French West Indies. These include the territorial waters and Exclusive Economic Zones (EEZ's) surrounding Martinique, Guadeloupe and its dependencies of Marie Galante, the Saints Archipelago, la Desirade, Petite Terre, as well as those of St. Barthelemy and St. Martin. The Caribbean Sea is a special habitat for feeding, reproduction and migration of marine mammals. Around thirty species have been identified in the French Antilles waters. With the creation of Agoa Marine Mammals Sanctuary, France wanted to contribute to make a model of the Caribbean region for the marine mammals protection and the sustainable development. The EEZ of the French Antilles are now an area of dialogue between all the stakeholders in order to set up a harmonious model of development and of conservation of the marine mammals critical habitats. Agoa is based on an innovative governance system bringing together the local governments of Guadeloupe, Martinique, Saint-Martin and Saint-Barthélemy Islands and their environmental departments, the French Biodiversity Agency, the socio-economic partners, environmental NGOs but as well University and scientific bodies.

Today hunting is no longer practiced in French waters, but other threats have taken place on these fragile ecologically species: increase in maritime traffic, noise pollution, chemical and oil pollution of the marine environment, degradation of the habitats, increase in whale watching... The current legislation includes prohibition, destruction, mutilation, capture, intentional removal, transport or trade in marine mammals.

The objective of the sanctuary is to ensure the conservation of marine mammals, within the framework of a harmonious co-existence with human activities.

Social Aspect: The French overseas territories, as regards to the West Indies (archipelago of Guadeloupe, Martinique, St. Barthélemy, St. Martin), have a particularly extensive maritime public domain, and are home to many terrestrial and marine protected areas.

KEY SPECIES-

- Sperm Whale • Sei Whale •

Cetaceans present in the sanctuary represent a remarkable biodiversity with more than 28 species present. The most observed species are the Humpback Whale during the breeding season from January to June, the Sperm Whale and dolphins like the Bottlenose Dolphin and Pantropical Spotted Dolphin.

The dearth of in-depth knowledge about the species and their habitats present in the MPA is supposed to be conducted in the coming years and is one of the top priorities.

THREATS-

Increase of the number of whale watchers: recent studies have identified around seventy operators offering whale watching trips in the French Antilles. The activity is increasing essentially in Martinique. In Guadeloupe, its evolution was moderated but it would seem that in light of investigations conducted during last study, its evolution can be intensified in the coming years.

In total, the activity of whale watching attracts each year more than 60 000 tourists and brings in about 2 165 000 euros. The activity is most developed in Martinique where there are near 42 300 tourists in 2015. The economic contributions are valued at 1 670 000 euros per year in Martinique. Guadeloupe has received in 2015 about 9000 whale watchers, 4.5 times less than Martinique.

Exploitation of natural resources: Fishing (Habitat degradation by waste and discarded fishing gear These wastes also have impacts on marine life, habitats and marine mammals in two ways: - Entanglement, the process by which animals and their habitats are entangled or trapped, - Ingestion, with intentional or accidental ingestion of discarded or lost fishing gear), **Agriculture** (- Reproductive capacities and immune system could be affected and could lead to the death of the animal, tumors, Intoxication (hydrocarbons), Physiological dysfunction (nervous system), Intoxication newborns and Endocrine disruption) **and Tourism** (Desertification of habitats)

Increased population

Invasive alien species: The "lionfish" has invaded the waters of the French Antilles. In Mexico, in areas already infested, the density of lionfish reached 100 to 150 lionfish per hectare, and over 400 individuals per hectare in some places in the Bahamas. A recent study showed that 80 lionfish consume about 1 km of reefs around 50,000 fish / year.

Pollution: Oil and chemical pollution. Although oil spills are regularly observed within the EEZ of French West Indies (6 cases over the period 2008-2009) the total quantity of

pollutants from discharges and possible "oil spill" is insignificant compared to the pollution caused by domestic sewage, the industrial discharges, urban runoff, spills, dumping operations, mining, pesticides, agricultural fertilizers and waste heat sources that can potentially alter ecosystems and feeding areas, calving rates and rest of marine mammals. Some substances bioaccumulated by plants, marine organisms including marine mammals are known to be toxic, carcinogenic or teratogenic or inducing death, sterility, malformations, etc. Bioaccumulation occurs through food, and all through the food web. The more the food chain is important, the greater is the accumulation and the greater are the adverse effects. Predators such as toothed whales, located in the terminal portions of food chains are particularly vulnerable to this type of pollution that can impair their ability to reproduce and disease resistance. Wastewater contaminated by various endocrine disruptors (eg.: Xeno-estrogens or drugs) are treated through the waste-water treatment plants (WWTP). In these treatments, chemical compounds can be degraded completely or partially, creating sewage sludge on their absorption by suspended particles. The problem stems from the inefficiency of STEP to retain certain substances, it follows that the latter are found in the treated water which will then contaminate surface water. In Martinique and Guadeloupe, the use of chlordecone used as an insecticide, especially against the weevil in banana plantations from 1979 to 1993 resulted in contamination of 40 to 45% of agricultural parcels (Asconit, 2005). It was used until the years 2005-2007. Its use has polluted the whole Antillean ecosystem in which we find concentrations greater than 100 times the norm, especially in water and soil. Research showed that some of the coastal marine environments are contaminated with organochlorine. In fact, the presence of fish and contaminated areas in the waters of Guadeloupe and Martinique may have a direct influence on the health of marine mammals that frequent these areas particularly for food.

MANAGEMENT STRATEGY-

The main objectives are:

- support the establishment of protected areas in the Caribbean region in particular "corridors", breeding areas and nurseries attended by a species or group of species of marine mammals. Some countries have already demonstrated their commitment to this process (Dominican Republic, the Netherlands under the Dutch Antilles).

- deepen the technical and scientific cooperation between sanctuaries which are visited by marine mammal throughout their migratory route. To this end, a joint declaration was adopted at the second international conference on marine mammals held in Martinique in November 2011. It has also celebrated the twinning of Agoa and the US sanctuary of Stellwagen Bank.

The management plan entails:

1 KNOWLEDGE / MONITORING

- Campaigns : biannual transect lines and acoustic samples:
- Study the evolution of the estimated numbers in the sanctuary,
- Identify the number of individuals during migration periods,
- Inform on the population dynamics
- Study the evolution of the abundance and distribution

- Genetic monitoring campaign (biopsy) and movement of individuals (tags).
- Program of photo-identification of individuals to describe their site fidelity (humpback whales, sperm whales ...).
- Characterization of habitat favorable for marine mammals,
- Acoustic monitoring (including buoys), identification of marine mammals and noise.
- Continuous assessment of interactions with human uses (bycatch, depredation, water activities, pollution, noise, etc.)

2 SUPPORT / GUIDANCE

- Definition of an intervention network for animals in distress, entangled and/or stranded,
- Definition/support/guidance of an intervention network for prevention of pollution, pollution control, and followed post-pollution,
- Support and assistance for projects aiming at conserving and restoring habitats likely to receive marine mammals,
- Support for tourism operators in an eco-responsible approach,
- Support for the production of scientific studies and scientific articles,
- Expertise and advice to project developers for impact assessments,
- Support/Training for MPA managers of the French Antilles and the Caribbean islands for the observation, identification and intervention in case of distress and stranding
- Support the targets of the chlordecone plan,
- Support/search for innovative devices intended to limit the impact of human activities on marine mammals
- Promotion of the sanctuary at regional level, of its work, its governance, organization...

3. CONTROL / AWARENESS

- Pooling of resources of the State action at sea, of the services and operators of the state and of the network of MPAs for:
- Establishment/strengthening control over the disturbance and harassment of cetaceans,
- Strengthening control on the degradation of natural areas and seascapes that can have adverse effects on habitats of marine mammals,
- Awareness of stakeholders to approach techniques
- Promoting respect of the Order of July 1st 2011
- Establishment of outreach and educational tools (website, code of conduct, activities, exhibitions, forums)

4 REGULATION / SUPERVISION

Regulate:

- Activities of whale watching,
- Seismic research and other activities using acoustics,
- The use of fishing gear which may result in the capture of marine mammals,
- Offshore competition, nautical events,

Supervise:

- Shipping,
- The establishment of a network "alert: stranded and distressed animals" throughout the French Antilles

15. RÉSERVE NATURELLE DE PETITE TERRE



GEOGRAPHIC LOCATION- Longitude X: -61.110592;
Latitude Y: 16.175276 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- IV

AREA- 10 km²

DATE OF ESTABLISHMENT- 03/9/1998

PURPOSE OF LISTING-

Petite Terre represents a remarkable ecological space concerning both terrestrial and marine habitats. This diversity biological is linked to the juxtaposition of various ecosystems on a relatively small surface. The reserve is a major issue in terms of habitat and biodiversity conservation in the Guadeloupe archipelago. The value of this site is due to the presence of one of the largest populations of iguanas in the Lesser Antilles (*Iguana delicatissima*), of Skinks of Desirade (*Mabuya desiradae*), it is also a nesting ground for several species of sea turtles (*Chelonia mydas*, *Eretmochelys imbricata* and *Dermochelys coriacea*). It also shelters a stand of Guaiacum (*Guaiacum officinale*), a small tree protected with dense wood that has practically disappeared from the Lesser Antilles.

The islets are also recognized as one of the highlights of bird watching in Guadeloupe, since about 170 bird species have been identified there out of 210 to 220 listed in the archipelago. There is a strong anthropic pressure on the islets of Petite Terre (tourist frequentation, ...) which motivated the creation of the reserve in 1998.

Social Aspect: For a few years, the Petite Terre nature reserve has been facing a strong increase in tourist frequentation, especially when the weather is favorable, weekends and holidays. It is during these periods of overcrowding that the impacts on the environment are the most significant. The reserve has a significant economic potential since it is the seat of a strong tourist frequentation. Many companies offer a daily service on the reserve.

The managers of the reserve collaborate with numerous educational establishments by presenting the ecosystems and the remarkable species of the reserve which therefore has an

educational interest. The staff of the reserve participates in local events and promotes tourism in the Désirade.

KEY SPECIES-

- Elkhorn Coral • Hawksbill Turtle • Leatherback Turtle • Green Sea Turtle •

THREATS-

Exploitation of natural resources: Fishing (The fishermen come every day to put nets around the reserve) and **Tourism** (- Waste disposal at beach level - Disturbance of seabirds (nesting) - Damage caused by divers on coral reefs and seagrass - Competition with endemic species - Disturbance of ecosystems - Disturbance of species and risk of collision (turtles, marine mammals) - Accidental physical impacts on seagrass beds and corals - Disturbance of species - Desertion of breeding sites (turtles))

Invasive alien species: 2 invasive species: *Rattus rattus* and *Pterois volitans*: - Competition with endemic species - Disturbance of ecosystems - Fish-Lion, Black Rat

Pollution: Chemical pollution (discharge of wastewater) is likely to modify the chemical composition of the water and therefore disturb ecosystems, particularly coral reefs. Noise pollution can harm the nesting of birds and marine mammals. The presence of macro-waste (plastic bags) is dangerous for certain species (turtles).

MANAGEMENT STRATEGY-

In order to preserve the richness of the coast, the Conservatoire du littoral acquired the lands of Petite Terre after a expropriation procedure in November 1994. This acquisition has greatly contributed to the protection of the islets and classification in natural reserve of the site in 1998. Today owner of the central part of the two islets, the Conservatory du littoral participates in management through the transfer of passenger tax to the association "Titè ". The rest of the game terrestrial consisting of the FDL (Forêt Domaniale du Littoral) is managed by the ONF.

A 2004-2008 management plan has been validated and a new plan management (2012/2016) will soon be validated by the Committee scientific advisory of the reserve. Today the reserve has evolved and is facing other problems of management. New operations adapting to the context of the reserve should be included in the future plan for management. New proposals for action identified following interviews and meetings with various stakeholders in the territory (guards, curators, scientists, cruise lines, fishermen) are to be expected. In the future management plan, criteria for evaluating achievement of operational objectives should be clearly defined to allow a rapid and correct evaluation at the end of the plan.

16. RÉSERVE NATURELLE ILE DU GRAND CONNETABLE



GEOGRAPHIC LOCATION- Longitude X: -51.933333333333; Latitude Y: 4.825 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- IV

AREA- 79 km²

DATE OF ESTABLISHMENT- 12/8/1992

PURPOSE OF LISTING-

The Grand Connétable Island nature reserve is located on the Guyana continental shelf, shallow and approximately at the limit between the coastal terrigenous waters from the Amazonian and Guyanese rivers on the one hand, and the waters green ocean of the continental shelf on the other hand. The currents are intense there, directed towards the northeast, and the swell makes often perilous docking. The rocky marine ecosystem of the reserve is atypical on the Guyanese coastline and in particular is home to a population still small known from Giant Groupers (*Epinephelus itajara*). The waters of the reserve are also frequented by Green turtles and Sotalian dolphins.

The island is home to a colony of seabirds mainly composed of six nesting species: the superb Frigatebird, four species of sternidae: Cayenne Tern, Royal Tern, Sooty Tern and Brown Noddi as well as species of laridae, Gull atricilla. These species take advantage here to reproduce the only oceanic rocky islets available of the fringe Guyana Shield Atlantic.

Social Aspect: No resident population within the reserve or within the area of potential direct impact on the protected area. Fishing is prohibited on the marine perimeter of the reserve. However, authorizations can be issued by the Prefect within a perimeter of one nautical mile beyond the two islands. Grand Connétable island has a tourist circuit in order to observe the birds around the island (since docking is prohibited). The reserve presents an image of a rock lost in the middle of the ocean, populated by bird species that are rarely seen on the rest of the coast. The island often attracts curiosity because it is known to be a paradise for birds.

KEY SPECIES-

- Green Sea Turtle •

The Reserve has always been of immense interest of Ornithologists. There are more than 40 species of birds on the

two islands including 17 species of seabirds, 5 species of Laridae, 16 identified species of shorebirds and other discreet species. The protection of their nesting colonies was the main argument in favour of creation of this Reserve.

THREATS-

Exploitation of natural resources- Fishing (Although fishing is prohibited, many grouper lines are often found, attesting to illegal activity. Regularly, fishermen, illegal or not, make incursions in the reserve, rare rocky zone of the littoral of the plate of Guyanas. Fishing is prohibited near the islands within a perimeter of less than one nautical mile.), **Industry** (an offshore oil project is under consideration. It is very far from the island and is rather at the limit of the continental shelf)

Pollution- The Approuage watershed is particularly subject to gold panning, with all the heavy metals that this activity induces.

MANAGEMENT STRATEGY-

The management plan for the Ile Grand nature reserve Connétable is designed for a period of five years (2008- 2012), according to a methodology developed by Reserves Naturelles de France and validated by the Ministry responsible for the environment. He must take into account the recommendations formulated in the matter by the National Council of Nature protection.

The management plan consists of three parts:

- a descriptive and analytical approach to the Reserve Natural,
- an assessment of the heritage; the definition and the prioritization of management objectives,
- a work plan which defines, programs and figures of the operations to be carried out,

This document is submitted for approval by the Prefect to the Regional Environment Department then to the committee of the Nature Reserve and the Scientific Council Regional Natural Heritage. It is then sent to opinion to the standing committee of the National Council of Nature protection and for information to the Minister responsible for the protection of nature. Inventory and scientific monitoring programs have been carried out under the advice of a college of experts without public consultations since the reserve is strongly isolated.

17. RÉSERVE NATURELLE NATIONALE DE SAINT-MARTIN



GEOGRAPHIC LOCATION- Longitude X: 63.001098632812 ; Latitude Y: 18.101639553165 (Locate on the map)

IUCN MANAGEMENT CATEGORY- IV

AREA- 31 km²

DATE OF ESTABLISHMENT- 09/3/1998

PURPOSE OF LISTING-

The national nature reserve of St-Martin extends over 3054 hectares where three different ecological backgrounds live: the littoral, lakeside and marine space. Each of these backgrounds have a remarkable biodiversity. It is five main ecosystems that strives to protect the RNN of St-Martin. In knowledge, the lakeside spaces, the marine mangrove swamps, the coral reefs, the herbariums of phanerogams, and the littoral spaces (beaches, cliffs, îlets, vegetation of the seaside).

On the ground part, there are the xerophytics, specific to the dry climate of the island which dominate the littoral region in the wind, the cactus "English head" which appears on the regional list of the species to be protected is the emblem. Ponds, serving as area of passage and as wintering for limicoles and anatides, shelter a rich avifauna including more than 80 different species among which frigate birds and the brown Pelicans well known by the local population.

The mangrove swamp establishes as for her a particular zone in intertidal zone, serving as places of protection and as nursery for numerous species. Quite as, in the marine environment, the herbariums of phanerogams which we can meet on the sandy formations close to the coast. Finally, Martinmas being a volcanic island, numerous constructed organic cliffs, high places of diversity, can be observed. The reserve is also the place of observation of marine mammals and reptiles in particular of tortoises as it has numerous sites of laying eggs on beaches.

Social Aspect: The nature reserve plays an essential role for the economic and social development of the Community. Its exceptional natural and historical heritage is an asset of

economic development of the local population. For tourism professionals (diving operators, hoteliers, boat rental, etc.), the nature reserve is an asset and a selling point for their activities because it is synonymous with quality and preservation of the sites.

For traditional and recreational fishing, it promotes the growth and reproduction of many species, including those of fishery interest. It is therefore possible to envisage that the export of juveniles born in the Nature Reserve or of biomass of adults reinforce the fishing potential of the adjacent areas for the benefit of professionals ("spillover" or export of biomass). Finally, the nature reserve is a tourist attraction for the island, and is therefore an "eco-tourism" destination argument.

KEY SPECIES-

- Staghorn Coral
- Elkhorn Coral
- Hawksbill Turtle
- Leatherback Turtle
- Green Sea Turtle
- Nassau Grouper

THREATS-

Exploitation of natural resources: Tourism (Certain tourist activities are allowed in the reserve such as boating or diving for example). Near the reserve there are restaurants, hotels, all tourist activities which can be the cause of habitat destruction, disturbance of wildlife and pollution.

Invasive alien species: mainly terrestrial species such as mongoose and rats, which constitute a threat, mainly on Tintamarre. In addition, the lionfish, an invasive species from the Caribbean, is increasingly observed in the reserve.

Pollution: The pollution in the reserve can be directly observed on the ponds where discharges of waste-water are discharged there in addition to deposit of macro-waste. The Grande Caye landfill also poses a threat of pollution, accentuated by the runoff of rainwater which can then transport the leachate.

Increased population: The tourist activity will tend to increase it will remain framed in the reserve. In addition, Saint Martin is the site of significant waves of immigration favouring the increase of the population.

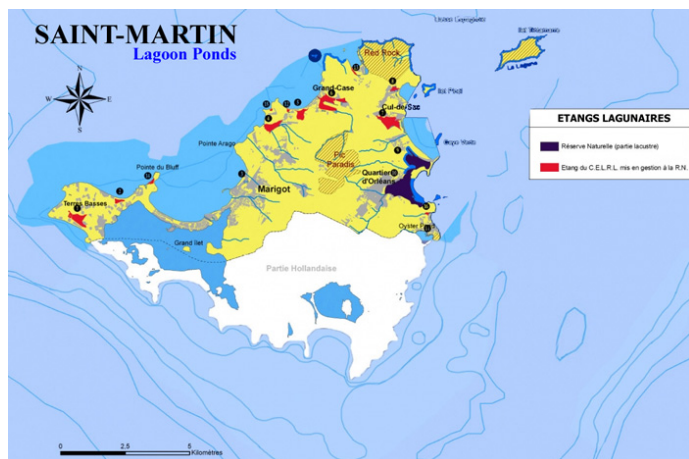
Other: The West Indies are under the threat of particularly destructive hurricanes. In addition, there is an increase in the frequency of coral bleaching phenomena.

MANAGEMENT STRATEGY-

The main objective is the maintenance of biodiversity and preservation of various marine and terrestrial ecosystems in Saint Martin. This goal may seem rather defensive, however, increasing human pressure, in a small space, considers that getting the maintenance of environmental quality today is in itself a very ambitious challenge for St. Martin. From this main objective, seven long-term goals were defined:

- 1) Improved knowledge on areas and protected species
- 2) The control of human impacts on protected areas
- 3) The extension of the nature reserve management to new spaces
- 4) The restoration of degraded environments or populations
- 5) Communication and Environmental Education
- 6) The optimization of resources to ensure the quality of engagement
- 7) The strengthening of regional integration

18. ETANGS LAGUNAIRES DE SAINT-MARTIN



GEOGRAPHIC LOCATION- Longitude X: -63.049092; Latitude Y: 18.081895 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- IV

AREA- 2 km²

DATE OF ESTABLISHMENT- 02/2/2007

PURPOSE OF LISTING-

The French part of the island of Saint-Martin has 16 ponds. These coastal wetlands, where inventories have been carried out, there is proof of a significant ecological richness and a certain biodiversity, in particular concerning the avifauna. These ponds are protected by different statutes: Since August 28, 2006, these 16 ponds are protected by a decree biotope protection prefecture intended "to ensure the conservation of the biotopes necessary and essential for resting, feeding and reproducing birds protected, migratory or not" and prohibiting in its article 3, various human activities while allowing, in his article 4, certain developments promoting biodiversity.

The ponds of Saint Martin are also protected by the water and the environment under various laws. However, the ponds are still under anthropogenic pressure. The urbanization that affects all of the island's watersheds, wastewater discharges and rainwater produced without authorization, unauthorized deposits, embankments carried out illegally on bodies of water are attacks on the integrity of ponds. At the request of the community of Saint-Martin, 14 of these 16 ponds, covering 198 ha (excluding Galisbay and Oyster Pond bay) were assigned to the CoL by ministerial decree of February 2, 2007. The CoL has entrusted the management to the National Natural Reserve of Saint-Martin (RNNSM) by signing a management agreement. In addition to that 2 of the 14 ponds are part of the Reserve Natural National of Saint-Martin. Since 2012, they have been classified Ramsar sites.

Social Aspect: The ponds in St-Martin are still all too often seen as an unhealthy place where one can get rid of waste and where wastewater is discharged. The threats which weigh on them are mainly that of pollution by the rejection of the treatment plants and by the deposit of macro-waste by the local population and tourist. However, the ponds are home to a very diverse avifauna which attracts both the local population and tourists. The observation of the richness of the ponds tends to be improved by many development projects: places of communication and environmental

awareness. Many birds: migratory, nesters or others are present around the ponds. This diversity is favorable to the development of birdwatching, an activity with high development potential that can generate economic spinoffs and help finance the management and enhancement of these privileged areas.

KEY SPECIES-

In Saint-Martin, 4 mangrove species are widespread: Gray Mangrove, White Mangrove, Black Mangrove and Red Mangrove. Furthermore, there are 85 species of Avifauna (non-exhaustive number), 3 species of amphibians, 1 species of terrestrial turtle and 10 reptile species.

THREATS-

Exploitation of natural resources: Fishing (Fishing takes place on a small scale. In the two ponds classified as reserves, fishing is prohibited) and **Tourism** (Tourism always brings more urbanization, which accelerates the filling of ponds on the one hand and that of the flow and frequency of discharges of wastewater on the other hand. In addition, the degradation of the ponds is directly accentuated by the deposit of macro-waste on their banks)

Invasive alien species: Invasive species are also present at the edge of ponds: green iguana, mice, rats, Turkish doves and mongooses.

Pollution: pollution is linked to the discharge of wastewater which often takes place within the ponds and then to the deposition of macro-waste by the population.

Other: the natural risks linked to cyclones must also be taken into account in the degradation of ponds, in particular at the level of the mangrove.

MANAGEMENT STRATEGY-

The main objective retained in the reserve management plan is the maintenance of biodiversity and the preservation of different marine and terrestrial ecosystems in Saint Martin. This goal may seem rather defensive, however anthropic pressure growing, in a reduced space, forces us to consider that obtaining the maintaining the quality of current environments is, in itself, a particularly ambitious challenge for Saint-Martin.

From this main objective, 7 long-term objectives were defined:

- 1) Improving knowledge of spaces and protected species
- 2) Controlling anthropogenic impacts on protected areas
- 3) Extending the management of the nature reserve to new ones spaces
- 4) The restoration of degraded environments or populations
- 5) Communication and environmental education
- 6) Optimization of resources to ensure the quality of the missions
- 7) Strengthening regional integration

This being for the management plan of the reserve and thus includes management methods for ponds classified as reserves. For the others, management objectives have been determined following a global study on ponds aimed at achieving a state full places on these (see "global study of ponds "in annex).

19. ETANGS DES SALINES



GEOGRAPHIC LOCATION- Longitude X: -60.871124;
Latitude Y: 14.403757 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- III

AREA- 98 km²

DATE OF ESTABLISHMENT- 01/1/1998

PURPOSE OF LISTING-

L'Etang des Salines is a transitional coastal lagoon (fluvial and atmospheric type of operation) which is 3.5 km away southeast of the town of Sainte-Anne, at the southern end of the island of the Martinique. It is easily accessible by the departmental road which serves the famous and very well known beach of the Grande Anse des Salines. Covering a hundred hectares, a narrow coastal cordon separates it from the sea, with which it communicates by 2 channels located respectively at its southern end and on its western edge.

Its water regime is mainly dependent on marine influences during tides and heavy swells. The pond is also supplied by rainwater and runoff. Her shallow depth of 0.80 m on average and its warm waters (temperature between 27 and 32.5 ° C), combined with the climate very hot from the south, causes strong evaporation and gives it a high salinity level of 40 per 1000. These characteristics have facilitated its layout and use as salt marshes from the 18th to the 20th century, hence its name "Pond of the Salines".

The threats posed by pesticides and runoff from polluting products (agriculture, hunting, landfill near the area), as well as tourism which is problematic because the site includes one of the most popular beaches in Martinique (1 million visitors per year), motivated the land intervention of the Coastal Conservatory in 1998. This has since led to a conservation, protection and enhancement policy of this wetland of functional interest for Martinique.

Social Aspect: First of all, by the massive tourist frequentation of the Salines site with in particular, the Salines beach, welcomes more than 1 million visitors per year. The protection of the pond allows conservation of the biodiversity of fish and benthic fauna, which allows local populations to maintain a recreational fishing activity in the pond. The traditional crab fishing is very popular, especially at Easter when there are more fishermen. This activity is regulated and allows the development of populations and the maintenance of the age pyramid.

KEY SPECIES-

There are 4 species of common mangroves in Martinique: *Rhizophora mangle*, *Avicennia germinans*, *Laguncularia racemosa* and *Conocarpus erecta*. Other than this, there are ten species of crabs and five species of shrimp and 38 species of fish, belonging to 23 families. The pond is also an important place of refuge for bird populations, both sedentary and migratory.

THREATS-

Exploitation of natural resources: Fishing (Crab fishing is regular and rooted in habits, it has been the subject of protective measures since 2002 (prefectural decree of December 9, 2002). Short- and medium-term trends therefore remain stable), **Tourism** (The pond's tourist activity is represented by hikers, school children and tourists from the great Anse des Salines. It is significant and will no doubt increase in the short and medium terms. The human presence is often disproportionate which leads to a degradation of the place. The information given to the public and the improvements made promote the attractiveness of the site for the general public and **Agriculture** (A large part of the land situated to the north-west of the pond is occupied by the breeding of cattle in paddocks, with herds of up to a hundred individuals. The land located northeast of the pond is currently cleared and used for the exclusive cultivation of melon (111ha). Intensive melon farming poses problems of soil and runoff pollution (the cultivation of melon is a crop very greedy in nitrogen and phosphate inputs). Pollution of water by heavy metals and pesticides would undoubtedly be linked to this activity. It is possible that this agriculture will prosper initially and then increase, it is encouraged by the Martinique Chamber of Agriculture)

Pollution: Several illegal constructions, without sanitation are located on the banks to the southwest of the Pond. They are responsible for numerous nuisances in the environment: discharge of wastewater into the pond in particular. The presence of certain pollutants, heavy metals in particular, was the subject of causal research between 2001 and 2007, although the concentrations measured in sediments, crustacean chairs and fish remain acceptable by the standards in force. It turns out that the site served as a dumping ground for several years and that there are probably areas where toxic substances have been buried. On the other hand, the site served as a firing range for several years.

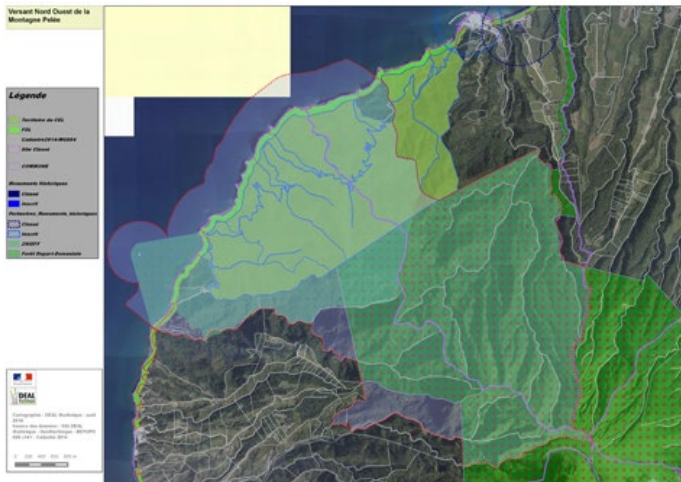
MANAGEMENT STRATEGY-

There is currently a simplified management plan which presents 3 general management objectives:

- Improve the state of knowledge of the pond;
- Improve the ecological state (Restore functions site hydraulics);
- Continue the maintenance and animation of the site.

Indeed, a new management plan is underway development in order to propose operational management objectives and preservation of the site. The future management plan will include deepening studies of knowledge (fauna, flora, hydrology, landscape approach and cultural), and a description of uses of the site in order to define a functional management and a plan of action.

20. VERSANTS NORD DE LA MONTAGNE PELÉE



GEOGRAPHIC LOCATION- Longitude X: -61.199512;
Latitude Y: 14.856532 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- III

AREA- 789 km²

DATE OF ESTABLISHMENT- 01/1/2004

PURPOSE OF LISTING-

The very complex relief develops, on each side of the ridges, in steep slopes cut by deep valleys. The hills very high (> 50%) are not organized following an exhibition dominant. We find a dense hydrographic network with perennial rivers with steep slopes. In this forest, the altitudinal amplitude (from 0 to 725m) and the fort rainfall gradient (from 2000-2500mm at sea level to 4000-5000 mm on the tops) create a variety of floors bioclimatic allowing the installation of most of the main forest types in Martinique. In addition, the diversity of exposures (windward and leeward sides) and conditions topographies determine the forest types and subtypes that enrich the overall plant composition

Social Aspect: There is no urbanization within the site. The territory occasionally welcomes tourists and hikers. It is estimated that 10,000 people attend each year. Tourism is also very important at Anse Céron, at the edge of the perimeter, where there are around 110,000 people per year.

KEY SPECIES-

● Hawksbill Turtle ● Leatherback Turtle ● Green Sea Turtle ●

The territory contains one of the most interesting forest areas in Martinique, with 44 tree species endemic to the Lesser Antilles. The difficult to access forest area has served as a refuge for a number of heavily hunted fauna species.

THREATS-

Exploitation of natural resources: Agriculture (The only agriculture that is practiced is market gardening on limited plots. The farmers, being under AOT granted by the Conservatory, cannot expand), **Tourism** (It is noted that the good maintenance of the trails is necessary and allows a channeling of the tourist flow essential for the preservation of the site. Indeed, the use of "shortcuts" is an important factor

of degradation, because they can create erosion and gullying starts. An amplification of these phenomena would be particularly harmful for the environment. The bivouac is not authorized on the beaches of the site. However, these regulations are complicated to enforce due to the difficulty of beach accessibility for good surveillance)

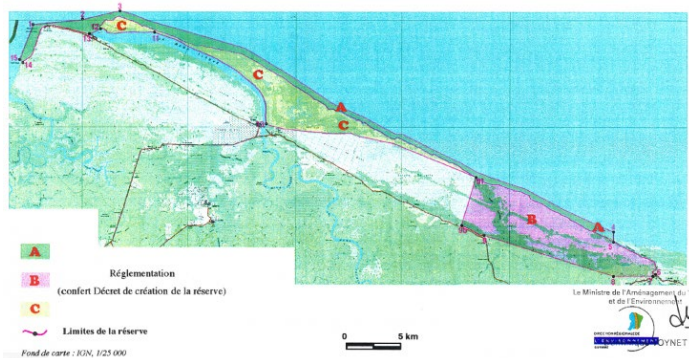
Invasive alien species: The mongoose is a predator of the eggs of sea turtles, birds and iguanas. It would also be responsible for the rarefaction of certain species of birds. The common iguana threatens the survival of the endemic species of the Lesser Antilles, with which it hybridizes, thus eroding its genetic heritage.

MANAGEMENT STRATEGY-

The management plan revolves around an approach to the territory based on a shared reading of the landscape. It is written in files:

- arrivals on the Preacher's site;
- the entrance doors to the site;
- the trails at the heart of the site;
- thematic technical sheets (layouts and interviews pedestrian paths, establishment of river and land shuttles, creation of posts agents);
- study and research files (update of the plots of trails, site frequentation study, anthropological study of the use of forest plants, memory of the landscape and history of the site, reserve project Marine).

21. RÉSERVE NATURELLE NATIONALE DE L'AMANA GUYANE



GEOGRAPHIC LOCATION- Located between the Atlantic Ocean (north), the Maroni River (west) and the Oraganabo River (east). Located between the Atlantic Ocean (in the north), Maroni river and Oraganabo river (east).

IUCN MANAGEMENT CATEGORY- IV

AREA- 154 km²

DATE OF ESTABLISHMENT- 03/13/1998

PURPOSE OF LISTING-

The Reserve is subject to a perpetual evolution due to the progression from east to west, along the coast, of the banks of mud from the Amazon. This coastal dynamic is so impressive that the reserve environments are changing in plain sight, from one year to the next. Today's mangrove is tomorrow's beach. The reserve is an exceptional and world-leading spawning site for sea turtles. Its beaches are home to four species: the Leatherback Turtle, the Green Turtle, the Olive Turtle and much more rarely, the Hawksbill Turtle (*Eretmochelys imbricata*).

It is also a great place of passage for many migratory species, as well as a very interesting breeding site. Mudflats, lagoons and marshes attract thousands of species of birds such as herons, sandpipers, ducks. In addition, are present although rarer, sensitive species such as the red Ibis (*Eudocimus ruber*), the American Pink Flamingo (*Phoenicopterus ruber*). It is also a high point of passage for many migratory species, as well as a very interesting breeding site.

Also present are large predators such as Jaguar (*Panthera onca*), Puma (*Puma concolor*), small predators such as the Crab Raton (*Procyon cancrivorus*), other large rare mammals such as the White Deer (*Odocoileus guyanensis*), the Lamentin (*Trichechus manatus*). Reptiles are also very present, with the beggy Caymans (*Caiman crocodilus*), the Iguanes (*Iguana iguana*), the Anacondas (*Eunectes murinus*), the rainbow boa of the marshes (*Epicrates maurus*) and other snakes.

Social Aspect: Various economic activities are present around the Reserve, some of which are of cultural importance: subsistence fishing and hunting by the local population, tourism mainly focused on the discovery of marine turtles, traditional agriculture (giblets) and modern (breeding and rice cultivation), gathering (seeds, fruits and medicinal plants), crafts and cultural arts. As a result, local people stays aware of the importance of preserving the natural resources from

which they derive either an income or food, and other primary needs (traditional wood and palm leaf habitat).

KEY SPECIES-

- Hawksbill Turtle ● Loggerhead Turtle ● Leatherback Turtle
- Green Sea Turtle ● Sperm Whale ●

MANAGEMENT STRATEGY-

It is managed by a national body, created by ministerial decree and depends on the Ministry of Ecological and Solidarity Transition, divided into 4 regulatory zones (A, B, C and D).

The RNN-A is part of the Natural Areas of Ecological Wildlife and Floristic Interest (ZNIEFF) of Guyana and is classified as a RAMSAR site. To the south, the Reserve is attached to a Community Use Right Zone (ZDUC) in its western part and a Prefectural Biotope Protection Order (AAPB) in its eastern part. To the west, in the Surinamian Estuarine part of Maroni, there is the Natural Reserve of Galibi. RNN-A is part of Natural Areas of Ecological Interest Fauna and Flora (ZNIEFF) of Guyana and is classified RAMSAR site. To the south, the Reserve is contiguous to a Community Right of Use Zone (ZDUC) in its western part and to a prefectural biotope protection order (AAPB) in its eastern part. In the West, in the Surinamese estuarine part of Maroni, there is the Natural Reserve of Galibi.

22. RÉSERVE NATURELLE NATIONALE DE KAW-ROURA GUYANE



GEOGRAPHIC LOCATION- North-east of Guyana, on the coastal line between the Atlantic Ocean (to the north) and the ridge of Kaw Mountain (to the southwest) and the hills where the main affluents of the Kaw River (to southeast) born, between the Mahury River (on the west) and the Approuague River (on the east).

Latitude = 38.1347222° Longitude = 051.5922222°

IUCN MANAGEMENT CATEGORY- IV

AREA- 947 km²

DATE OF ESTABLISHMENT- 03/13/1998

PURPOSE OF LISTING-

The National Nature Reserve of Kaw-Roura is a vast area which is rich with its natural and cultural heritage, with remarkable plant and animal biodiversity, explained by a very original geomorpho-climatic and anthropogenic context, because of its geographical location and the presence from a small coastal mountain range to the inflection point of the coast of the Guiana Shield, directly exposed to the trade winds and the river sedimentary deposits of the Amazon. Thus, the territory shelters:

- Different ecological habitats and for some they are unique in French Guiana :

- Avicenia mangroves, Rhizophora and Laguncularia
- Swamp forests with Pterocarpus (Moutouchi), Dalbergia (Fabaceae) and Macaranga (Caesalpiniaceae)
- Flood savannahs with Grasses, Montrichardia and Cyperaceae
- Colline land to semi-mountainous coastal forest.

- Heritage species and/or emblematic such as:

- Dyeing dart frog,
- Giant otter and
- Black caiman,
- *Astrocaryum minus*
- *Habenaria* orchids
- Aquatic ferns

- Archaeological and historical remains:

- Amerindians, with the presence of the Engraved Rock (at the top of the Favard trail)
- colonial slavers, with Habitation Martin, Habitation Gabrielle, presence of shards, bricks, vases, rifles
- After the abolition of slavery with the remains of village dwellings and settlements of freed slaves, as well as areas of old farming practices on gilets too

It's a key area of the biological, ecological and cultural heritage of French Guiana, in the meantime a major component of the Guyana littoral sedimentary dynamics.

Social Aspect: Various fishing, hunting, are traditional (and often necessary) for the inhabitants of Kaw and are practiced in the authorized zones. The burns are a practice inherited from the colonial era and strongly practiced until the last decades according to the say of the inhabitants, and are always possible. Tourism is an important part of the economy around the Reserve, between hikes (trail of the Coq de Roche, Favard trail) and fluvial, proposed by various providers (6 authorized service providers), visits to the Reserve House and the Ecomuseum (in Regina).

KEY SPECIES-

The Kaw-Roura Reserve includes: 143 mammal species (24 critical species), 496 bird species, 117 reptile species (including four species of Guyana cayman), 163 fish species, 83 amphibian species (of which *Dendrobates tinctorius*, Cuvier 1797). Invertebrates have been studied very little in the reserve and the number of species present in them is not sufficiently known to date.

MANAGEMENT STRATEGY –

The National Nature Reserve of Kaw-Roura is as its name indicates a territory under national protection status of the French Republic, created by ministerial decree in 1998.

Aim of management plan: Aim for a better knowledge of the territory and its natural and cultural heritage, a better accompaniment of socio-economic activities and awareness raising objectives for different audiences. The current Management Plan in effect covers the period 2015-2020.

The RNN-KR is part of the Natural Areas of Ecological Interest Fauna and Flora (ZNIEFF) of French Guiana. It is part of a RAMSAR site in common with the National Nature Reserve of Grand Connétable Island, and is close to the Regional Natural Reserve Trésor, as well as an area classified by the Prefectural Biotope Protection Ordinance (APPB) and a Community Use Rights Zone (ZDUC).

Zoning: Divided into 4 regulatory zones (A, B, C and D)

23. MAN OF WAR SHOAL MARINE PARK



GEOGRAPHIC LOCATION- Longitude X: -63.047061; Latitude Y: 18.001958 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- II

AREA- 31 km²

DATE OF ESTABLISHMENT- 12/30/2010

PURPOSE OF LISTING-

The boundaries of the Man o War Shoal Marine Park is an area better known as "the Proselyte Reef Complex". The area was chosen to be a priority for conservation because of its intrinsic ecological, economic, and cultural value. The MPA includes a large area with varied bathymetry and underwater formations. From rocky reef at 3m depth to deep patch reef over 35m deep and beyond to benthic habitats in excess of 80m deep.

This area includes the island's most ecologically and economically important marine habitat, including extensive coral reef areas, seagrass beds and open ocean. The habitats are a home and migratory stop over or breeding site for 54 UCN Red List Species, 10 CITES Appendix I species and 89 Appendix II species (2011 data). Previous plans to develop a Marine Park for St. Maarten were too complex which led to discontent with various stakeholders, especially fishermen who saw their traditional fishing grounds being encroached upon.

Through extensive consultations and meetings between Nature Foundation St. Maarten and many stakeholders during 2009, an agreement was reached to implement marine conservation on St. Maarten in stages. The first and most important step was the establishment of the Man of War Shoal Marine Park in December 2010, with Nature Foundation St. Maarten being the organisation responsible for its management.

Social Aspect: The beaches and waters of St Maarten attract approximately 2 million visitors a year, creating employment

for 85% of the islands population. Tourism and the marine industry contribute \$500 million and \$30 million to the economy respectively and both depend on the health of St Maarten's marine resources. The Man Of War Shoal Marine Park is a focal point for dive tourism. A study in 2010 estimated that 15 to 20% of all visitors to St Maarten engage in diving activities, either through dive trips, dive courses, or tryout dives/ resort courses. Annually, total income for dive related activities was estimated to be USD \$9,689,625. This is a considerable economic contribution by the Diving Sector to both the economy and Tourism Product of St. Maarten.

KEY SPECIES-

- Staghorn Coral • Elkhorn Coral • Boulder Star Coral • Mountainous Star Coral • Hawksbill Turtle • Leatherback Turtle • Green Sea Turtle • Nassau Grouper • Whale Shark • Sperm Whale • Manta Ray • Great Hammerhead Shark • Queen Conch • Spiny Lobster • Gorgonian Corals • Caribbean Reef Shark • Nurse Shark • Tiger Shark •

THREATS-

Exploitation of natural resources: Illegal Fishing (Although artisanal in Nature, fishing still poses a significant threat) and **Tourism** (Pressures from the cruise ships and tourism continue to affect the ecosystem)

Population: Increased population will result in increased pressure on the MPA due to its close location to the main city Philipsburg.

Invasive alien species: The introduction of the invasive lionfish has already had a negative effect on the population of fish species within the MPA. Also, *Halophila stipulacata* could form a threat if numbers increase.

Pollution: Land sources of pollution, such as wastewater and waste in general will increase and the negative effects on the ecosystem will continue.

Other: St Maarten's ecosystem and the MPA receive negative impact from the large development activities on the island.

MANAGEMENT STRATEGY-

The key issues and threats facing St Maarten Marine Park have been identified following stakeholder input and the DCNA management success project. The following strategies are considered critical for the Man of War Shoal Marine Park to deal with and forms the basis of management actions in pursuit of the mission, and goals.

1. Establish Sustainable Finance Mechanisms: Without sufficient, sustainable finance, The Man of War Shoal is at risk of becoming a 'paper park' where management agreements for the islands marine resources may turn out to be little more than statements of good intentions.

Actions:

- Establish finance system – Diver Fees: Sensitize stakeholders and interested parties within a wider marketing and communication campaign. Launch any new aspects in a positive light emphasising the need for conservation and what the funds raised will be used for.
- Stakeholder input: Consult with key stakeholders regarding the implementation of the chosen finance strategy
- Monitor progress: Monitor any issues that arise and act upon them. Continually consult with stakeholders to ascertain successes and issues.

- Explore possibilities for finance: Stakeholder input identified that there was concern over a diver fee. Other options should be considered fully e.g. user fees, environmental levy, etc.
- Feasibility study: Financial, Legal, Administrative, Social, Political and environmental feasibility issues – including willingness to pay, and careful consideration of workload on those collecting the funds.
- Business plan: A business plan should be written to detail the amount of required revenue to meet the needs of the marine park; this should also include any alternatives considered and justifications for and against each case. The chosen finance strategy should include a range of options including souvenir sales etc.
- Lobby government: Use business plan and feasibility study to solicit government buy in. Use examples from around the world.

2. Establish Management, Legislation, and Enforcement Structures: The management planning process for the Man of War Shoal Marine Park established a clear vision, mission and goals.

Actions:

- Establish a clear management structure: The writing of this plan is the first and most important step of a clear and concise management structure.
- Effective enforcement: Work with government, law organisations and stakeholders to establish clear enforcement procedures. Explore possibilities for self – policing and involving individuals in enforcement such as fisherfolk.

3. Promote Sustainable Development and Changes in Land Use: Unsustainable development on St Maarten is the most serious threat to the island resources. Thoughtless landscaping and building near the water's edge, and even inland, removes habitats, causes sedimentation and nutrient enrichment of marine environment. This removes the values of the marine resources especially for the tourism industry, the mainstay of the St Maarten economy. Recommendations have been made to keep building to cope with the demand for rooms.

Actions:

- Raise awareness: Identify stakeholders and interested parties and target with materials emphasising the importance of the natural environment on St Maarten and the effect of development. Include comparison photographs of Simpson Bay from 1970's to early 21st century.

4. Reduce Pollution: Pollution on St Maarten mainly comes from sewage, fuel and litter. These directly affect the health of the marine environment and humans using the marine environment. As St Maarten depends on a perceptibly healthy and clean marine environment for attracting tourist activity pollution levels must be reduced.

Actions:

- Raise awareness: Continue with awareness programmes in schools and litter programmes, working in partnership with other NGO's. Identify and target main sewage polluters and oil polluters (e.g. barge in Simpson Bay Lagoon) with specific outreach materials. Approach religious groups about making offerings and littering the marine environment.
- Monitor and communicate pollution: A set monitoring program is in place for the monitoring and reporting of pollutants within the Man of War Shoal Marine Park.
- Set enforcement methods: Establish enforcement procedures by working closely with government and law organisations

- Lobby government: Approach the government for support for pollution reduction, emphasising the importance for the tourism industry.

5. Manage Unsustainable Recreational Practices: Unsustainable practices relating to divers and other users are harming the very reefs and marine resources people visit St Maarten to enjoy. Anchoring near to dive sites is destroying corals, and anchoring by boats in seagrass beds is removing vast areas of habitat. Inexperienced divers continue to enter the water and damage the marine environment through direct contact with marine organisms. Fish feeding practices are also altering the behaviour of some species.

Actions:

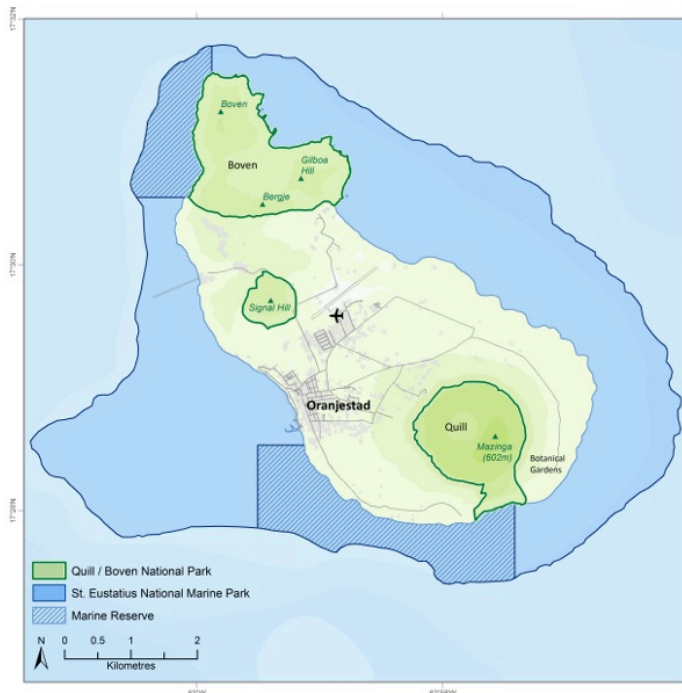
- Diver orientation programme: A structured diver orientation programme led by the dive operators and guided by The Nature Foundation would address issues relating to inexperienced divers. Such a programme should be made compulsory for all divers and be used as an outreach tool to convey messages to divers as well as operators.
- Anchoring control: Dive operators and boat owners should be targeted to receive outreach relating to permissions for Anchoring
- Fish feeding management: Licences for fish feeding are to be introduced within a best practice framework as defined by leading international conservation bodies such as The Coral Reef Alliance, World Wide Fund for Nature, The Shark Trust etc.
- Outreach: Beach users and snorkellers should be approached with relevant outreach materials to empower decisions and educate about the marine environment.

6. Manage Artisanal and Small Scale Commercial Fisheries: Traditional fishing practices on St Maarten are dying out due to overfishing throughout the past decades. As catches are marginalised, fisherfolk are becoming involved with conflict with other user groups, especially divers who interfere with equipment. The target species on St Maarten are Snappers, Groupers and other large predatory reef fish that are non-migratory and also have slow reproductive rates. Stocks will take time to recover. To re-establish a viable small scale fishing industry in St Maarten significant steps must be taken.

Actions:

- Information gathering: Gather evidence and information about historical fish stocks and the causes of the decline.
- Stakeholder consultation: Involve the fishing community at all levels, including the French side. Involve those fisherfolk that volunteered in a monitoring programme to establish the current status of stocks.
- Identify possible responses: Present a range of options for managing the fish stocks of St Maarten's inshore waters e.g. FPA'S, permits, tools, catch limits etc
- Implement fisheries programme, monitor results

24. ST EUSTATIUS NATIONAL MARINE PARK



GEOGRAPHIC LOCATION- Longitude X: -62.987; Latitude Y: 17.479 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- II

AREA- 27 km²

DATE OF ESTABLISHMENT- 01/9/1996

PURPOSE OF LISTING-

The St Eustatius National Marine Park was created in 1996 and extends around the entire island from the high water line to 30m depth contour. The park covers an area of 27.5km² and protects a variety of habitats, including pristine coral reefs (drop off walls, volcanic 'fingers' and 'bombs', spur and groove systems) and 18th century shipwrecks. It includes two no-take zones (reserves) as well as general use zones and designated anchoring zones for large commercial ships. The Marine Park's objectives are to conserve marine biodiversity, protect fish stocks and promote sustainable tourism.

Social Aspect: There are about 29 fishermen on St. Eustatius, 15 of which fish full time. Considering the small size of the island's economy this is a significant sector of employment. The income that is generated by the fisheries sector is invested back into the St. Eustatius economy, since all the fishermen are locals. Taxes and income are generated from sales of fuel, two stroke oil, fishing gear, spare parts and engines. Such associated economic activities are also significant contributors to the island economy.

The Marine Park has regulations regarding fishing in the general use areas. Regulations pertain to minimum specimen size as in the case of the spiny lobster and in the case of the Queen conch to a maximum catch amount. There are two reserves which are no-take no-anchor areas in order to preserve the coral reefs and the marine life in those areas. St Eustatius's coral reef resources provide important goods and services to the economy of the island. The revenue that the resource is able to generate through coral reef associated tourism and fishery is approximately USD \$11,200,454.

KEY SPECIES-

- Staghorn Coral
- Elkhorn Coral
- Boulder Star Coral
- Mountainous Star Coral
- Hawksbill Turtle
- Loggerhead Turtle
- Leatherback Turtle
- Green Sea Turtle
- Nassau Grouper
- Sperm Whale

THREATS-

Exploitation of natural resources: Agriculture (roaming livestock reduce vegetation, increase erosion, run off and sedimentation into reef habitat)

Invasive alien species- Lionfish, *Halophila stipulacata*

Pollution- large oil trans-shipment facility on island

MANAGEMENT STRATEGY-

The current Management Plan was written in 2007. It is the second management plan for the St. Eustatius Marine Park, the first management plan was written in 1997.

Part 1 of the Management Plan provides valuable background and contextual information. It can be used as a stand-alone introduction to the island and MPA and has been written with a range of audiences in mind.

Part 2 will be of interest to those wishing to develop a more in depth understanding of the operational management and issues facing the MPA.

Part 3 is of concern to those with an interest in the current activities of St. Eustatius Marine Park and the rationale behind the actions being taken. The final part of the plan is intended to act as a place marker for updates, where management actions have led to outcomes that can be described or there has been a change in the tools available to the MPA.

25. QUILL / BOVEN NATIONAL PARK



GEOGRAPHIC LOCATION- Longitude X: -62.960594;
Latitude Y: 17.477128 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- II

AREA- 5 km²

DATE OF ESTABLISHMENT- 03/21/1997

PURPOSE OF LISTING-

The Quill / Boven National Park is divided into two sectors on the island of St Eustatius:

- Quill sector (220ha) encompasses the dormant volcano 'the Quill' from the 250m altitude contour line upwards and encompassing the entire Quill volcano and including the limestone section termed 'White Wall and Sugar Loaf' from the 250m down to the high water mark.

- Boven sector (320ha) in the North East of the island and encompassing five hills: Boven, Bergje, Venus and Gilboa on government land, and Signal hill within private property of St Eustatius Oil Terminal. 26% (540 hectares) of the terrestrial environment of St. Eustatius is protected, including biologically diverse rainforest, Elfin forest and drought resistant habitats.

The Quill/Boven National Park offers some of the best hiking in the Caribbean with views of neighbouring Saba, St Bartholomew and St Kitts through pristine forest which clings to the slopes of the magnificent Quill volcano. The Quill/Boven National Park was established in 1997 to protect the islands natural resources. The National Parks and St Eustatius are a home, migratory stop over or breeding site for 14 IUCN Red List species, 10 CITES Appendix I species and 98 Appendix II species including the endemic plant *Statia Morning Glory*

and many others plants and animal species with limited distribution. The Quill/Boven National Park and Botanical Garden attract visitors contributing to income for the 70% of the island's population employed in restaurants, hotels and other services.

Social Aspect: The island of St Eustatius is populated by 3200 permanent residents based in the town of Oranjestad. The Quill / Boven National Park is not subject to any commercial or agricultural development and there are limited extraction activities for subsistence. The main cultural value is the education and awareness of the local population about the historical values of the National Park. A new fort (Gilboa Fort) was discovered during an archaeological survey

KEY SPECIES-

• Hawksbill Turtle • Leatherback Turtle • Green Sea Turtle •

Within the terrestrial and surrounding marine habitats of St Eustatius, 19 IUCN Red List species, 10 CITES Appendix 1 species and 98 Appendix 2 species of flora and fauna live, feed and breed.

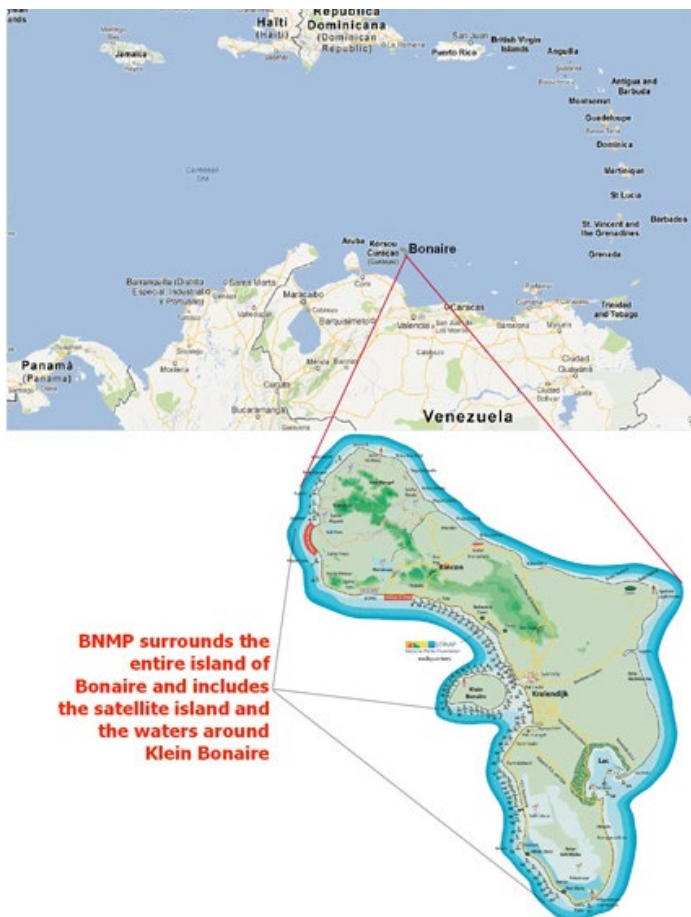
THREATS- None

MANAGEMENT STRATEGY-

The authority with full responsibility for the Quill / Boven National Park is St Eustatius National Parks Foundation, a foundation established on St Eustatius and registered with the St Maarten Chamber of Commerce.

A strategic summary in the management plan incorporates management planning and extensive stakeholder input, summarizing interaction between the goals, issues and strategies. The issues are evaluated, reviewed and reported on an annual basis by the DCNA management effectiveness project (see data reported in 2008 annual report). This is adequate for evaluation of conservation goals and reporting to the different institutions and stakeholders. Results from the management effectiveness project are incorporated into annual reports about the national park. The revision of the management plan in 2014 will incorporate the monitoring programme feedback.

26. BONAIRE NATIONAL MARINE PARK



GEOGRAPHIC LOCATION- Longitude X: -68.280058;
Latitude Y: 12.134495 (Locate on the map)

IUCN MANAGEMENT CATEGORY- II

AREA- 27 km²

DATE OF ESTABLISHMENT- 01/1/1979

PURPOSE OF LISTING-

The Bonaire National Marine Park was first established in 1979. It surrounds the island of Bonaire and includes the satellite island and the waters around Klein Bonaire. Bonaire lies in the Southern Caribbean approximately 100km (60 miles) north of Venezuela. Bonaire is unusual in that it is a true oceanic island, separated from the South American mainland by a deep-water trench. The marine park falls entirely within the territorial waters and jurisdiction of the Island of Bonaire and is protected by the Marine Environment Ordinance. For issues related to World Heritage, Ramsar wetlands, threatened and endangered species, migratory species and marine pollution the Central Government Department of Nature and the Environment (MINA) also has jurisdiction.

The marine park includes 2,700 hectares of coral reef, seagrass and mangrove ecosystems and provides habitat for a diverse range of marine species including over 50 species of stony coral and more than 350 species of reef fish. Sea turtles' nest on the shores of Klein Bonaire and forage in Lac, a semi enclosed seagrass and mangrove bay located on the islands windward shore. Bottlenose and Spinner dolphin as well as various species of whale can be found seasonally in the seas around Bonaire. Bonaire is regularly visited by migratory birds.

Bonaire has a well-deserved international reputation for excellence in the field of SCUBA diving and is routinely listed in the top five destinations for the Caribbean. The Marine Park consists of the waters around Bonaire from the high-water mark to the 200' (60m) depth contour, the island of Klein Bonaire and its surrounding waters and the mangrove, seagrass and coral reefs of Lac. The park is managed by a local NGO, not for profit foundation, STINAPA Bonaire which has a co-management structure with stakeholders, conservationists and local interest groups represented on the Board.

Social Aspect: Around 28,000 tourists a year make use of the marine environment on Bonaire. The majority of visitors and locals alike take part in diving and snorkelling activities. Diving and related activities are the mainstay of Bonaire's economy. It is frequently rated as the number one dive destination for shore diving in the world by the diving press. Many other water activities take place on Bonaire including Power boating (including Banana Boat rides and parasailing), jet skiing, kayaking, glass bottom boating, waterskiing, kitesurfing, windsurfing and yachting.

KEY SPECIES-

- Hawksbill Turtle • Loggerhead Turtle • Leatherback Turtle
- Green Sea Turtle • Nassau Grouper • Whale Shark • Great Hammerhead Shark •

THREATS-

Exploitation of natural resources: Fishing (Assess if the current rates of exploitation of natural resources within the area (sand, water and mineral exploitation, wood gathering, fishing, grazing...) are deemed unsustainable in quality or quantity, and try to quantify these threats, e.g. the % of the area under threat, or any known increase in extraction rates)

Alien invasive species: The detection of the invasive Indo-Pacific lionfish in October 2009 represents a threat to the marine environment within the Bonaire National Marine Park.

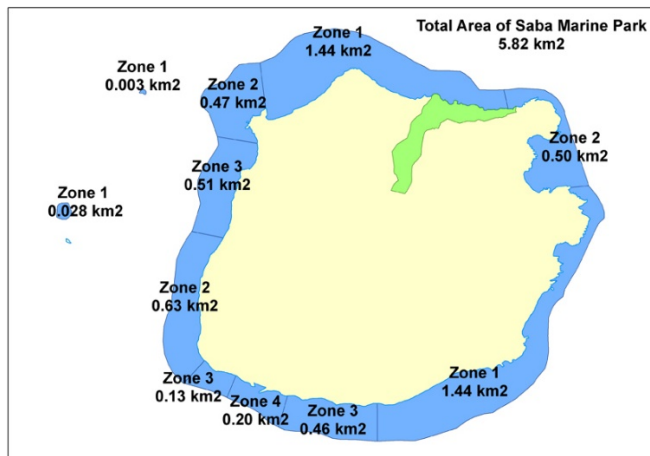
Other: Extensive sand mining occurs in some areas of the East coast in a way that is not considered sustainable.

MANAGEMENT STRATEGY-

The island government delegated management of the Bonaire National Marine Park to the NGO STINAPA Bonaire, by means of a management contract in 1991.

The management plan was written to assist both staff and Board by providing a solid framework for reference, decision-making and planning. The management plan aims to ensure continuity of management effort and allow stakeholders and other interest groups to understand and participate in the planning process (as illustrated below). The stages in Blue indicate the consultative parts of the process (2006 meetings, radio interviews, stakeholder questionnaires), Orange represents the formal development of the management plan and those in Purple to the right provide the necessary feedback for adaptive management. Background information collection and preparation for stakeholder consultations started in 2005. Field information and stakeholder positioning meetings were held in January 2006. Formal stakeholder input into the management plan was conducted during February 2006. The management plan was submitted to the Executive Council of the Island Government for their approval.

27. SABA NATIONAL MARINE PARK



GEOGRAPHIC LOCATION- Longitude X: -63.2326763; Latitude Y: 17.6354642 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- II

AREA- 8 km²

DATE OF ESTABLISHMENT- 06/25/1987

PURPOSE OF LISTING-

Saba is located in the North Eastern Caribbean near St Eustatius (Netherlands.), St. Martin (Netherlands/France.), U.S. Virgin Islands, British Virgin Islands and 20 other inhabited islands. These together form the Lesser Antillean Island Arc, which stretches from Puerto Rico in the North to the coastline of Venezuela in the South. Saba National Marine Park, an 800 ha protected area, was established in 1987 to safeguard the island's pristine coral reefs and marine environment. The park extends from the high-tide mark to a depth of 60 meters (197 feet), circling the entire island.

A zoning plan divides the park between recreational and commercial uses and a system of permanent mooring buoys facilitates diving and prevents anchoring damage to the corals. The Saba National Marine Park is home to an abundance of fish as a result of restrictions on fishing and anchoring. There still large Groupers, Hinds and Cones that are in healthier populations than many other locations in the Caribbean. Both Green Turtles and Hawksbills thrive within the Marine Park and divers may be fortunate enough to spot some Shark species and Spotted Eagle Ray.

Social Aspect: The population of Saba (the Sabans) consists of only 2000 people who come from all over the world. The economy of Saba is dependent on tourism; 66% is dive related. The Saba Marine Park, which surrounds the entire island, hosts about 6,000 divers per year. The total value for the marine environment was calculated to be ~\$ 4.4 million. 99% of this value is generated by tourism. The habitat value maps show the highest value marine areas are effectively protected in the no-take zones of the marine park.

KEY SPECIES-

- Staghorn Coral • Elkhorn Coral • Boulder Star Coral • Mountainous Star Coral • Hawksbill Turtle • Green Sea Turtle • Nassau Grouper •

THREATS-

Exploitation of natural resources: Fishing (recreational fishing in the marine park at night, some collection and artisanal fishing. Commercial fishermen targeting the marine park) and **Industry**

Pollution: Sedimentation Dump pollution (leachates; acids, heavy metals etc), unknown impact St Eustatius oil spill Run off from higher hills come down the Fort Bay Road and Fort Bay harbour whenever there are heavy rains. Cleaning of commercial vessels in the Marine Park. Soil dumped on near the harbour, near Ladder Bay, 5000 truck loads of raw unstable soil dumped which is washing onto Tent reef.

Other: Yacht tourism who are not aware of regulations within the park (e.g. unsupervised scuba diving, anchoring in reef areas, use of spearguns)

MANAGEMENT STRATEGY-

The island government of Saba, managing the Saba National Marine Park has mandated the Saba Conservation Foundation (SCF) a non-governmental organisation established in 1987 to preserve and manage Saba's natural and cultural heritage, with the managing of the marine park.

The Saba National Marine Park is one of the National Parks of the Caribbean Netherlands. It is also part of the network of Dutch Caribbean Protected Areas, which includes marine parks on each of the Caribbean Netherlands's islands - Bonaire, St. Eustatius and Saba - as well as on St. Maarten, and terrestrial protected areas on Bonaire, St. Eustatius, Saba, Aruba, and Curacao. these Protected Areas are united through the Dutch Caribbean Nature Alliance (DCNA) which supports the individual protected area management organizations with training and monitoring programs, staff exchanges, administrative assistance and fundraising.

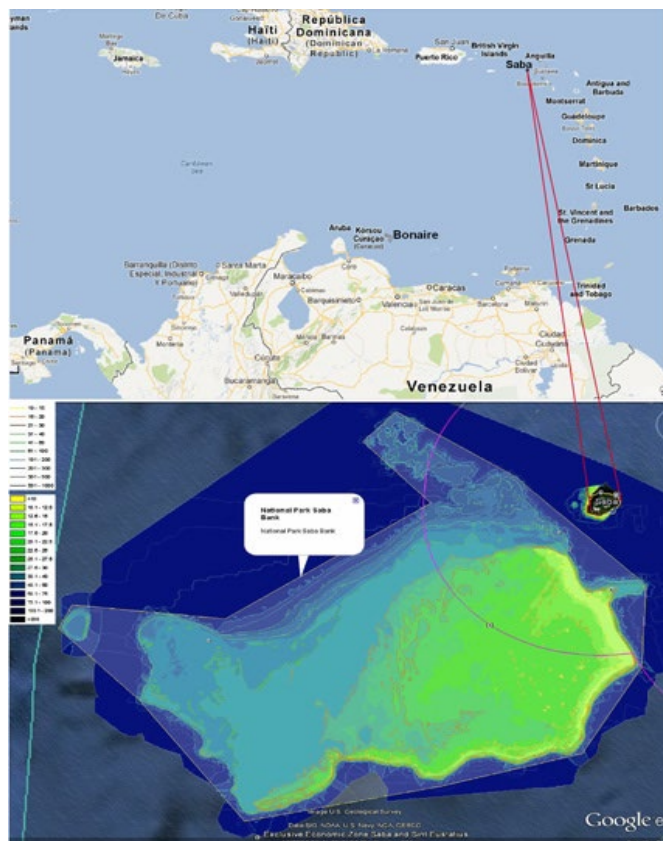
Verbal warnings are frequently given by SCF rangers for illegal fishing in the marine park, some anchoring infringements and poor boat handling practices. Written warnings are issued less frequently for more serious infringements including repeat illegal fishing offenders who are often from neighbouring islands. In this case SCF works closely with other islands to enforce relevant legislation. Staff of SCF have an advisory role on the issuing of permits for species for research (CITES).

Lobbying has taken place on current issues facing the Marine Park. These issues range from pollution, sedimentation, development and implementation of no-take zones.

SCF staff also advise on planning for infrastructure developments and the manager of SCF remains on 24 hour emergency response stand by.

Patrolling for enforcement and surveillance takes place on an ad-hoc basis as staff spend time in the park on other activities such as mooring maintenance.

28. SABA BANK NATIONAL PARK



GEOGRAPHIC LOCATION- Longitude X: -63.458586;
Latitude Y: 17.422422 (Locate on the map)

IUCN MANAGEMENT CATEGORY- II

AREA- 2679 km²

DATE OF ESTABLISHMENT- 15/12/2010

PURPOSE OF LISTING-

The Saba Bank National Park is a unique and highly significant area for the entire region. Biophysically it is a submerged atoll, the largest actively growing atoll in the Caribbean, and one of the largest submerged atolls in the world, measuring 1,850 km² (above 50m depth contour). The area is significant in terms of its unique ecological, socio-economic, scientific and cultural characteristics. Its extensive coral reefs, fishing grounds and algae beds were very vulnerable to damage from international shipping, in particular anchoring of tankers and other cargo ships. Large ships also posed hazard to the artisanal fishery practiced on the Saba Bank. In addition, some of the shallowest areas of the Saba Bank posed a hazard to navigation. But these risks have been mitigated through the approved PSSA status.

The area is extremely fragile to damage by international shipping (anchoring) and poses a risk to navigation and fishery in the area. Because of its rich biodiversity that needs protection and management, the Saba Bank was declared a protected area by the Dutch Government (15 Dec 2010) and an application to IMO had been submitted requesting for a PSSA status for the Bank which was approved.

Social Aspect: The Saba Bank has a high traditional value for Sabans. Historically the population of the island has always

been dependent on fishery on the Saba Bank for its survival and fishermen have been fishing the Bank for centuries.

Saba Bank is an important economic resource for Saba with the fisheries on the Bank contributing about 8 % to the economy of the island and providing full time employment to 20 people and part time employment for an additional 30 people. On a total population of about 1600 people this is substantial. Fishing has always been one of the main means of existence for the Saban population; only a small fraction of the catch is consumed locally, rest goes to St Maarten.

KEY SPECIES-

- Hawksbill Turtle ● Green Sea Turtle ● Sperm Whale ● Red Snapper ● Caribbean Spiny Lobster ● Caribbean Reef Shark ● Nurse Shark ●

THREATS-

Exploitation of natural resources: Fishing (small scale commercial and recreational fisheries of lobster and red snapper. The lobster and snapper stocks have increased favourably, but caution in fisheries policy is recommended)

Invasive alien species: Lionfish are now entrenched on the Saba Bank. Control is difficult because of the relatively large area and its remoteness. They will be monitored through incidental catches by lobster and fish traps

Other: Anchoring by ships was a major threat because of destruction of the bottom, but with a prohibition on anchoring this threat has now been removed. Loss of coral reefs.

MANAGEMENT STRATEGY-

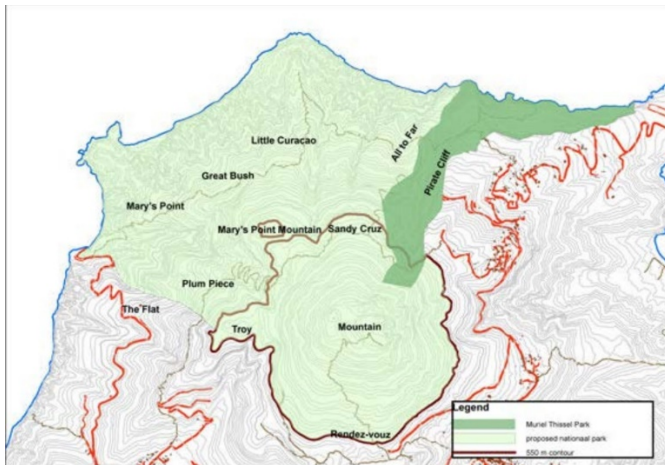
Management falls under the responsibility of the Ministry of Agriculture, Nature and Food Quality (LNV). The Saba Bank Management Unit is established which is housed by and in the Saba Conservation Foundation (SCF) and directed jointly by the Saba government, LNV and SCF.

The Saba Bank Management Plan (SBMP) was prepared in close consultation with a number of stakeholders and stakeholder group representatives on Saba. The SBMP specifies management goals and strategies for the Saba Bank Management Unit related to the Mission: To conserve and manage the natural and economic resources within the Saba Bank National Park, allowing their sustainable use for benefit of current and future generations.

It also identifies the major existing and potential threats and issues facing the Bank from ecological, social and cultural perspectives and includes substantial input from stakeholders. It is designed to be an adaptive management tool. The SBMP fits within the broader context of the "Management Plan for the natural resources of the EEZ for the Dutch Caribbean" (EEZ Management Plan) which outlines the purposes and manner in which the Caribbean EEZ and Saba Bank may be used in a sustainable manner, based on a shared vision and common set of goals.

It outlines the management objectives, as well as key policies, and strategies with which to achieve sustainable management. It also addresses the administrative structure, resource use, financial support, key information needs, and action points most urgently required to set sustainable management in place.

29. MT SCENERY NATIONAL PARK



GEOGRAPHIC LOCATION- Longitude X: - 63°14'20.00"W;
Latitude Y: 17°38'5.00"N

IUCN MANAGEMENT CATEGORY- II

AREA- 3.4 km²

DATE OF ESTABLISHMENT- 18/9/2018

PURPOSE OF LISTING-

Mt. Scenery National Park comprises the northern part of Saba plus the centrally located Mt Scenery above 550 m height, an area of approximately 25% of the total island area (see map)ranging from the shoreline to the highest top of the island. The area is predominant wilderness and contains all six of the vegetation zones found on Saba. Mt Scenery includes the following species:

Plants: Two threatened species (*Nectandra krugii*, *Guaiacum officinale*, both EN); 20 endemic plant species, including 4 species restricted to only a few islands of the Lesser Antilles (*Chromolaena macrantha*, *Begonia retusa*) The Elfin forests are mainly composed by Mountain Mahogany (*Freziera undulata*), a plant species restricted to the Lesser Antilles.

Invertebrates: 3 butterflies and 4 orthoptera endemic to Lesser Antilles

Reptiles: 3 endemic reptiles, including *Anolis sabanus* strictly restricted to Saba and *Alsophis rufiventris* (EN) endemic to Saba and St-Eustatius.Lesser Antillean whistling frog (*Eleutherodactylus johnstonei*), Annex II SPAW. The Saban iguana (*Iguana iguana*) is a unique island population, possibly an endemic subspecies.

Birds: 3 bird species restricted to the Lesser Antilles and Puerto Rico. Presence of important populations of Audubon's Shearwater (*Puffinus lherminieri*). Largest Caribbean breeding population of Red-billed Tropicbirds (*Phaethon aethereus*).

Mammals: five bat species, of which the St. Vincent fruit-eating bat (*Brachyphylla cavernarum*) and the free-tailed bat (*Tadarida brasiliensis antillarum*) are listed in Annex II of the SPAW Protocol.

Ecosystems: All of the island's vegetation zones are represented in the protected area, from the dry croton thickets on the dry lowest slopes of the mountain, going up to dry evergreen forest, secondary rainforest and ravine primary rainforest, tree-fern brake, palm brake and 'elfin woodland' on the top of the mountain.

The Mt. Scenery elfin forest is regionally unique due to its relatively low elevation (825-870 m), which allows the dominant Mountain Mahogany (*Freziera undulata*) to grow much taller and forming a much higher canopy than in other such cloud forests in the region.

Cultural and traditional use: The area includes remnants of the traditional small-scale subsistence agriculture plots that are an important part of the island's heritage and that will be allowed to continue and promoted. The protected area will also protect and highlight the historical ruins of the abandoned settlement of Mary's Point, which is a part of the island's colonial history and an archaeological site. There are also several Archaic Amerindian sites.

Socio-economic benefits: The area contains a large part of the island's historical trail network (the historical 'roads' connecting the small settlements of the island) currently one of the main tourism attractions of the island. The Mt. Scenery National Park will ensure maintenance and improvement of these hiking trails and allow further development of tourism through guided bird tours and orchid and fern tours on the trails.

Social Aspect: The Mt Scenery National Park contains has the potential for small-scale sustainable forest agriculture of valuable crops such as cocoa and coffee, that were grown there historically. The hiking trail network in the Mt. Scenery National Park is one of the main attractions (after diving) for tourism to the island. The island is dependent on nature-oriented tourism and the establishment of the Mt. Scenery National Park was partly motivated by the wish to strengthen this tourism sector to benefit the island's economy. The establishment of the Park enhances the experience of hiking tourists by protecting and showcasing the rich biodiversity of the island as well as the colonial and archaic history of the island. It also greatly enhances the nature values of the area which can be monetized by small entrepreneurs operating within the park providing services to visiting tourist.

KEY SPECIES-

The small size and isolation of Saba has led to relatively few species of fauna making a home on the island. There is one endemic vertebrate; the Saban Anole (*Anolis sabanus*). There are 26 species of bird that breed in the area, including the endangered Bridled Quail-dove (*Geotrygon mystacea*), with a further 36 species using the island as a migratory stop over. Of the breeding populations, 9 species or sub-species of forest dwelling bird are endemic to the Lesser Antilles and/or the Virgin Islands. he only amphibian found on Saba is Johnstone's Whistling Frog (*Eleutherodactylus johnstonei*, SPAW Annex II). The 10 species of reptile found on Saba include five species of lizard including the endemic Saban Anole (*Anolis sabensis*), one species of tortoise (Powell, Henderson & Parmelee, 2005). A total of 86 species of invertebrate have been accounted for on Saba, including the endangered Mountain Crab (*Gecarcinus ruricola*), 14 species of snail and 70 insect species including 27 butterflies.

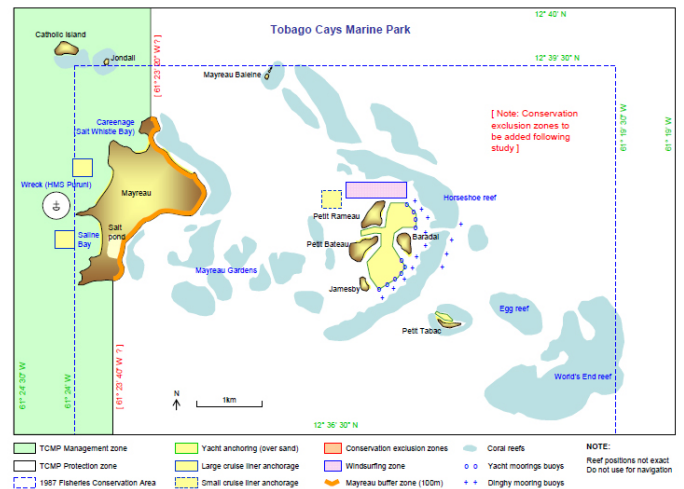
MANAGEMENT STRATEGY-

Management falls under the responsibility of the Island Government and has been mandated to the Saba Conservation Foundation (SCF), on the basis of a management plan currently in development.

The SCF has its main offices in Fort Bay next to the harbour on the South Coast of Saba and also has a ticketing and information office (trail shop) in the centre of Windward Side near the trail head for Mt Scenery. The SCF currently employs ten staff: two marine park rangers, a trail manager and assistant, three Saba Bank officers, a communication/educational officer and an administrator, all under direction of a Parks Manager. In addition, the SCF works with a group of dedicated volunteers (e.g. a group of Canadian volunteers comes over every year to assist in major trail maintenance or trail breaking) and usually several interns working on research projects. Once the management plan for the Mt. Scenery National Park is finalized the SCF expects to hire an additional trail ranger.

VII SAINT VINCENT AND THE GRENADINES

30. TOBAGO CAYS MARINE PARK



GEOGRAPHIC LOCATION- Longitude X: -61.3625; Latitude Y: 12.6375 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- Unknown

AREA- 66 km²

DATE OF ESTABLISHMENT- 12/23/1997

PURPOSE OF LISTING-

The Tobago Cays are of great ecological, social, cultural and economic importance to St Vincent and the Grenadines and Grenada. The Tobago Cays Marine Park (TCMP) comprises of five small uninhabited cays, and one larger inhabited island, located in the Southern Grenadines. The area is stunningly beautiful, with pure white sand, crystal clear waters, plentiful coral reefs, and rich biodiversity. Four of the cays - Petit Rameau, Petit Bateau, Jamesby and Baradal – lie within a semi-circular reef, known as Horseshoe Reef, while the fifth cay (Petit Tabac) lies just outside the reef. Mayreau is a larger island to the west of the cays, inhabited by about 270 people.

The Tobago Cays were designated a conservation area in 1987 (under Fisheries Regulations), but the Tobago Cays Marine Park was not created until late 1997. The cays are surrounded by fringing and bank-barrier coral reefs, which are important for marine biodiversity conservation. There are sea grass beds within the cays which are important feeding groups for threatened turtles. Mayreau has patches of endangered mangrove ecosystem, and the islands and cays are host to many protected animal and bird species.

The area has long been a popular spot for tourists including yachts, divers, cruise ships and day trippers. Over 80% of yachts visiting the Grenadines visit the TCMP. The area was previously used as a fishing spot by locals, and protection of the area is likely to have benefited fishers by providing a safe breeding ground for fish. Tourism is central to the economies of the Southern Grenadines (including Union Island, Mayreau and Canouan) and the TCMP is a key tourism draw card.

Social Aspect: The stunning natural beauty and recreational values of the TCMP (particularly the unspoilt cays and reefs) are what attracts nearly 50,000 visitors to the park each year.

Additionally, the park provides a reserve for marine species, and thus contributes to the health of the surrounding fishing stocks by providing breeding grounds and nurseries to fish. The TCMP is crucial for the economy of the Southern Grenadines, although its effects spread much wider than this. Many local livelihoods are either directly or indirectly connected to the TCMP including hostels, restaurants, vendors, taxis, fishers, sailors etc. The local islands are economically vulnerable, there are few other options past tourism or fishing. Much of the population is poor and any income derived from tourism or fishing is vitally important in their livelihoods.

KEY SPECIES-

- Staghorn Coral • Elkhorn Coral • Boulder Star Coral • Hawksbill Turtle • Green Sea Turtle •

THREATS-

Exploitation of natural resources: Tourism (There are many tourist activities which have an impact: •water pollution (discussed more in the pollution section) •physical damage to the reef from snorkelling, diving, paragliding, boats and anchors •turtle disturbance •illegal fishing •dumping and fires on beaches •purchasing endangered merchandise •tourist development on Mayreau. A large number of tourists visit the park each year, there are often up to 100 yachts moored in the park in the high season, although the carrying capacity is estimated at only 50 yachts. Without some consideration of overcrowding, many of these impacts will be more difficult to tackle. The main impact is water pollution from yachts – dumping sewage and other waste into the waters of the park. This causes nutrient overload and eutrophication and algal growth. This is a key threat to the health of the reefs. Physical damage includes anchor damage to reefs and sea grass beds, although the main sea grass bed near Baradal is now off limits to yachts. Unsupervised snorkelers often damage the reef by accidentally or deliberately touching coral, and stirring up sediments. Boats and dinghies may accidentally run into coral reef, and paragliding (and other water sports) may also damage the reef. A popular area for snorkelers is the sea grass beds around Baradal because of the presence of turtles, however snorkelers often disturb turtle feeding and resting. Additionally, some snorkelers feed turtles, which may encourage them to congregate and make them more vulnerable to predation. The presence of people on the beach may discourage and impact on turtle nesting. There is only one small toilet in the TCMP, and there are no rubbish bins. Visitors are expected to take their rubbish with them but dumping still occurs. Vendors in the TCMP may also improperly dispose of rubbish. Fires are frequently lit (sometimes to burn waste) and this may impact on terrestrial vegetation. Some vendors sell merchandise made from CITES listed species (such as turtle or conch). Selling these encourages further hunting of threatened species. Both locals and tourists have been caught fishing and using spear guns – these are both prohibited in the main areas of the park. There are some proposed tourist developments on Mayreau, including a marina (on the salt pond) and a new resort on the west coast. These developments may impact on threatened wetlands, pollute marine resources and clear other terrestrial vegetation)

Invasive alien species: There are two alien species within the park – goats and lionfish. Introduction of goats to the islands is also believed to have had a negative influence on the vegetation cover and composition. The goats are reportedly still present on Petit Rameau in small numbers,

although occasional culling by the police and the rangers has reduced the population. Lionfish have rapidly spread across the Caribbean and are a huge threat to marine fish species. They are present in the park. They are very aggressive predatory fish who eat small and juvenile fish, and they breed and spread very rapidly.

Pollution: Water pollution is one of the most significant threat to the biodiversity of the TCMP. Within the last 20 years several formal and informal reports have suggested that there has been a slow degradation of the coral reef ecosystems in the Tobago Cays. Water pollution from yachts, mainly sewage, threatens corals reefs because it leads to eutrophication, may disturb breeding and fish movement, and encourages algal growth. The centre of the park, where the most yachts moor, is most threatened by pollution. Surveys have noted high levels of faecal coliforms across the park. Solid waste is often left on the islands by visitors as well, sometimes including faeces since there are inadequate toilet facilities.

Other: Recent hurricanes and storms have done considerable damage to coral reefs, particularly World's End reef where corals were destroyed due to wave action. White-band disease and black-band disease has impacted coral species, and soft corals have been affected by Aspergilliosis. Elkhorn coral (*Acropora palmate*) has been especially impacted by white-band disease. Damage to reefs by other impacts (especially water pollution) makes them more vulnerable to disease. Bleaching has occurred across Horseshoe reef, caused by ocean warming, perhaps linked to climate change

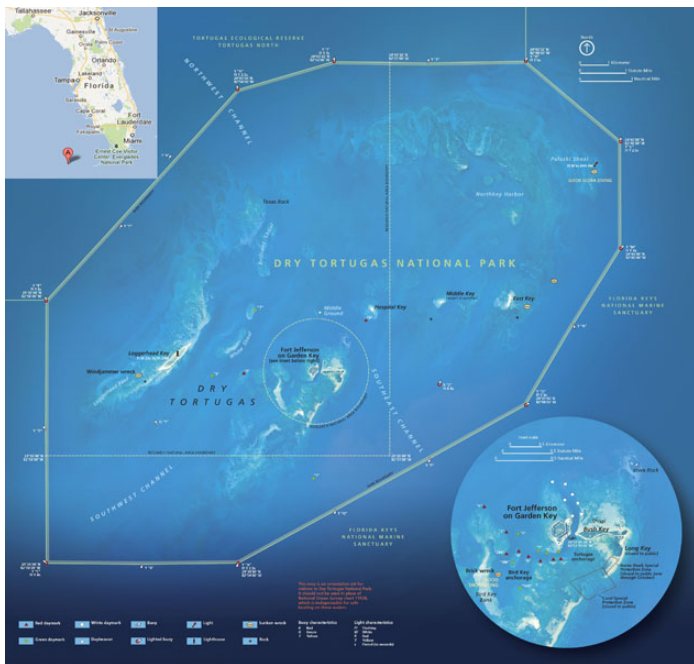
MANAGEMENT STRATEGY-

The TCMP is governed by a Marine Parks Board, which contains 10 members, including a chairperson. The 10 members are comprised of: 2 NGO representative, 1 nominee of the Ministry of National Security, 1 nominee of Ministry of Tourism, Director and Deputy Director of Grenadines Affairs, the Chief Fisheries Officer, the Director of Finance (or nominee), the Solicitor General (or nominee) and the Commander of the Coast Guard (or nominee). The Park Manager runs the operations of the TCMP, with a number of rangers, wardens, office attendants and administrative assistants. There is a total of 13 staff.

The TCMP Management Plan 2007-2009 is the current management plan, despite never being approved by Cabinet and 5 years out of date. The plan outlines the legal basis for the TCMP, its history, environmental and social values, as well as impacts and threats. It outlines the mission, goals and objectives of the authority, its organisational framework, administrative and financial arrangements and the structure and role of the board. The management of the park is discussed including the zoning of the park, fees, licences of vendors and tourism operators, and participatory measures. Also, it gives guidance on monitoring and evaluation, research, surveillance and enforcement, and the need for education and awareness campaigns.

VIII USA

31. DRY TORTUGAS NATIONAL PARK (DTNP)



GEOGRAPHIC LOCATION- Longitude X: -82.872813;
Latitude Y: 24.627874 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- Unknown

AREA- 265 km²

DATE OF ESTABLISHMENT- 10/26/1992

PURPOSE OF LISTING-

The Dry Tortugas National Park (DTNP) protects coral reefs, sandy shoals, seagrass beds and seven small islands or keys. The marine area includes reefs with high densities of live coral cover and massive coral heads that are unique to the Tortugas region and rare in the Florida Keys. Rare migratory seabirds utilize the keys for rookeries and sea turtles nest on the sand beaches. DTNP was established by the U.S. Congress: "to preserve and protect for the education, inspiration, and enjoyment of present and future generations nationally significant natural, historic, scenic, marine, and scientific values in South Florida." U.S. law also directs that DTNP be managed "to protect and interpret a pristine subtropical marine ecosystem, including an intact coral reef community," and among other purposes, "to protect populations of fish and wildlife, including (but not limited to) loggerhead and green sea turtles, sooty terns, frigate birds, and numerous migratory bird species."

The Park has four management zones to achieve desired resource conditions and provide a range of compatible visitor uses, including a Research Natural Area where fishing and anchoring are prohibited to protect and restore coral and fish species and to scientifically evaluate their condition.

Social Aspect: DTNP attracted 53,890 visitors and generated \$3.147 million U.S. in economic benefits from visitor spending and nature-dependent tourism in 2010. Setting aside the RNA marine reserve within DTNP as a place of refuge for juveniles

and adults of exploited reef fish to live, grow, and reproduce with minimal human impacts benefits the future sustainability of economically and ecologically important fishery resources in Florida, particularly in light of the ever-increasing human population, environmental changes, and accompanying increases in recreational boaters and anglers using the Florida coastal marine ecosystem.

Fishing is a valued tradition for Floridians and forms strong cultural connections to the waters and living resources of the Florida Keys. DTNP provides protection for regionally important species of fish and lobsters. DTNP also preserves maritime historical resources that provide an important historical context to present day life in the region.

KEY SPECIES-

- Smalltooth Sawfish
- Seven species of threatened corals
- Roseate Tern
- Green Sea Turtle
- Loggerhead Turtle

THREATS-

Exploitation of natural resources: Fishing (Reef fish assemblages have suffered significant declines in the abundance and size of desirable species because of historical overfishing. Although full recovery is expected to take decades, the establishment of no-take reserves coupled with a suite of management actions that reduced fishing mortality already are having a net positive effect. Several studies have characterized population abundance and size of exploited species and are tracking their temporal trends to evaluate the effectiveness of no-take reserves, including the newly established RNA within DTNP. Other anthropogenic stressors including ocean warming and sea level rise are more difficult to quantify for their precise ecological impact. The Stony Coral Tissue Loss Disease has affected most of the Florida Keys Reef tract and now threatens corals in DTNP. Monitoring of corals will yield information on trends in coral health.

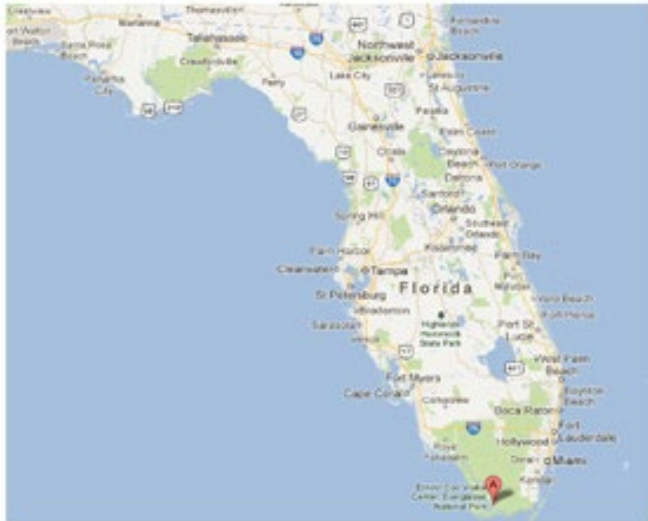
Invasive alien species: DTNP and National Park Service adopted a Lionfish Response Plan to evaluate and mitigate the impacts of lionfish on DTNP resources.

Other: Sea level rise and increased storm intensity is likely to inundate and erode the low-lying Tortugas islands over time thereby reducing the availability of nesting beaches for sea turtles and colonizing seabirds. Anchoring can damage corals and is addressed by the RNA zone where anchoring is restricted. Unpredictable disturbances, including hurricanes, disease outbreaks, and cold-water and warm-water events, and other extreme events have resulted in atypical oceanographic conditions that have negatively affected reef-building corals and seagrass communities. Coral bleaching and disease outbreaks have dramatically reduced populations of staghorn and elkhorn corals.

MANAGEMENT STRATEGY-

DTNP is co-managed with Everglades National Park. The Superintendent of DTNP and Everglades NP reports to the National Park Service Regional Director, Southeast Region. General Management Plan Amendment (GMPa) adopted in 2001 establishes desired conditions for natural and cultural resources and an appropriate range of visitor experiences. The GMPa guides decision-making and direction of park management for 10-15 years. Four management zones are established to achieve these goals.

32. EVERGLADES NATIONAL PARK



GEOGRAPHIC LOCATION- Longitude X: -80.90332;
Latitude Y: 25.289405 (Locate on the map)

IUCN MANAGEMENT CATEGORY- Unknown

AREA- 6110 km²

DATE OF ESTABLISHMENT- 12/6/1947

PURPOSE OF LISTING-

The Everglades National Park is one of the world's unique ecosystems. The park is located at the interface between temperate and tropical America; between land and sea; between fresh, brackish, and marine waters; between terrestrially influenced shallow embayments and deeper coastal waters of the Gulf of Mexico; and between the urban sprawl and development of greater Broward, Collier, and Miami-Dade counties (2011 population of ~ 4.1 million) and quiet wilderness. Everglades National Park protects the southern 20 percent of the original Florida Everglades. In the United States, it is the largest subtropical wilderness, the largest wilderness of any kind east of the Mississippi River, and is visited on average by one million people each year. It is the third-largest national park in the lower 48 states after Death Valley and Yellowstone.

Although most U.S. national parks preserve unique geographic features, Everglades National Park was the first created to protect a fragile ecosystem. The Everglades were a network of wetlands and forests fed by a river flowing 0.25 miles (0.40 km) per day out of Lake Okeechobee, south into Florida Bay. From the Bay, the water moves through the island passes into the Florida Keys National Marine Sanctuary (a SPAW Site in 2010). The park is the most significant breeding ground for tropical wading birds in North America, contains the largest mangrove ecosystem in the western hemisphere, is home to federally listed 40 threatened or protected species including the Florida panther (*Puma concolor coryi* or *Puma concolor cougar*, current taxonomic status unresolved), the American crocodile (*Crocodylus acutus*), and the West Indian manatee (*Trichechus manatus*), and supports at least 350 species of birds, 300 species of fresh and saltwater fish, 40 species of mammals, and 50 species of reptiles. The majority of South Florida's fresh water, which is stored in the Biscayne Aquifer, is recharged in the park.

Social Aspect: Everglades National Park is set aside as a permanent wilderness, and its mission is to preserve essential primitive conditions including the natural abundance, diversity, behavior, and ecological integrity of the unique flora and fauna. It is the first national park in the United States dedicated for its biologic diversity. The Everglades wetlands and downstream estuarine Florida Bay contributes significantly to the outdoor recreational lifestyle of south Florida and the Florida Keys. Ecotourism in the form of boating, wildlife viewing, and recreational fishing are extremely important to the economic engine of this area. Fishermen traveling to the Everglades to fish contribute to the Florida economy by hiring independent guides and purchasing lodging, meals, equipment, supplies, transportation, and other items in the retail sector. Expenditures attributable to freshwater fishing in the Everglades Region were \$205.9 million USD.

KEY SPECIES-

Everglades National Park contains a rich biodiversity and is home to at least-

- (a) 40 threatened or endangered protected species including the iconic Florida panther, American crocodile and West Indian manatee and the last remaining populations of Cape Sable seaside sparrow (*Ammodramus maritimus mirabilis*) and Florida Leafwing Butterfly (*Anaea troglodyta floridae*);
 - (b) 350 species of birds including a variety of colorful waders such as herons, egrets, roseate spoonbills (*Platalea ajaja*), ibises and brown pelicans (*Pelecanus occidentalis*);
 - (c) 300 species of ecologically, recreationally, and/or commercially important fresh and saltwater fish such as the yellowtail snapper (*Ocyurus chrysurus*), black grouper (*Mycteroperca bonaci*), and king mackerel (*Scomberomorus caualia*);
 - (d) 40 species of mammals including the bottlenose dolphin (*Tursiops truncatus*);
 - (e) and 50 species of reptiles including 4 species of sea turtles.
- A Certified Species List for All Taxonomic Categories in Everglades National Park (Aug. 8, 2012) is attached as an annex for review.

THREATS-

Exploitation of natural resources: Fishing (Commercial fishing has not been permitted in the park since 1985 and commercial ventures involving forest products) are prohibited.

Increased population: Everglades National Park is

surrounded by Miami-Dade (~ 2.71 million residents), Broward (~ 1.95 million residents), and Collier (~ 0.38 million residents) Counties. The demands of these 5 million residents exert a significant impact on the resources of Everglades National Park. Water management practices relating to urban and agricultural development in south Florida continues to affect the quality, quantity, distribution, and timing of freshwater flow into Everglades National Park.

Invasive species: Non-native plants are a significant threat to the native plant communities of Everglades National Park. Approximately 1,000 plant species have been recorded in the park. Of these, at least 250 species are non-native. Invasive Burmese pythons have altered the food web of the Everglades. This species is a top predator, and feeds on a broad variety of native species. Non-native fish species are widespread in freshwater marshes and, because control methods for non-native freshwater fish in the marsh are scarce or non-existent, these species may remain in the Everglades freshwater fish community for a very long time. The presence of lionfish (*Pterois volitans*) in Florida Bay is cause for concern. This non-native species is also a top predator, and has been shown in other locations to have negative effects on populations of native fishes.

Pollution: Everglades National Park is surrounded by Miami-Dade (~ 2.71 million residents), Broward (~ 1.95 million residents), and Collier (~ 0.38 million residents) Counties. The demands of these 5 million residents exert a significant impact on the resources of Everglades National Park, presumably mostly on air quality and water quantity and quality.

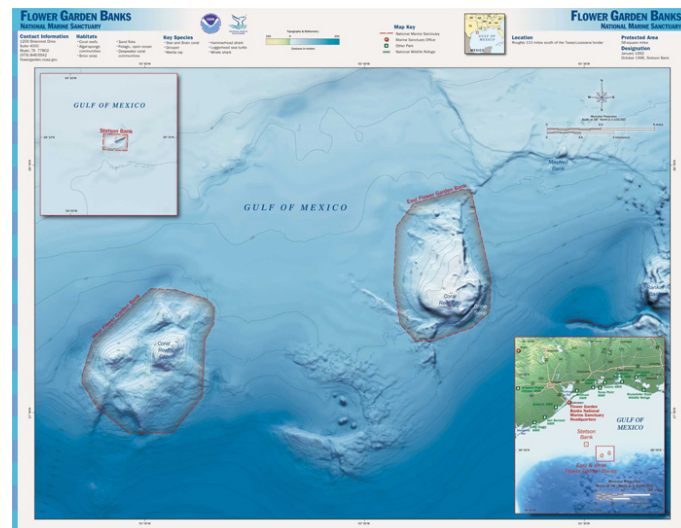
MANAGEMENT STRATEGY-

The Organic Act of 1916 (www.nps.gov/protect/) not only established the National Park Service, but also described the basic objectives of the Service in managing individual park units. The preservation objectives were interpreted to mean that humans should not interfere with these land areas.

The park has a professional law enforcement division who enforces the laws and regulations of the nation, state, and park. Furthermore, law enforcement personnel from adjacent Biscayne National Park and the Florida Keys National Marine sanctuary (a SPAW designated site) contribute to enforcing the laws and policies of the area.

The most recent Everglades National Park General Management Plan (GMP) was completed in 2015 and is available: <https://www.nps.gov/ever/learn/management/ever-general-management-plan.htm>. The General Management Plan recommended that approximately 42,000 acres (17,000 ha) should be conserved as wilderness, and 43,100 acres (17,441 ha) should be proposed wilderness within the park's 109,000 acre (44,110 ha) East Everglades Addition (approximately 90% of the park is already designated as wilderness). The plan also identified several issues, including potential impacts from climate change, storm surge, and sea level rise, as well as the cost and economic feasibility of new development at Everglades National Park.

33. FLOWER GARDEN BANKS NATIONAL MARINE SANCTUARY



GEOGRAPHIC LOCATION- Longitude X: -93.666667; Latitude Y: 27.833333 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- Unknown

AREA- 145 km²

DATE OF ESTABLISHMENT- 01/7/1992

PURPOSE OF LISTING-

The Flower Garden Banks National Marine Sanctuary provides natural resource protection to some of the most intact coral reef ecosystems and most healthy coral communities in the Western Atlantic. These reefs are the northern most coral reefs in the continental US. Surrounded by seafloor of 150 m water depths, the reefs grow on salt-dome features that rise to within 16 m of the sea surface at the margin of the continental shelf in the northern Gulf of Mexico. The sanctuary also protects mesophotic reef communities in its deepwater areas. The sanctuary was created by public interest to protect these coral reef communities from expanding oil and gas development, anchoring and fishing impacts in the NW Gulf of Mexico. The coral reefs are popular dive sites.

Recreational and commercial fishing is allowed in the sanctuary with some gear restrictions and oil and gas production infrastructure is also present within sanctuary boundaries. As a result, the Flower Garden Banks is an example of how marine resource use and conservation protections can compatibly coexist with the US National Marine Sanctuary System.

Social Aspect: No human populations are present near the sanctuary. Workers reside on petroleum production platforms in the region, but only boaters (fishing and diving) come to the sanctuary. The sanctuary promotes and leads conservation and management partnerships to protect sanctuary resources and the regional marine environment through ecosystem-based management. These efforts help to preserve important biological resources that are an essential part of the Gulf of Mexico economy and utilized by commercial and recreational fishers as well as the diving operators in the region.

KEY SPECIES-

- Elkhorn Coral ● Hawksbill Turtle ● Loggerhead Turtle ● Whale Shark ● Silky Shark ● Scalloped Hammerhead Shark ● Manta Ray ●

THREATS-

Exploitation of natural resources: Fishing (The level of private, charter and commercial fishing is not well documented, but appears to be increasing. Discarded fishing gear and injured or dead fish, moray eels and sharks have been documented. A spear gun was recently found at East Flower Garden Bank, and spear tips have been recovered from all three banks, indicating that prohibited activities are taking place. Longline fishing is illegal within the sanctuary, as is bottom trawling, yet longline gear is often encountered during ROV operations in deeper waters, as are discarded trawl nets. Active longline fishing within the sanctuary boundaries has been witnessed by dive charter operators), **Industry** (Contaminants originate from discharges from oil and gas platform operations. The exact contaminants contained in produced water are highly variable and difficult to track accurately. It is known that heavy metals, such as lead, cadmium, mercury and radioactive compounds, are associated with oil and gas activities in some circumstances. Studies have shown that the sediments surrounding the gas production platform known as High Island A389A, located within the sanctuary boundaries, contain comparatively high levels of mercury, lead, cadmium, zinc and other contaminants, probably due to the stipulations that require drilling lubricants and cuttings be shunted to within 10 meters of the seabed to avoid creating a sediment plume that could envelope the shallow reef areas)

Invasive alien species: The Indo-Pacific lionfish has recently become resident within the sanctuary. It has progressively spread throughout the Caribbean over the last two decades and the western Gulf of Mexico is one of the last areas in the Wider Caribbean to be invaded by this fish. Some other non-indigenous species exist in the sanctuary, but they are sparse enough to preclude substantial or persistent degradation to the ecosystem. Three colonies of an Indo-Pacific species of orange cup coral (*Tubastraea coccinea*) have been found in the sanctuary. This species may be becoming better established in the region. Prior to this finding, the coral had been reported in the Gulf of Mexico, but primarily on artificial structures such as oil and gas platforms. A Pacific species of nudibranch (*Thecacera pacifica*) was recently documented at Stetson Bank. It was photographed during reproduction, so it is likely that this species is becoming established.

Pollution: Influxes of fresh water originating from land-based or river sources may contribute to the introduction of pollutants of terrestrial origin including pesticides and fertilizers, and cause lower salinity conditions, all of which can contribute to decreased water quality. Contaminants originate from discharges from oil and gas platform operations. The exact contaminants contained in produced water are highly variable and difficult to track accurately. It is known that heavy metals, such as lead, cadmium, mercury and radioactive compounds, are associated with oil and gas activities in some circumstances. Studies have shown that the sediments surrounding the gas production platform known as High Island A389A, located within the sanctuary boundaries, contain comparatively high levels of mercury, lead, cadmium, zinc and other contaminants, probably due to the stipulations that

require drilling lubricants and cuttings be shunted to within 10 meters of the seabed to avoid creating a sediment plume that could envelope the shallow reef areas

Other: Recent events of coral bleaching (2005 in particular) are the result of higher-than normal seawater temperature extremes and reflect the threat that climatic induced temperature increases pose to the sanctuary. Coral diseases, although not as much a threat as in other parts of the Caribbean, have occurred within the sanctuary.

MANAGEMENT STRATEGY-

The Flower Garden Banks National Marine Sanctuary is managed within the Southeast Region of Office of National Marine Sanctuaries of the National Oceanic and Atmospheric Administrations within the United States Department of Commerce.

The sanctuary's original management plan is a comprehensive approach to resource protection and management. It includes programs for science, education, outreach, regulation, enforcement, permitting and coordination with other local, state and federal agencies: https://nmsflowergarden.blob.core.windows.net/flowergarden-prod/media/archive/document_library/mgmtdocs/fgbnms_eis_mgmtplan_1991.pdf

In April 2012 an updated Management Plan was released based on a comprehensive public review of sanctuary management strategies and activities that is required by the National Marine Sanctuaries Act and modifies and adds certain regulations and programs based on current conservation issues: https://nmsflowergarden.blob.core.windows.net/flowergarden-prod/media/archive/document_library/mgmtdocs/fmp2012/fmp2012.pdf

34. FLORIDA KEYS NATIONAL MARINE SANCTUARY



GEOGRAPHIC LOCATION- Longitude X: -81.807404; Latitude Y: 24.55212 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- Unknown

AREA- 99467 km²

DATE OF ESTABLISHMENT- 01/1/1990

PURPOSE OF LISTING-

The Florida Keys National Marine Sanctuary extends approximately 220 miles southwest from the southern tip of the Florida peninsula. Located adjacent to the Keys' land mass are spectacular, unique, and nationally significant marine environments, including seagrass meadows, mangrove islands, and extensive living coral reefs. These support rich biological communities possessing extensive conservation, recreational, commercial, ecological, historical, research, educational, and aesthetic values that give this area special national significance.

They are the marine equivalent of tropical rain forests, in that they support high levels of biological diversity, are fragile and easily susceptible to damage from human activities, and possess high value to humans if properly conserved. The marine environment of the Florida Keys supports over 6,000 species of plants, fishes, and invertebrates, including the Nation's only coral reef that lies adjacent to the continent, and one of the largest seagrass communities in this hemisphere.

Attracted by this natural diversity and tropical climate, approximately four million tourists visit the Keys annually, where they participate primarily in water-related sports such as fishing, diving, boating, and other activities.

Social Aspect: Of the 1,700 islands in the Keys, approximately 70 are inhabited. In 2003 the total resident population was approximately 80,000. The linkages between the economic health of the human communities of the Florida Keys to that of the ecosystem's health is an essential aspect of why the Florida Keys National Marine Sanctuary exists. As a result, each habitat within the ecosystem has an essential link to nearly all aspects of the social and economic health of the Florida Keys.

KEY SPECIES-

• American Crocodile • Hawksbill Turtle • Kemp's Ridley Turtle • Loggerhead Turtle • Leatherback Turtle • Green Sea Turtle • West Indian Manatee • Fin Whale • North Atlantic Right Whale • Sperm Whale • Sei Whale •

THREATS-

Exploitation of natural resources: Fishing (Two recent (2000-01, 2003) non-concurrent studies showed that 3.64 million person days were spent fishing on natural reefs annually in the Florida Keys. Concomitant with increasing fishing pressure associated with increasing population, average fishing power (the proportion of stock removed per unit of fishing effort) may have quadrupled in recent decades because of technological advances in fishing tackle, hydroacoustics, navigation, communications, and vessel propulsion. In southwest Florida (including Monroe County), decapod crustaceans (shrimp, stone crab, and spiny lobster), snappers (e.g., yellowtail), groupers, king mackerels, and Spanish mackerels dominate commercial catches. In Monroe County, the total annual commercial landings for these species average almost 15 million pounds. In recent years, crustaceans have comprised 81 to 92 percent of the total catch value, while finfish made up the remainder. Poaching by fishers is a constant threat and a focus of much law enforcement activity) and **Tourism**

Increased population: Most pressures stem from the 5 million annual visitors and approximately 80,000 year-round residents of Monroe County. Their high levels of use in the Sanctuary have significant direct and indirect effects on the ecosystem. Sanctuary visitors primarily seek water-related recreation, including diving, snorkeling, fishing and boating.

Invasive alien species: Harmful algal blooms

Other: Climatic events play an important role in the ecosystem productivity of the Florida Keys NMS. Winter storms are common and recent cold periods have killed fish, manatees and corals. Summertime tropical cyclones are always a threat to this area. Recent periods of high sea temperature has caused many corals of the Keys to die due to coral bleaching. Diseases of coral have caused significant declines in coral species abundance and cover on coral reefs. Vessel groundings and anchor damage Dredging and Desalination plants Pollution from point and non-point sources, marinas, boats, and cruise ships Poaching by fishers is a constant threat and a focus of much law enforcement activity. Demand by an increased population and infrastructures Assess whether the current human presence or an expected increase in visitation (tourism, passage of vehicles and boats) and any human immigration into the area, or plans to build infrastructures, are considered a threat. Increasing human populations and development remains a constant threat to the regions natural resources.

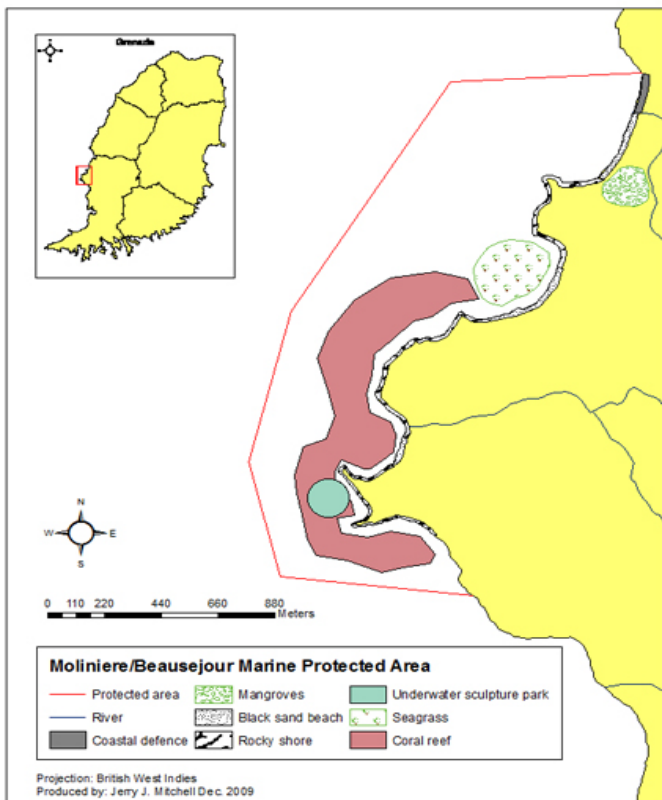
MANAGEMENT STRATEGY-

Management authority: NOAA's Office of National Marine Sanctuaries. Formal management plan documents that describes in detail the management framework of the sanctuary have been published: <https://floridakeys.noaa.gov/management/welcome.html>

The establishment of the Florida Keys National Marine Sanctuary (FKNMS) began with an act of the US Congress in 1990. What followed was a vigorous designation process that culminated in the National Oceanic and Atmospheric Administration and the State of Florida jointly undertaking the implementation of the sanctuary in 1997. This resulted in the first marine area in the US to embrace management at the ecosystem scale and to implement a network of restricted-use zones in the ocean. This initial zoning plan was modified through a public comment process.

IX GRENADA

35. MOLINIÈRE - BEAUSÉJOUR MPA



GEOGRAPHIC LOCATION- Longitude X: -61.76239; Latitude Y: 12.085653 ([Locate on the map](#))

IUCN MANAGEMENT CATEGORY- II

AREA- 0 km²

DATE OF ESTABLISHMENT- 12/28/2001

PURPOSE OF LISTING-

The Molinière Reef was identified as a priority for the establishment of a “protected seascape” as the site was considered to hold the finest reefs in Grenada. The site was given priority for the protection of representative samples of Grenada ecosystems, namely large areas of coral reef, littoral woodland, and cactus scrub, and medium to small area of seagrass bed. The MPA also includes some of the best reefs on Grenada that are home to a wide diversity of life forms.

The management objectives for the protection of the areas are to protect and maintain the Molinière Bay ecosystem and its outstanding natural features and to provide opportunities for recreation, interpretation, research, environmental education and protection of over-exploited fish, lobster, and coral.

Social Aspect: The coral reef systems within the MPA is one of the most diverse and abundant economically important reef fish and invertebrates (e.g. lobsters, crabs & conch) around the island. The protection of these species within the MPA would allow them to get larger and produce more eggs to supply areas that are being fished. This would allow for a constant replenishment of the areas that are being fished; thereby, providing a sustainable source of income to the families that depend on fishing.

The MPA is utilized by the subsistence fishers that utilize traditional fishing methods (i.e. pole and line from the rocks and beach seine) to extract various target species. These fishers catch fish for their own household use and the excess they sell within their community. There are also a small group of young men from the communities that are adjacent to the MPA that generate a living from tourism within the MPA. These tour operators charge a fee to visitors to take them snorkelling on the reefs or at the world’s first underwater sculpture park.

KEY SPECIES-

• Hawksbill Turtle • Leatherback Turtle • Green Sea Turtle •

THREATS-

Exploitation of natural resources: Fishing (There is tradition fishing methods (i.e. beach seine and Hand-line fishing from the rocks) that are allowed in designated fishing zones within the MPA), **Tourism** (The area is heavily utilized by tour operates for diving, snorkeling and excursions. The divers and snorkels, if not adequately supervised or due to weather condition (i.e. strong current/surges) sometimes come into contact with the seafloor and break or damage corals etc) and **Agriculture** (The communities that are adjacent to the MPA and within the Catchment area of the two rivers that empties into the MPA are some of the most important farming communities on the island. The are significant eutrophication of the rivers and as a result the MPA due to improper fertilizer application on these farms. There are also improper land-use practices such as clear cutting that result in significant siltation issues on the reefs and other marine habitats)

Invasive alien species: There are invasive fish (*Pterois volitans*) and seagrass (*Halophila stipulate*) the MPA. Both of these species post a significant threat to the native species within the coral reef and seagrass beds.

Pollution: There are issues of solid and industrial waste (e.g. motor oil etc) entering the MPA from improper disposal of this products into the rivers that empties into or just outside the MPA. There is also a untreated sewage outfall within 5km of the MPA. The sewage is transported into the MPA on some occasions based on prevailing currents.

MANAGEMENT STRATEGY-

The Fisheries Division is the agency with responsibility for MPA; however, MPAs are managed through a series of arrangement with various committee and boards.

The MPA management plan is divided into two section the first section provides an overview of the ecological and physical characteristic on the MPA along with the status of marine and terrestrial resources. The second section outlines strategies that should be implemented in order to effectively and efficiently achieve the expressed goals and objectives of the MPA.

9. References

Deguignet M., Juffe-Bignoli D., Harrison J., MacSharry B., Burgess N., Kingston N., (2014) 2014 United Nations List of Protected Areas. UNEP-WCMC: Cambridge, UK.

Gallagher A.J., Amon D.J., Bervoets T., Shipley O.N., Hammerschlag N. and Sims D.W. (2020), The Caribbean needs big marine protected areas. *Science*: 749- 751 (367), American Association for the Advancement of Science

UNEP-WCMC, IUCN and NGS (2018). Protected Planet Report 2018. UNEP-WCMC, IUCN and NGS: Cambridge UK; Gland, Switzerland; and Washington, D.C., USA.

<https://www.cbd.int/aichi-targets/target/11>

<http://palisting.car-spaw-rac.org/>

Annex I

IUCN Status	Name	Objectives
la	Strict Nature Reserve	Category Ia are strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphological features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values. Such protected areas can serve as indispensable reference areas for scientific research and monitoring
lb	Wilderness Area	Category Ib protected areas are usually large unmodified or slightly modified areas, retaining their natural character and influence without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.
II	National Park	Category II protected areas are large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible, spiritual, scientific, educational, recreational, and visitor opportunities.
III	National Monument or Feature	Category III protected areas are set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value.
IV	Habitat/Species Management Area	Category IV protected areas aim to protect particular species or habitats and management reflects this priority. Many Category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category.
V	Protected Landscape/Seascape	A protected area where the interaction of people and nature over time has produced an area of distinct character with significant, ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.
VI	Protected Area with sustainable use of natural resources	Category VI protected areas conserve ecosystems and habitats together with associated cultural values and traditional natural resource management systems. They are generally large, with most of the area in a natural condition, where a proportion is under sustainable natural resource management and where low-level non-industrial use of natural resources compatible with nature conservation is seen as one of the main aims of the area.