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Proposed areas for inclusion in the SPAW list
ANNOTATED FORMAT FOR PRESENTATION REPORT FOR:

Saba National Marine Park
The Kingdom of the Netherlands

Date when making the proposal : 7/7/14

CRITERIA SATISFIED :

Ecological criteria

Representativeness
Conservation value
Rarity
Naturalness
Critical habitats
Diversity
Connectivity/coherence
Resilience

Cultural and socio-economic criterias

Productivity
Cultural and traditional use
Socio-economic benefits

Area name: Saba National Marine Park
Country: The Kingdom of the Netherlands

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Attachment 24 CARNARI management report.
Attachment 25 DC-Management Success data report
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Chapter 1. IDENTIFICATION

a - Country:

The Kingdom of the Netherlands

b - Name of the area:

Saba National Marine Park

c - Administrative region:

Dutch Caribbean

d - Date of establishment:

6/25/87

e - If different, date of legal declaration:

not specified

f - Geographic location

Longitude X: 17.6354642

Latitude Y: -63.2326763

g - Size:

8 sq. km

h - Contacts

Contact address: P.O. Box 18, The Bottom, Saba, Dutch Caribbean

Website: www.sabapark.org

Email address: sabapark.manager@gmail.com

i - Marine ecoregion

64. Eastern Caribbean

Comment, optional

See map in Attachment 1

Chapter 2. EXECUTIVE SUMMARY

Present briefly the proposed area and its principal characteristics, and specify the objectives that motivated its creation :

Saba is located in the North Eastern Caribbean (17°38N, 63°14W) 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 hectare (2,000 acres) protected area, was established in 1987 to safeguard the island's pristine coral reefs and the 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 Coneyes 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 Hammerhead Sharks, Whale Sharks and Manta Rays

Explain why the proposed area should be proposed for inclusion in the SPAW list

The Saba National Marine Park offers effective legal protection to the marine habitats, species and environment as a whole that lie within its boundaries. This offers the species refuge from anthropogenic threats, whilst sustaining natural resources and processes. The site is a home and stop over for 32 species listed in SPAW Annex II and +/- 238 Annex III species, as well as many species listed in other conservation initiatives (see Attachment 12).

Saba National Marine Park is a very popular destination for SCUBA divers. Several dive operators work with tourists on Saba, bringing in significant amounts of income to the economy annually. 'The Pinnacles' are a favored dive site, being the site seamounts that rise from deep waters to a maximum of 25m (80ft), attracting a wealth of marine life.

Saba National Marine Park was legally recognized in 1987 and Saba Conservation Foundation has a mandate to manage the site. Also established in 1987, Saba Conservation Foundation is an experienced nature management organization, and continues to work effectively with stakeholders in the pursuit of its conservation goals. The Saba Marine Park was designated a National Park in 2010

The Saba National Marine Park is a hub for ecological and management networking between neighboring marine parks and their management organisations on St Martin and St Eustatius as well as other neighboring islands. Saba Conservation Foundation, is also a key part of a wider regional networking initiative - The Dutch Caribbean Nature Alliance.

Saba's population historically and currently relies very heavily on coastal and marine resources for economic, social and cultural well being. Considering the threats facing these natural resources, the Specially Protected Areas and Wildlife Protocol (SPAW) will provide far reaching solutions to the challenges faced with regards to coastal resource management. Saba National Marine Park addresses all of the necessary criteria for inclusion in the list (under Annex V. Final Guidelines and Criteria for the Evaluation of Protected Areas to be listed).

According to you, to which Criteria it conforms (Guidelines and Criteria B Paragraph 2)

Representativeness
Conservation value
Rarity
Naturalness
Critical habitats
Diversity
Connectivity/coherence
Resilience

Cultural and socio-economic criterias

Productivity
Cultural and traditional use
Socio-economic benefits

Chapter 3. SITE DESCRIPTION

a - General features of the site

Terrestrial surface under sovereignty, excluding wetlands:

0 sq. km

Wetland surface:

0 ha

Marine surface:

8 sq. km

Global comment for the 3 previous fields (optional):

The Saba National Marine Park encompasses 8 sq km of biologically diverse coral reef, seagrass, macro-algal beds, sandy bottom and rocky intertidal habitats.

b - Physical features

Brief description of the main physical characteristics in the area:

The coast of Saba is characterised by steep cliffs meeting the sea with rock boulders at their base. There is an ephemeral beach, three small areas where 'concrete meets the sea' and a small gently sloping area at Giles Quarter on the south coast. Consequently, there is little coastal development. The marine environment at the coast comprises of a narrow shelf strewn with large volcanic boulders, lava flows and overhangs most of which have become encrusted with corals, sponges and algae. The boulders become dispersed in some areas and at greater depths, giving way to sandy bottom habitats and patches of seagrass. 'The Pinnacle's', a sea mount 1km off shore is an environment unique in the region.

Geology:

The following description covers the geology of the island of Saba with some specifics on the marine geology.

Saba is the northernmost volcanic island in the Active Arc of the Lesser Antilles with an area of only 13 sq. It is rhomb shaped and is a single volcano measuring 4.6 km east to west and 4.0 km north to south rising to a central peak of Mt. Scenery at 887m. The appearance of the island is that of a deceptively simple stratovolcano, but this is not the case as it has been built up of a large number of Pelean domes with their aprons of coarse pyroclastic deposits that form a distinctive shoulder on the island at about 450 to 500 m a.s.l. Mt. Scenery is a younger cone perched somewhat eccentrically to the north on this foundation of Pelean domes. A prominent sector collapse scar exists on the south-western flanks of the volcano in which the island's administrative capital sits. The upper part of this scar has been buried by the younger deposits of Mt. Scenery and the lower part by the Pelean dome and pyroclastic aprons of Great, Bunker and Paris Hills. The submarine flanks of the island slope away uniformly in all directions, except the west where about 1.3km offshore there is a single parasitic conical submarine Pelean dome rising from depths of 300m to only 23 m below sea level, which forms the Pinnacles dive site.

The island is essentially a complex of andesite Pelean domes with their aprons of block and ash flow deposits, together with a few domes that have produced short thick dome flows that are steeply inclined on the island slopes. From a suite of 96 samples only two were basalt and both came from the oldest volcanic center on the island at Torrens Point. Lavas of basaltic andesite composition are sparse, as are basaltic andesite pyroclastic deposits. However a prominent basaltic andesite lava flow dominates the northeast quadrant of the island with the island airport built on its distal part. Dacite is present mainly as pumice and ash, which together with some andesite reflect Plinian-style activity. Also present in small amounts are semi-vesicular andesite pyroclastic.

The stratigraphy of the island can be subdivided into two parts. The older parts of the island predate the sector collapse scar and the younger deposits that postdate the scar and include Mt Scenery. The rocks of the island have proved too young to be dated by the K-Ar method as they are less than 1 million years old. Recently three $^{39}\text{Ar}/^{40}\text{Ar}$ ages were determined for the older parts of the island and yielded ages of 0.42, 0.36 and a third sample that yielded 0.21 and 0.13 million years. The age of the sector collapse scar is estimated at around 100,000 years and younger deposits have been dated by radiocarbon methods.

Saba island has erupted lavas of a single magma series which is medium-K low-Ca calc-alkaline. The compositional range is from 49% SiO₂ to 65% SiO₂, and the lavas are characterized by an abundance of rounded medium-grained hypabyssal (dike rock) nodules that are more mafic than their host.

Hot springs are present on the northwest and southeast coasts of the island and on the sea floor immediately offshore of these areas. Orange areas of discoloration are present on the flanks of the volcano marking the sites of former fumarolic activity. On the northeast coast immediately underlying the prominent basaltic andesite lava flow, is a layer of yellow sulfur mineralization that has been mined in the past.

For further details see Attachment 4.

Soil:

n/a

Topography:

n/a

Bathymetry:

The bathymetry of Saba National Marine Park is characterized by near shore dropoffs at Flat Point, Spring Bay, and Corner Point. Within 60 m depth limits, the shelf surrounding Saba is typically 300-500 m wide; at its widest point north of the island, the shelf measures approximately 1,000 m (Attachment 15).

The bathymetry of the Saba Seamounts has been a topic of study since 1991, with accurate maps being produced in 2013 (Attachment 6).

Hydrodynamics:

With Saba's exposed nature, narrow shelf and surrounding deep water, strong currents and rough seas (1-2 m average wave height) are prevalent around most of the island. Information on ocean currents is limited; there have been no field investigations to date, although there is some generic information available for the region (below). The intensity of the prevailing southeasterly winds makes for rough seas on the southern and eastern coasts of the island for much of the year. From November to March, powerful swells that originate in the North Atlantic impact the leeward western side of the island.

Saba and the neighboring islands are affected by The Antilles Current. The Antilles Current was named in 1876, and flows northward east of the Antilles joining the Florida Current past the outer Bahamas. Its waters are concentrated into a strong northward Jet about 80-100 km wide centered at 400 m (Lee et al., 1996).

Mooring studies have indicated that the Antilles has mean transport speeds of 3.2 Sv northwards in the upper 800m of water. In addition there is deeper flow from the Deep Western Boundary Undercurrent below 800 m carrying 33 ± 10.9 Sv southwards (Lee et al., 1996). The influence of this deep flow results in a large, mean southward transport for the entire water column.

Deeper, colder waters surrounding Saba (between 300m and 500m depth) are thought to have some influence on the environment and ecology of the Saba National Marine Park.

Although no tidal data have been recorded for Saba, it may be possible to estimate tidal variations from data recorded on adjacent islands. From 45 tide gauge locations in the Caribbean, it is concluded that, for the most part, the Caribbean has a micro tidal range of 10-20 cm. Saba is located in an area

with a predominantly mixed diurnal tide, with a mean tidal range of 15 cm.

Lee, T. N., Johns, W. E., Zantopp, R. & Fillenbaum, E. R. (1996). Moored observations of western boundary current variability and thermohaline circulation 26.5°N in the subtropical North Atlantic. *Journal of Physical Oceanography* , 962-963.

Volcanic formations:

See Geology, Attachment 4.

Sand dunes:

n/a

Underwater formations:

There are various underwater formations around Saba, making a number of fascinating dive sites each with their own unique character.

The Pinnacles that rise from the ocean floor up to depths of 25m (80ft) were formed by past volcanic activity and are nourished by deep ocean currents. The Pinnacles are covered with corals, sponges and other invertebrates.

The large spires at Wells Bay and Torrens Point form a protected cove, an ideal location for snorkeling or shallow diving. Underwater caves and tunnels are interesting structures that are home to many species.

Man 'O War Shoals and Diamond Rock are guano covers islets that appear to be submerged and semi-submerged extensions of Torrens Point headland. Walls and rocks nearer the shore are covered with colorful sponges, smaller corals and Sea fans.

Around Ladder Bay a natural labyrinth of groove formations and protrusions developed as a result of lava flows.

Just west of the Fort Bay harbour is another unusual geological structure known as Tent Reef. It is an extended rock ledge that starts at only 4 m (13ft) deep but becomes progressively deeper as you head northwest. The ledge is deeply undercut at some points, providing shelter to large fish. It turns into a sheer wall that gradually becomes fragmented and appears as a series of steep coral outcroppings separated by deep sand channels.

Most of Saba's East coast marine environment is dominated by encrusted boulders of volcanic origin. The only true reef (made out of limestone) formations around Saba are found at Greer Gut and Giles Quarter. Diverse species of reef fish and other marine life along with the white sand covering the sea floor provide a very different environment to Saba's other marine sites.

Exposure to the Atlantic on the East side yields the development of hard coral structures more often than soft coral. Close to shore, well-developed Elkhorn coral formations occur despite considerable wave action and exposure to storms.

c - Biological features

Habitats

Brief description of dominant and particular habitats (marine and terrestrial)*: List here the habitats and ecosystems that are representative and/or of importance for the WCR (i.e. mangroves, coral reefs, etc):

Coral reefs: around Saba, shoal reefs (The Pinnacles), fringing reefs and cryptic habitats are all home to species of hard and soft coral, many other animal and plant species. These depend on nutrient poor, stable water conditions to survive.

Sea grass beds: patches of highly productive habitats dominated by one or two species of seagrass. The blades of the seagrass are home to many more species and the habitats provides a nursery and foraging ground for many marine animals.

Sandy Bottom: extensive areas of sand that support many benthic organisms including, invertebrates and bottom living fish.

Rocky intertidal areas: Rocky shores form the transition between terrestrial and marine environments, and are thus exposed to very different physical conditions. In the course of a day, rocky shores are covered with seawater at high tide and exposed directly to the air at low tide. On Saba, rocky shores are found in close vicinity to the fringing coral reefs. The rocky shores on Saba are formed from boulders or lava flows, with one exceptional habitat of pools being found near the airport.

There is, of course, regular exchange between each of these habitats for feeding and reproduction and continuous movement of water and animals between the deep waters surrounding Saba and the habitats in the Marine Park .

Detail for each habitat/ecosystem the area it covers:

<i>Marine / coastal ecosystem categories</i> Detail for each habitat / ecosystem the area covers	Size (estimate)		Description and comments
	unit	Area covered	
<i>Coral reefs</i>			
Sea Mounts	ha	not given	There are eight pinnacles around Saba. Five deeper pinnacles on one site 1km to the west of Saba, given the names Third Encounter, Twilight Zone, Outer Limits, Mt. Michel, Shark Shoals. Here shallower pinnacles around the island, with sandy bottoms beyond 25m (80ft) depth; Man O' War Shoals which does not break the surface, Diamond Rock and Green Island with are both guano encrusted islets.. The deeper pinnacles have been protected them from any storm damage or anchor damage in the past. This has resulted in a diverse habitat with large and abundant soft corals and sponges. The volcanic protrusions themselves attract large

			<p>numbers of fish including predatory species such as jacks, groupers and sharks. Caribbean Reef Sharks, Nurse Sharks and Black Tip Sharks are the most common, with occasional sightings of Hammerhead Sharks, Bull Sharks and Tiger Sharks. Passing Humpback Whales, Manta Rays and Whale Sharks are also seen on occasion. The larger species of animals are not as common at the shallow pinnacle sites. The exposed and cryptic surfaces are home to many species of invertebrates that feed on the plankton rich waters nourished by the strong local currents. Shoals of Blue Tangs (<i>Acanthurus coeruleus</i>), Bigeye Tuna (<i>Thunnus obesus</i>) and juvenile Barracuda (<i>Sphyraena</i> sp.) frequent these areas. The dark volcanic sand around these sites is home to fish species including Flying Gurnards (<i>Dactylopteridae</i> sp.), Batfish (<i>Ogcocephalus</i> sp.), Sand Tile Fish (<i>Malacanthus plumieri</i>) and Jawfish (<i>Opisthognathidae</i>. Sp).</p>
Fringing boulder reef	ha	not given	<p>Encrusted andesites and rock with most common 11 coral species being: <i>Agaricia</i> spp., <i>Colpophyllia</i> spp., <i>Diploria labyrinthiformis</i>, <i>Diploria strigosa</i>, <i>Madracis decactis</i>, <i>Millepora</i> spp., <i>Montastraea annularis</i>, <i>Montastraea cavernosa</i>, <i>Porites astreoides</i>, <i>Porites porites</i>, and <i>Stephanocoenia michelinii</i>. Of these, <i>Montastraea annularis</i> was most dominant overall, followed by <i>Agaricia</i> spp., <i>Millepora</i> spp. and <i>Diploria strigosa</i>. The coral reefs are home to many fish species including Fairy baslets (<i>Gramma loreto</i>), Angel fish (<i>Holocanthus</i> sp. and many others) Groupers, Triggerfish, Scorpion fish, Moray eels (e.g. <i>Gymnothorax moringa</i>), Wrasse and Chromis, Parrot fish and roaming shoals of Blue Tangs (<i>Acanthurus coeruleus</i>). Aside from corals and fish, many other creatures inhabit the reef and other underwater habitats. These include a variety of sponges such as Giant Barrel Sponges (<i>Xestospongia muta</i>), Stove-pipe sponges (<i>Aplysina archeri</i>), Azure Vase Sponges (<i>Callyspongia plicifera</i>), Ball Sponges (<i>Cinachyra</i> sp.) and Elephant Ear Sponges (<i>Agelas clathrodes</i>). Countless other invertebrates inhabits the reefs such as Conch, Brittle stars, Magnificent Sea Urchin (<i>Astropyga magnifica</i>), Zooanthids, Crinoids, Brittle stars, Cork Screw Anemones (<i>Bartholomea annulata</i>), Giant anemones (<i>Condylactis gigantea</i>), Spiny Lobsters (<i>Panulirus argus</i>), Pederson shrimp, Arrow Crab (<i>Stenorhynchus seticornis</i>), Decorator Crabs (<i>Microphrys bicomuta</i>) and nudibranchs such as the Lettuce Sea Slug (<i>Tridachia crisp ate</i>). A number of different plant species live on the reef and sandy habitats, the most common being Encrusting fan-leaf algae (<i>Lobophora variegata</i>), and <i>Dictyota</i> sp. Other species found include calcareous algae (with calcium in their structure) such as Pink Coralline algae and Leaf Algae (<i>Halimida</i> sp.). Mats of Red Algae grow in some areas. Seaweeds such as Sargassum and Green Feather Algae (<i>Caulerpa sertulanoides</i>) provide habitat and food for other animals.</p>
Biogenic reef	ha	not given	<p>Located at the Giles Quarter reef complex; reef habitat formed on limestone. More information in Attachment 16.</p>
<i>Sea grass beds</i>			
Seagrass	ha	not given	<p>The patchy, yet significant seagrass stands around Saba are dominated by Turtle grass (<i>Thalassia testudinum</i>) together with Manatee grass (<i>Syringodium filiforme</i>) and species of calcareous alga (<i>Halimeda</i> sp.). Through a succession of growth, seagrasses can turn vast areas of unconsolidated sediments into highly productive plant dominated,</p>

			structured habitat with a diversity of microhabitats. There are limited although significant amounts of seagrass beds within the Saba National Marine Park. Significant invertebrates in the seagrasses of Saba include a much reduced population of Queen Conch (<i>Strombus gigas</i>), Cushion Stars (<i>Oreaster reticulata</i>), Sea Cucumber (<i>Holothuria mexicana</i>) and Sea Urchins (<i>Tripneustes venricosus</i> , <i>Lytechinus variegates</i> , <i>Meoma ventricosa</i>).
<i>Rocks</i>			
Rocky shores	ha	not given	Rocky shores form the transition between terrestrial and marine environments, and are thus exposed to very different physical conditions. In the course of a day, rocky shores are covered with seawater at high tide and exposed directly to the air at low tide. On Saba, rocky shores are found in close vicinity to the fringing coral reefs. The rocky shores on Saba are formed from boulders or lava flows, with one exceptional habitat of pools being found near the airport. Various forms of algae dominate the intertidal area, since other organisms find it difficult to cope with extreme heat, desiccation and ultraviolet ray stress. Species of snails graze on algae contributing to bioerosion of the substrate. Bivalves such as mussels and barnacles often make their home on rocky shores. Intertidal communities in the Caribbean are restricted to a relatively small area because of the small tides (a maximum tidal range of around 45cm).
<i>Sand cover</i>			
Sandy bottom	ha	not given	Little is known about the sandy habitats in Saba National Marine Park. The habitat is understood to be home to various species of animals and plants including crustaceans, sea stars, shrimp, nudibranch, worms and fish. Marine plants also exist in some areas including species of seagrass and algae
<i>Other marine ecosystems</i>			
Volcanic habitats	ha	not given	There are marine hot springs and dark sand habitats in the Saba National Marine Park that may have particular significance.
Terrestrial ecosystems	Size (estimate)	Area covered	

Flora

Brief description of the main plant assemblages significant or particular in the area:

A number of different plant species live on the reef and sandy habitats, the most common being Encrusting fan-leaf algae (*Lobophora variegata*), and *Dictyota* sp. Other species found include calcareous algae (with calcium in their structure) such as Pink Coralline algae and Leaf Algae (*Halamida* sp.). Mats of Red Algae grow in some areas. Seaweeds such as Sargassum and Green Feather Algae (*Caulerpa sertulanoides*) provide habitat and food for other animals.

List of plant species within the site that are in SPAW Annex I

List of species in SPAW annex	Estimate of population	Comments if
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I	size	any
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List of plant species within the site that are in SPAW Annex III

List of species in SPAW annex III	Estimate of population size	Comments if any
Hydrocharitaceae: Thalassia testudinum	not given	
Hydrocharitaceae: Halophila baillonis	not given	
Hydrocharitaceae: Halophila decipiens	not given	
Hydrocharitaceae: Halophila engelmannii	not given	

List of plant species within the site that are in the IUCN Red List. IUCN red list :

<http://www.iucnredlist.org/apps/redlist/search> You will specify the IUCN Status (CR:critically endangered; EN:endangered; VU:vulnerable).

List of species in IUCN red list that are present in your site	IUCN Status	Estimate of population size	Comments if any
Clover Grass: Halophila baillonii	VU - Vulnerable	not given	
Star grass: Halophila engelmannii	EN - Endangered	not given	

List of plant species within the site that are in the national list of protected species

List of species in the national list of protected species that are present in your site	Estimate of population size	Comments if any
Turtle grass: Thalassia testudinum	not given	

Fauna

Brief descript^o of the main fauna populations and/or those of particular importance present (resident or migratory) in the area:

All four Caribbean species of turtle can be found in Saba National Marine Parks water: Hawksbills (*Eretmochelys imbricate*), Green Turtles (*Chelonia mydas*), Leatherbacks (*Dermochelys coriacea*) and Loggerheads (*Caretta caretta*) are a very occasional visitor. A number of Cetaceans are regular visitors both to the reefs and the waters around Saba, including; Humpback Whales (*Megaptera novaeangliae*), Spinner Dolphins (*Stenella longirostris*), Bottlenose Dolphins (*Tursiops truncatus*) (Attachment 13). Caribbean Reef Sharks, Nurse Sharks and Black Tip Sharks are the most common shark species in Saba National Marine Park, with occasional sightings of Hammerhead Sharks, Bull Sharks and Tiger Sharks. Manta Rays and Whale Sharks are also seen on occasion (Attachment 14).

The coral reefs are home to many fish species including Fairy basslets (*Gramma loreto*), Angel fish (*Holocanthus* sp. and many others) Groupers, Triggerfish, Scorpion fish, Moray eels (e.g. *Gymnothorax moringa*), Wrasse and Chromis, Parrot fish and roaming shoals of Blue Tangs (*Acanthurus coeruleus*). In sandy areas Garden eels (*Heteroconger halis*), Peacock Flounder (*Bothus lunatus*), Stingrays (*Dasyatis Americana*) and Flying Gurnard (*Dactylopterus volitans*) can all be seen. Near to the reefs in the blue water, Crevalle Jacks (*Caranx hippos*), Bar jacks (*Caranx ruber*), Shoals of Barracuda (*Sphyraena* sp.) Horse-eye jacks (*Caranx latus*) and Wahoo (*Acanthocybium solandri*) meander looking to feed off the smaller reef fish.

Eleven coral species are common around Saba; *Agaricia* spp., *Colpophyllia* spp., *Diploria labyrinthiformis*, *Diploria strigosa*, *Madracis decactis*, *Millepora* spp., *Montastraea annularis*, *Montastraea cavernosa*, *Porites astreoides*, *Porites porites*, and *Stephanocoenia michelinii*. Of these, *Montastraea annularis* was most dominant overall, followed by *Agaricia* spp., *Millepora* spp. and *Diploria strigosa*.

In deeper areas, the coral communities are dominated by plate corals (*Agaricia* sp.), soft corals such as seafans and Wire Corals (*Ellisella* sp.). The main hard corals on shallower reefs include Mustard Hill Coral (*Porites astreoides*), Brain coral (*Diploria* sp.), various forms of Star coral (*Montastrea* sp.), Flower Coral (*Eusmilia fastiagata*), Maze Coral (*Meandrina meandrites*), Pillar Coral (*Dendrogyra cylindrica*) and the blade form of Fire Coral (*Millepora complanata*). Other coral species often found include Seafans, Seaplumes, gorgonians and Black coral (*Antipathes* sp.) at depths in excess of 20m, particularly at the drop off.

Aside from corals and fish, many other creatures inhabit the reef and other underwater habitats. These include a variety of sponges such as Giant Barrel Sponges (*Xestospongia muta*), Stove-pipe sponges (*Aplysina archeri*), Azure Vase Sponges (*Callyspongia plicifera*), Ball Sponges (*Cinachyra* sp.) and Elephant Ear Sponges (*Agelas clathrodes*). Countless other invertebrates inhabit the reefs such as Conch, Brittle stars, Magnificent Sea Urchin (*Astropyga magnifica*), Zooanthids, Crinoids, Brittle stars, Cork Screw Anemones (*Bartholomea annulata*), Giant anemones (*Condylactis gigantea*), Spiny Lobsters (*Panulirus argus*), Pederson shrimp, Arrow Crab (*Stenorhynchus seticornis*), Decorator Crabs (*Microphrys bicomuta*) and nudibranchs such as the Lettuce Sea Slug (*Tridachia crispate*).

Saba's shore line is an important home to endangered bird species and the Saba National Marine Park is an important feeding ground. For more details see attachment 12 and 17).

List of animal species within the site that are in SPAW Annex II

List of species in SPAW annex II	Estimate of population size	Comments if any
Reptiles: <i>Caretta caretta</i>	not given	
Reptiles: <i>Chelonia mydas</i>	not given	
Reptiles: <i>Eretmochelys imbricata</i>	not given	
Reptiles: <i>Dermochelys coriacea</i>	not given	
Birds: <i>Puffinus lherminieri</i>	not given	
Birds: <i>Sterna antillarum antillarum</i>	not given	
Birds: <i>Sterna dougallii dougallii</i>	not given	
Mammals: <i>Balaenoptera musculus</i>	not given	
Mammals: <i>Balaenoptera physalus</i>	not given	
Mammals: <i>Balaenoptera borealis</i>	not given	
Mammals: <i>Balaenoptera edeni</i>	not given	
Mammals: <i>Megaptera novaeangliae</i>	not given	
Mammals: <i>Eubalaena glacialis</i>	not given	
Mammals: <i>Physeter macrocephalus</i>	not given	
Mammals: <i>Kogia breviceps</i>	not given	
Mammals: <i>Kogia simus</i>	not given	
Mammals: <i>Ziphius cavirostris</i>	not given	
Mammals: <i>Mesoplodon europaeus</i>	not given	
Mammals: <i>Orcinus orca</i>	not given	

Mammals: Pseudorca crassidens	not given	
Mammals: Globicephala macrorhynchus	not given	
Mammals: Peponocephala electra	not given	
Mammals: Lagenodelphis hosei	not given	
Mammals: Stenella attenuata	not given	
Mammals: Stenella frontalis	not given	
Mammals: Stenella longirostris	not given	
Mammals: Stenella clymene	not given	
Mammals: Tursiops truncatus	not given	
Mammals: Stenella coeruleoalba	not given	
Mammals: Grampus griseus	not given	

List of animal species within the site that are in SPAW Annex III

List of species in SPAW annex III	Estimate of population size	Comments if any
Hydrozoa: Milleporidae	not given	
Hydrozoa: Stylasteridae	not given	
Anthozoa : Antipatharia	not given	
Anthozoa : Gorgonacea	not given	
Anthozoa : Scleractinia	not given	
Molluscs: Strombus gigas	not given	
Crustaceans: Panulirus argus	not given	
Reptiles: Iguana iguana	not given	In collaboration with the Accueil Réserve Naturelle St. Barth, a study is on it's way to scientifically establish the Saba Black Iguana as a distinct subspecies of the Green Iguana (Iguana Iguana), only found on Saba

List of animal species within the site that are in the IUCN Red List. IUCN Red List :
<http://www.iucnredlist.org/apps/redlist/search> You will specify the IUCN Status (CR:critically endangered; EN:endangered; VU:vulnerable).

List of species in IUCN red list that are present in your site	IUCN Status	Estimate of population size	Comments if any
Elkhorn coral: Acropora palmata	CR - Critically endangered	not given	
Staghorn coral: Acropora cervicornis	CR - Critically endangered	not given	
Warsaw grouper: Hyporthodus nigritus	CR - Critically	not given	

	endangered		
Hawksbill turtle: <i>Eretmochelys imbricata</i>	CR - Critically endangered	not given	
Leatherback turtle: <i>Dermochelys coriacea</i>	CR - Critically endangered	not given	
Black-capped Petrel: <i>Pterodroma hasitata</i>	EN - Endangered	not given	
Mountainous Star Coral: <i>Montastrea annularis</i>	EN - Endangered	not given	
Boulder star coral: <i>Montastrea faveolata</i>	EN - Endangered	not given	
Bladed Box Fire Coral: <i>Millepora striata</i>	EN - Endangered	not given	
Nassau Grouper: <i>Epinephelus striatus</i>	EN - Endangered	not given	
Barndoor Skate: <i>Dipturus laevis</i>	EN - Endangered	not given	
Winter Skate: <i>Leucoraja ocellata</i>	EN - Endangered	not given	
Fin Whale: <i>Balaenoptera physalis</i>	EN - Endangered	not given	
Coalfish Whale: <i>Balaenoptera borealis</i>	EN - Endangered	not given	
Blue Whale: <i>Balaenoptera musculus</i>	EN - Endangered	not given	
North Atlantic Right Whale: <i>Eubalaena glacialis</i>	EN - Endangered	not given	
Green Turtle: <i>Chelonia mydas</i>	EN - Endangered	not given	
Leaf Coral: <i>Agaricia lamarcki</i>	VU - Vulnerable	not given	
Pillar Coral: <i>Dendrogyra cylindrus</i>	VU - Vulnerable	not given	
Elliptical Star Coral: <i>Dichocoenia stokesii</i>	VU - Vulnerable	not given	
Rough cactus coral: <i>Mycetophyllia ferox</i>	VU - Vulnerable	not given	
Bumpy Star Coral: <i>Montastrea franksi</i>	VU - Vulnerable	not given	
Lined Seahorse: <i>Hippocampus erectus</i>	VU - Vulnerable	not given	
Yellowfin Grouper: <i>Epinephelus flavolimbatus</i>	VU - Vulnerable	not given	
Masked Hamlet: <i>Hypoplectrus providencianus</i>	VU - Vulnerable	not given	
Poey's Grouper, Grouper, White Grouper: <i>Hyporthodus flavolimbatus</i>	VU - Vulnerable	not given	
Seabass, Snowy Grouper, Spotted Grouper: <i>Hyporthodus niveatus</i>	VU - Vulnerable	not given	
Hogfish: <i>Lachnolaimus maximus</i>	VU - Vulnerable	not given	
Cubera Snapper: <i>Lujanus cyanopterus</i>	VU - Vulnerable	not given	
Mutton Snapper: <i>Lutjanus analis</i>	VU - Vulnerable	not given	
Yellowmouth Grouper: <i>Mycteroperca interstitialis</i>	VU - Vulnerable	not given	
Bigeye Tuna: <i>Thunnus obesus</i>	VU - Vulnerable	not given	
Queen Triggerfish: <i>Balistes vetula</i>	VU - Vulnerable	not given	
Marble Grouper: <i>Dermatolepis inermis</i>	VU - Vulnerable	not given	
Giant Manta Ray: <i>Manta birostris</i>	VU - Vulnerable	not given	
Grey Nurse Shark: <i>Carcharias taurus</i>	VU - Vulnerable	not given	
Small-tooth Sand Tiger Shark, : <i>Odontaspis ferox</i>	VU - Vulnerable	not given	

Bigeye Thresher Shark: <i>Alopias superciliosus</i>	VU - Vulnerable	not given	
Dusky Shark: <i>Carcharhinus obscurus</i>	VU - Vulnerable	not given	
Sandbar Shark: <i>Carcharhinus plumbeus</i>	VU - Vulnerable	not given	
Night Shark: <i>Carcharhinus signatus</i>	VU - Vulnerable	not given	
Gulper Shark: <i>Centrophorus granulosus</i>	VU - Vulnerable	not given	
Longfin Mako: <i>Isurus paucus</i>	VU - Vulnerable	not given	
Whale Shark: <i>Rhincodon typus</i>	VU - Vulnerable	not given	
Great White Shark: <i>Carcharodon carcharias</i>	VU - Vulnerable	not given	
Clubnose Guitarfish: <i>Glaucostegus thouin</i>	VU - Vulnerable	not given	
Butterfly ray: <i>Gymnura altavela</i>	VU - Vulnerable	not given	
Great Sperm Whale: <i>Physeter catodon</i>	VU - Vulnerable	not given	
Sperm Whale: <i>Physeter macrocephalus</i>	VU - Vulnerable	not given	
Humpback Whale: <i>Megaptera novaeangliae</i>	VU - Vulnerable	not given	

List of animal species within the site that are in the national list of protected species

List of species in the national list of protected species that are present in your site	Estimate of population size	Comments if any
Various: Various	not given	The fisheries ordinance covers; (a) crustaceans, shellfish and other mollusks, seaweeds, corals, sea mammals, tortoises, star fish and sea urchins; (b) fish roe and hatch (c) hatch and seed of crustaceans and shellfish. The marine environment ordinance covers: Milleporina, Stylasterina, Gorgonacea, Scleractinia and Antipatharia (fire corals, lace corals, soft corals, stony corals and black corals respectively). Marine snails of the species <i>Strombus gigas</i> Turtles: marine reptiles of the species <i>Chelonia mydas</i> (Green turtle, Greenback), <i>Eretmochylus imbricata</i> (Hawksbill turtle) and <i>Caretta caretta</i> (Loggerhead turtle).

d - Human population and current activities

Inhabitants inside the area or in the zone of potential direct impact on the protected area:

	Inside the area		In the zone of potential direct impact	
	Permanent	Seasonal	Permanent	Seasonal
Inhabitants	not given	not given	2000	25000

Comments about the previous table:

Around 25,000 annual visitors to Saba (2010 figures). See Attachment 7.

Description of population, current human uses and development:

The population of Saba (the Sabans) consists of only 2000 people who come from all over the world. The island's small size has led to a fairly small number of island families, who can trace their last names back to around a half-dozen families.

With population centers on the island lying at least 240 m above sea level, direct human impacts on the marine resources are limited. There is little industry on the island and no significant agriculture. Thus, effluents such as pesticide and industrial chemicals are limited.

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 who carry out approximately 30,000 dives.

Fishing within the marine park is limited but becoming a more significant threat given the change in status of neighbouring fishing grounds. Spear fishing in the marine park has become an issue in recent years.

According to island law, all coastal developments must be preceded by an independent environmental impact assessment. However, with future political changes there may be pressure to develop a marina and hotel/dive resort in the southern part of the island at Giles Quarter.

For further details see Attachments 19, 11 and 4.

Activities	Current human uses	Possible development	Description / comments, if any
Tourism	very important	stable	Visitor number have slowly increased over the last 15 years from 20-25,000 visitors per year to 25-30,000 visitors per year.
Fishing	significant	stable	23 people work in agriculture and fisheries, of whom 4 have agriculture as their main source of income. In the past, many fishermen have turned to work in the construction industry (Polunin & Roberts, 1993). However, many of the fishermen still fish recreationally and in total there are perhaps about eighty recreational fishermen. Fishing practices are low impact within the Saba Marine Park because there are relatively few fishermen, low impact techniques are used and commercial boats tend to fish on the Saba Bank.
Agriculture	absent	unknown	
Industry	absent	unknown	
Forestry	absent	unknown	
Others	not specified	not specified	

e - Other relevant features

Since 1972, there has been a rock crushing operation and quarry situated on the south coast of the island. The company pay a nominal fee to the Government to export building materials and also supply local construction materials.

Educational feature:

Education is a very important part of the work of SCF and the Marine Park is a significant resource for local students through to international visitors who come annually on planned education based trips.

Scientific feature:

The marine park provides a scientific resource as a zoned site with endangered habitats, with varying controls on the use of the natural resources.

Research feature:

The Marine Park has been a significant site for scientific research since it's establishment, providing data on fisheries, diver impacts and a range of other topics. For details on monitoring see Attachment 20.

Historical feature:

Little is known about the value of the historical features of the Marine Park.

Archaeological feature:

Little is known about the value of the archaeological features of the Marine Park.

f - Impacts and threats affecting the area

Impacts and threats *within* the area

Impact and threats	level	Evolution In the short term	Evolution In the long term	Species affected	Habitats affected	Description / comments
Exploitation of natural resources: Fishing	very important	increase	unknown	Panulirus argus Lutjanus campechanus Ocyurus chrysurus Strombus gigas Acanthocybium solandri Coryphaena hippurus Thunnus sp.	Coral reefs, seagrasses	Medical students spearfishing as food prices are too high, recreational fishing in the marine park at night, some collection and artisanal fishing. Commercial fishermen targetting the marine park
Exploitation of natural resources: Agriculture	limited	unknown	unknown	-	-	-

Exploitation of natural resources: Tourism	limited	unknown	unknown	-	-	Ver little impact on the natural resources directly.
Exploitation of natural resources: Industry	very important	increase	unknown	-	-	See pollution
Exploitation of natural resources: Forest products	limited	unknown	unknown	-	-	-
Increased population	limited	stable	stable	-	-	Little increase an impact.
Invasive alien species	limited	increase	increase	Most reef fish	Coral reef	Invasie predatory fauna; the Lionfish growing to 36cm in the MPA.
Pollution	limited	increase	increase	Coral reef organisms	Coral reef	Sedimentation Dump pollution (leachates; acids, heavy metals etc), unknown impact St Eustatius oil spill Run off from rock crusher in Fort Bay. Cleaning of commercial vessels in the Marine Park. Soil dumped on near he harbour, near Ladder Bay, 5000 truck loads of raw unstable soil dumped which is washing onto Tent reef. More on oil spills in Attachment 21.
Other	limited	unknown	unknown	-	-	-

Impacts and threats around the area

Impact and threats	Level	Evolution In the short term	Evolution In the long term	Species affected	Habitats affected	Description / comments
Exploitation of natural resources: Fishing	limited	unknown	unknown	Panulirus argus Lutjanus campechanus Ocyurus chrysurus Strombus gigas Acanthocybium	-	-

				solandri Coryphaena hippurus Thunnus sp.		
Exploitation of natural resources: Agriculture	limited	unknown	unknown	-	-	-
Exploitation of natural resources: Tourism	limited	stable	stable	-	-	-
Exploitation of natural resources: Industry	limited	stable	stable	-	-	-
Exploitation of natural resources: Forest products	limited	stable	stable	-	-	-
Increased population	limited	stable	stable	-	-	-
Invasive alien species	very important	unknown	unknown	-	-	Unknown effects on offshore ecosystems. There are invasive species on the island of Saba but this is not relevant to the Marine Park.
Pollution	limited	unknown	unknown	-	-	See pollution above. Difficult to differentiate sources of threats and stresses caused by threats within and outside the area.
Other	limited	unknown	unknown	-	-	-

h - Information and knowledge

Information and knowledge available

As a well established Park there is a fair amount of information available to SCF concerning the marine park. Some of the resources are becoming out dated, others continue to be updated;

Each of the information types described below are available to staff and have been identified via the DCNA Management Success Project or by Kenchington, R. A. (1990) (Managing Marine

Environments, Taylor and Francis, New York.) as important background information for the running of any PA;

Sufficient for the needs of Saba National Marine Park:

Geological maps: Held by local resident, Smith and Roobol

Bathymetric charts: Saba Conservation Foundation, Electronic version, new map of Tent, new map of west side of the marine park.

Nautical chart: Saba Conservation Foundation, GPS

Tide tables: Internet and GPS

Hydrological survey: Saba Conservation Foundation - Ephemeral channels on map.

Topographical maps: Saba Conservation Foundation

Traditional usage: Saba Conservation Foundation - ancient use of island by amer-indians. Collected traditional names of areas on Saba 2013.

GIS: Maps produced 2009

Baseline habitat maps

Socio-economic valuation: Total Economic Value of Nature on Saba

The local recreational and cultural value of nature on Saba

The Tourism Value of Nature on Saba

Mapping the Economic Value of Ecosystems on Saba

Insufficient for the needs of Saba National Marine Park:

Aerial photographs: Google Earth

Not available:

Maps of currents

Community descriptions

Species lists

Status of commercially important species

Status of endangered, threatened and endemic species (Attachment 22 has a global comment)

Digital Satellite Images

Land use plans

List of the main publications

Title	Author	Year	Editor / review
All publications available on the Dutch Caribbean Biodiversity Database. Relevant documents included in Attachments.	Various	2014	http://www.dcbd.nl

Briefly indicate in the chart if any regular monitoring is performed and for what groups/species

Species / group monitored (give the scientific name)	Frequency of monitoring (annual / biannual / etc...)	Comments (In particular, you can describe here the monitoring methods that are used)
Fish	Ongoing	30-40 interviews a month with fishermen regarding fish landings
Fish	Ongoing	100 sites monitored for fish biodiversity in the SNMP.
Lobster larvae	Ongoing	Five sites monitored for the abundance of lobster larvae.
Marine Mammals	Biannual	AGOA marine mammal monitoring

Chapter 4. ECOLOGICAL CRITERIA

(Guidelines and Criteria Section B/ Ecological Criteria) Nominated areas must conform to at least one of the eight ecological criteria. Describe how the nominated site satisfies one or more of the following criteria. (Attach in Annex any relevant supporting documents.)

Representativeness:

The coral reefs of Saba National Marine Park are significant for their structure, the habitat they provide as well as for the animals and plants that live there. The ecological communities represent many of the reef types found in the region.

The Saba National Marine Parks environments, in particular the sea mounts, are important habitats for turtles, sharks and other pelagic megafauna as well as a plethora of reef plants and creatures.

Conservation value:

The habitats within the Saba National Marine Park provide a home and migratory stop over or breeding site for 54 IUCN Red List Species, 10 CITES Appendix I species and 89 Appendix II species (2011 data, Attachment 12).

Along with neighboring MPA's the Saba National Marine Park borders the French AGOA marine mammal sanctuary, offering protection to all marine mammals, from the smaller dolphin species to the larger Humpback Whales.

As the entire coastline of Saba to a depth of 60m falls within the marine park, permanent residents as well as migratory species are offered protection from the threats they face.

Rarity:

The coral reef habitats found within The Saba National Marine Park have been depleted across their range throughout the wider Caribbean (Attachment 22). Coral reefs and seagrass beds are globally threatened by anthropogenic stresses.

The seamounts found within the Saba National Marine Park are unique to the region.

Naturalness:

Saba is surrounded by relatively deep waters in excess of 300-500m depth. This provides a natural buffer from anthropogenic threats from neighboring islands such as pollution, which may otherwise decrease the naturalness of the environment.

The dramatic topography of Saba and the reduced opportunity for development means terrestrial sources of stress on the marine organisms of the park have been limited.

These two factors mean that the marine habitats of Saba have been protected from human induced change and biophysical disturbance has been kept to a relatively low level.

Critical habitats:

The coral reef, seagrass and benthic habitats within the Saba Bank Marine Park provide a home and migratory stop over or breeding site for 54 IUCN Red List Species, 32 SPAW Annex II species and 246 Annex III species. These include hard and soft corals, marine mammals, endangered sea turtles, sharks and many fish species including grouper. The marine park was also once home to conch populations, which may have a chance to recover.

Coral reefs and seagrass beds are globally threatened by anthropogenic stresses.

Diversity:

The coral reef and seagrass habitats of the Saba National Marine Park are home to many endangered species, as listed above. It is also home to many more species of plants and animals that are not (or not yet) classified as endangered. This adds to the diversity of the area, both in terms of the actual number of different species and the diversity of the populations of each species. Often the 'less endangered' species have value as flagship species for conservation and the local human population.

Connectivity/coherence:

The Saba National Marine Park is relatively close to other marine parks; The Saba Bank National Marine Park, Man O War Marine Park (St Maarten), Reserve Natural St Martin and St Eustatius National Marine Park, which may possibly act as seeding or receiving grounds for species with free swimming larval stages of their life cycles. The Saba National Marine Park staff are currently working closely with the AGOA marine mammal sanctuary initiative to establish a large, cohesive protected site for marine mammals in the region. It is clear that marine mammals move between these various islands, including sperm whales and humpback whales (Attachment 13).

The deep waters around the marine park are likely to act as a ecological and biological corridors.

To the north of the island, the Saba National Marine Park is directly connected to the "Saba National Land Park", a 43 ha pie-shaped tract of land. Formerly owned by the Sulfur Mining Company, was officially turned over to the Saba Conservation Foundation in 1999. The boundaries of the land park stretch from the high tide limit of the marine park to the summit of Mount Scenery, encompassing all of the major terrestrial habitats on the island. This is the only place on the island where protection is offered to habitats from the summit to the 60m depth contour.

Resilience:

As a protected site, the Saba Bank National Marine Park will provide a source of juveniles for nearby marine environments. This is particularly the case for corals and other invertebrates that have a larval stage in their life cycle where they are dispersed into the water column. Many of the coastal marine habitats of neighboring islands are under threat from pollution, sedimentation and development, making the Saba National Marine Park a critical site for aiding recovery. The habitats and species within the Saba National Marine Park are relatively resilient to natural threats because of relatively few local terrestrial and marine stresses.

Chapter 5. CULTURAL AND SOCIO-ECONOMIC CRITERIA

(Guidelines and Criteria Section B / Cultural and Socio-Economic Criteria) Nominated Areas must conform, where applicable, to at least one of the three Cultural and Socio-Economic Criteria. If applicable, describe how the nominated site satisfies one or more of the following three Criteria (Attach in Annex any specific and relevant documents in support of these criteria).

Productivity:

The Saba Bank National Marine Park helps conserve, maintain and restore natural processes at the habitat and species level. There is regular exchange for feeding and reproduction and continuous movement of water and animals between reefs, seagrass and benthic habitats within and adjacent to the Saba National Marine Park.

This maintains processes and provides a wide variety of natural resources that are used by the local human population. Processes such as dispersal of juveniles and resources such as fish that are extracted from adjacent waters.

Cultural and traditional use:

Only Saba residents are allowed to fish within the Saba National Marine Park. Fishing is allowed in approximately two-thirds of the Park. Most fishing is done with a traditional hook and line, nets are not used in the Park. Some trolling takes place.

Socio-economic benefits:

In 1995, a first economic valuation was completed, The Saba Marine Park, as it was then, through its management and attraction to visitors generated \$1.9 million, almost a quarter of the islands GDP.

Income generation, in order of importance with the largest contributor first, came from dive tourists, yacht tourists, cruise ship tourists, use of the hyperbaric chamber facility, fishing, donations and research.

With increases in visitors and development of the tourism product since the mid 1990's this figure may well have increased in real terms and as a percentage of GDP.

In 2014, a new, comprehensive socio-economic valuation study "What is Saba's Nature worth" was completed. The study included calculations of cultural and educational as well as tourism values of

nature (fishery value is mostly generated from the off shore Saba Bank and not in the Saba National Marine Park waters) and produced detailed maps of the value of both the marine and terrestrial environment. 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 that the highest value marine areas are effectively protected in the no-take zones of the marine park.

These values contrast sharply with the values calculated in 1996, and show a more than doubling of value over 18 years. This can be attributed to the effectiveness of the Saba Marine Park.

For more information see Attachment 4 and 28

Chapter 6. MANAGEMENT

a - Legal and policy framework (attach in Annex a copy of original texts, and indicate, if possible, the IUCN status)

National status of your protected area:

The Saba National Marine Park is legally protected through a Ministerial Decree signed on 25th June 1987. Subsequent ordinances legislate for zoning/fees, anchoring, moorings, and fisheries. See Attachment 8.

Internationally, Saba is also party to;

The CITES convention

Cartegena Convention and its SPAW Protocol

Inter American Convention for the Protection and Conservation of Sea Turtles (IAC)

Convention On Biological Diversity (CBD)

Convention On The Conservation Of Migratory Species Of Wild Animals (“Bonn Convention” or CMS)

Ramsar Convention On Wetlands (Ramsar)

International Convention For The Prevention Of Pollution From Ships

These international agreements, signed by the Kingdom of the Netherlands, are also binding for the Caribbean Netherlands, Curacao, and St. Maarten (and, with the exception of the IAC, also for Aruba) and the island governments are required by law to implement the provisions of the international treaties. The Kingdom Government (for all practical purposes the government of the Netherlands) is ultimately responsible for the islands' compliance and has the authority to annul any decisions by the islands that are in contravention of binding international agreements.

IUCN status (please tick the appropriate column if you know the IUCN category of your PA):

II

b - Management structure, authority

The island government of Saba, responsible for the management of 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 management of the marine park.

c - Functional management body (with the authority and means to implement the framework)

Description of the management authority

The Saba Conservation Foundation (SCF) is a non-governmental organisation established in 1987 with a mission to preserve and manage Saba's natural and cultural heritage. It is committed to the idea that a stronger island economy will result from the sustainable use of Saba's rich and virtually unspoiled resources. SCF is the only organisation on Saba with a mandate for environmental protection. In order to achieve its goal, the SCF manages a network of hiking trails, encourages the preservation of historic buildings, and promotes supportive scientific research and education. The SCF also manages the Saba National Marine Park and oversees the operation of the Saba Bank National Marine Park. The SCF is responsible for meeting the major expense of nature management.

The foundation is non-profit organisation, relying on fee-generated income, grants and government subsidies. Saba Conservation Foundation has its base in Fort bay next to the harbour on the South Coast of Saba and also has a ticketing, souvenir sales and information office in the centre of Windward side near the trailhead for Mt Scenery.

Means to implement the framework

The Saba Conservation Foundation (SCF) has been operational as an organization since 1987. Over time, the organization has expanded the scope of its responsibilities and has grown as an organization. The SCF has a permanent Board of six Directors, which oversees Saba National Marine Park, Saba Terrestrial Park and Trails activities, the information centre and shop and directs overall strategy. Elected Board members have additional responsibilities in accordance with respective positions. Board meetings take place intermittently with minutes taken, which were circulated to the attendees. There also ad hoc management committee meetings.

SCF staff has changed considerably over recent years, with three members, including the Manager, having been at the organisation more than 4 years. There are now several well qualified and experienced staff and dedicated resources for the management of Saba National Marine Park.

SCF's mission is to contribute to the sustainable development of Saba through the preservation and sensible use of the island's natural and cultural resources.

A CAMPAM capacity assessment is in Attachment 23. An out of date protecetd area analysis in comparison to other Caribbean parks in included in Attachment 24.

d - Objectives (clarify whether prioritized or of equal importance)

Objective	Top priority	Comment
To preserve and manage the natural environment of Saba both on land and in the sea.	No	
To ensure that areas that are exceptionally scenic, host endemic species of plants and animals, or have unique geological, cultural and historical values are preserved and managed for present and future generations	No	
To maximize the economic, educational, recreational and scientific potential of natural, cultural and geological areas to the benefit of the people of Saba and those who visit, in so far as this does not conflict with the objectives of conservation.	No	
To preserve buildings, monuments and sites of historic, archaeological and cultural significance on Saba.	No	

e - Brief description of management plan (attach in Annex a copy of the plan)

The Saba Marine Park Management Plan was written in 1999 and is in need of updating, see Attachment 2.

The duration and the review date were not included in the document.

Management plan - date of publication

: 6/9/99

Management plan duration

: 5

Date of Review planned

: 3/3/15

f - Clarify if some species/habitats listed in section III are the subject of more management/recovery/protection measures than others

Habitats

Marine / costal / terrestrial ecosystems	Management measures	Protection measures	Recovery measures	Comments/description of measures

Mangroves	no	no	no	
Coral	yes	yes	yes	Active patrolling, legislation, monitoring, research and education measures are targeted towards the protection of Saba's coral reefs. Direct protection measures include the administration, maintenance and management of a mooring and associated fees system. Coral transplantation projects are ongoing in the marine park.
Sea grass beds	no	no	no	
Wetlands	no	no	no	
Forests	no	no	no	
Others	no	no	no	

Flora

Species from SPAW Annex 3 present in your area	Management measures	Protection measures	Recovery measures	Comments/description of measures
Hydrocharitaceae: <i>Thalassia testudinum</i>	no	no	no	
Hydrocharitaceae: <i>Halophila baillonis</i>	no	no	no	
Hydrocharitaceae: <i>Halophila decipiens</i>	no	no	no	
Hydrocharitaceae: <i>Halophila engelmannii</i>	no	no	no	

Fauna

Species from SPAW Annex 2 present in your area	Management measures	Protection measures	Recovery measures	Comments/description of measures
Reptiles: <i>Caretta caretta</i>	no	no	no	Turtles pass through the marine parks' waters. They are subject to relevant legislation and protection but are not the target of specific management, protection or recovery measures.
Reptiles: <i>Chelonia mydas</i>	no	no	no	Turtles pass through the marine parks' waters. They are subject to relevant legislation and protection but are not the target of specific management, protection or recovery measures.
Reptiles: <i>Eretmochelys imbricata</i>	no	no	no	Turtles pass through the marine parks' waters. They are subject to relevant legislation and protection but are not the target of specific management, protection or recovery measures.

Reptiles: Dermochelys coriacea	no	no	no	Turtles pass through the marine parks' waters. They are subject to relevant legislation and protection but are not the target of specific management, protection or recovery measures.
Birds: Puffinus lherminieri	yes	yes	yes	Seabirds of Saba are part of an ongoing management, protection and recovery project operated by a consultant.
Birds: Sterna antillarum antillarum	yes	yes	yes	Seabirds of Saba are part of an ongoing management, protection and recovery project operated by a consultant.
Birds: Sterna dougallii dougallii	yes	yes	yes	Seabirds of Saba are part of an ongoing management, protection and recovery project operated by a consultant.
Mammals: Balaenoptera musculus	yes	yes	no	
Mammals: Balaenoptera physalus	yes	yes	no	
Mammals: Balaenoptera borealis	yes	yes	no	
Mammals: Balaenoptera edeni	yes	yes	no	
Mammals: Megaptera novaeangliae	yes	yes	no	
Mammals: Eubalaena glacialis	yes	yes	no	
Mammals: Physeter macrocephalus	yes	yes	no	
Mammals: Kogia breviceps	yes	yes	no	
Mammals: Kogia simus	yes	yes	no	
Mammals: Ziphius cavirostris	yes	yes	no	
Mammals: Mesoplodon europeus	yes	yes	no	
Mammals: Orcinus orca	yes	yes	no	
Mammals: Pseudorca crassidens	yes	yes	no	

Mammals: Globicephala macrorhynchus	yes	yes	no	
Mammals: Peponocephala electra	yes	yes	no	
Mammals: Lagenodelphis hosei	yes	yes	no	
Mammals: Stenella attenuata	yes	yes	no	
Mammals: Stenella frontalis	yes	yes	no	
Mammals: Stenella longirostris	yes	yes	no	
Mammals: Stenella clymene	yes	yes	no	
Mammals: Tursiops truncatus	yes	yes	no	
Mammals: Stenella coeruleoalba	yes	yes	no	
Mammals: Grampus griseus	yes	yes	no	
Species from SPAW Annex 3 present in your area	Management measures	Protection measures	Recovery measures	Comments/description of measures
Hydrozoa: Milleporidae	yes	yes	no	
Hydrozoa: Stylasteridae	yes	yes	no	
Anthozoa : Antipatharia	yes	yes	no	
Anthozoa : Gorgonacea	yes	yes	no	
Anthozoa : Scleractinia	yes	yes	yes	Some coral transplantation work takes place in the Marine Park.
Molluscs: Strombus gigas	yes	yes	no	
Crustaceans: Panulirus argus	yes	yes	no	
Reptiles: Iguana iguana	yes	yes	no	

g - Describe how the protected area is integrated within the country's larger planning framework (if applicable)

The Saba National Marine Park is one of the National Parks of the Caribbean Netherlands as recognized in the Nature Policy Plan for 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.

h - Zoning, if applicable, and the basic regulations applied to the zones (attach in Annex a copy of the zoning map)

Name	Basic regulation applied to the zone
Multiple Use	A multiple use zone, accommodating both fishing and diving but with limited emphasis on diving. All traditional fish techniques are permitted in this area except spear fishing while using SCUBA.. A multiple use zone, situated along the coast from Torrens Point (17 38.70 N, 63 15.18 W) to Fort Bay (17 36.90 N, 63 15.08 W), measured along Flat Point,
Recreational diving zones	Recreational diving zones, fishing, spearfishing, trap fishing and anchoring are not permitted. Five recreational diving zones, situated along the coast, from Tent Bay (17 37.00 N, 63 15.30 W) to Ladder Bay (17 37.83 N, 63 15.50 W), measured in northern direction; surrounding Diamond Rock (17 38.81 N, 63 15.40 W); surrounding Man of War Shoal (17 38.77 N, 63 15.35 W); at and surrounding the undersea mountain west of Ladder Bay (17 37.94 N, 63 26.43 W); and situated at and surrounding the undersea mountain west of Well's Bay (17 38.70 N, 63 15.91 W),
Anchoring	Anchorage zones, where yacht moorings have been placed for the safe anchoring of visiting boats. Three anchoring zones, situated along the coast, from Fort Bay (17 36.90 N, 63 15.08 W) to Tent Bay (17 37.00 N, 63 15.30 W); in Ladder Bay, situated along the coast from 17 37.83 N, 63 15.50 W to 17 37.95 N, 63 15.43 W; and in Well's Bay, situated along the coast 17 38.37 N, 63 15.23 W to 17 38.48 N, 63 15.22 W,
Recreational all purpose	All purpose recreational zone, which incorporates part of the anchoring zone and is intended to accommodate boating, swimming, snorkelling, diving and fishing.. An all-purpose recreational zone, situated along the coast from the Ladder Bay anchorage (17 37.95 N, 63 15.43 W) to Torrens Point (17 38.70 N, 63 15.18 W).

Comments, if necessary

No fishing is permitted in the recreational diving zones except line fishing from shore and except trolling insofar this poses no danger to divers in the water.

The zoning system is currently under review.

See Attachment 9

i - Enforcement measures and policies

Verbal warnings are frequently given by SCF staff 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 Saba National Marine Park. These issues range from pollution, sedimentation, development and the 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.

Within the MPA there are three formal patrols a week, each for three hours. Patrolling for enforcement and surveillance also take part on an ad-hoc basis as staff spend time in the marine park on other activities such as mooring maintenance.

j - International status and dates of designation (e.g. Biosphere Reserve, Ramsar Site, Significant Bird Area, etc.)

International status		Date of designation
Biosphere reserve	no	
Ramsar site	no	
Significant bird area	yes	1/1/07
World heritage site (UNESCO)	no	
Others:	no	

Comments

Important Bird Area: Saba Coastline includes all areas from the waterline to 400 meters inland around the perimeter of this small island. Because Saba's coast is composed solely of cliffs, Red-billed Tropicbirds can be found all around the island. Saba has an internationally important breeding colony of Red-billed tropicbirds, which represents about 40% of the Caribbean population. This habitat also is appropriate for Audubon's Shearwater, a species which is much more difficult to detect but breeds on the island. The IBA should include Rainforest Ravine, part of the proposed Saba National Land Park, the only site where nesting of Audubon's Shearwater has been confirmed in recent decades. The only human settlements along the coast are at Fort Bay, where a dock, several buildings, a rock quarry, and landfill exist. It is also a Tropicbird research site.

k - Site's contribution to local sustainable development measures or related plans

-

l - Available management resources for the area

Ressources		How many/how much	Comments/description
Human ressources	Permanent staff	8	There have been significant changes to staff throughout 2013
	Volunteers	100	
	Partners	19	
Physical ressources	Equipments	Staff have access to a range of equipment for communication, science, diving and operations at sea, including a patrol boat and drilling equipment for the placement	For further details see Attachment 10

		of moorings	
	Infrastructures	SCF has an office with a shop and multimedia room. New storage and a workshop were built in 2013. The organisation also has a ticket office / trail shop in Windwardside, the main administrative settlement.	
Financial ressources	Present sources of funding	Grants, User Fees, Donors	The annual budget for the WHOLE of The Saba Conservation Foundation for 2014 was \$578,000.
	Sources expected in the future	DCNA trust fund income, Grants, Fees, Donors	
	Annual budget (USD)		

Conclusion Describe how the management framework outlined above is adequate to achieve the ecological and socio-economic objectives that were established for the site (Guidelines and Criteria Section C/V).

The management framework above allows for the development and consolidation of the site as a protected area. Although human resource capacity has been restricted in the past, the current staff have the capacity carry out all necessary operational duties, including management, patrolling, maintenance, law enforcement, working with stakeholders, research, monitoring education and communication as well as administrative tasks. Projects are also undertaken on an ad hoc basis.

The work carried out addresses all of the objectives set out by Saba Conservation Foundation for the management of The Saba National Marine Park. There is of course space for progression and growth within the framework, especially with respect to the continuity of the human resource capacity. This will allow consistency in the work carried out to address the stated objectives.

Chapter 7. MONITORING AND EVALUATION

In general, describe how the nominated site addresses monitoring and evaluation

The staff along with volunteers and consultant researchers carry out eight different monitoring programmes which keep a record of various aspects of the environment in 2013. These provided data for analysis on island and by international organisations. The monitoring programmes focus on human use of the marine environment, marine mammals and fisheries.

In addition to environmental monitoring, the Saba Conservation Foundation has taken part in the Dutch Caribbean Nature Alliance Management Success Project for the last 10 years. The management success project is an ongoing DCNA project designed to measure the management effectiveness of each of the park management organizations in the Dutch Caribbean. The management success project has developed a tool for collecting data using objective indicators to measure 'success' across a broad spectrum of protected area management tasks and activities.

Ultimately, the management success project can be used as a model for park organizations to improve accountability, transparency and professionalism.

More details on monitoring in Attachment 20.

What indicators are used to evaluate management effectiveness and conservation success, and the impact of the management plan on the local communities

Indicators by category	Comments
<i>Evaluation of management effectiveness</i>	
DCNA Management Success Project	Graphics and detailed analysis of management effort enables redirection of management effort if necessary. The most recent management success report is available in Attachment 25.
Threats vs Effort	Independent evaluation of the threats facing the park vs effort spent addressing the threats.
Time distribution	Managers personal log of time distribution compared to the organisations outputs.
<i>Evaluation of conservation measures on the status of species populations within and around protected area</i>	
Time series data	Data is collected, as outlined in the monitoring section, on a number of important species. This is analysed by the foundation and by international organisations, the outputs of which are available to SCF.
Fish landings	
Fish biodiversity	
Conch surveys	
AGOA Marine Mammal Monitoring	
<i>Evaluation of conservation measures on the status of habitats within and around the protected area</i>	
Mapping of reefs	
<i>Evaluation of conservation measures on the status of ecological processes within and around the protected area</i>	
Lobster larvae	Number and distribution of larvae
Lionfish predators	
<i>Evaluation of the impact of the management plan on the local communities</i>	
Visitor numbers	
Yacht visitation	
Dive numbers per site	

Chapter 8. STAKEHOLDERS

Describe how the nominated site involves stakeholders and local communities in designation and management, and specify specific coordination measures or mechanisms currently in place

Stackeholders involvement	Involvement	Description of involvement	Specific coordination measures	Comments (if any)
Institutions	yes	SCF works closely with IMARES on various aspects of research in the Saba National Marine Park.		
Public	yes	Regular public presentations and events. Press releases, TV programs and Radio shows.		Staff are also very active with social media with 2024 Facebook friends for SCF.
Decision-makers	yes	Staff work with a host of decision makers. Mostly ad hoc meetings, more frequently with some than others. Tours are also given to ministers and other groups.		Work with a variety of decision makers; Building and zoning department: Coastal Construction Public works: Development Prosecutors office: Ordinance enforcement Harbour office: Harbour issues Coast Guard: Enforcement Tourism department (Govt): Input into tourism info Education department (Govt): Education development University: Marine work Schools: Input into school awareness programmes Police: Work on enforcement Dutch Ministry of Infrastructure and the Environment (Rijkswaterstaat): General MPA work
Economic-sectors	yes	Work with the main groups with an active economic interest in the marine park; Fisherfolk: MPA Management Dive Operators: Issues		

		with the hyperbaric chamber, dive visitors. Tourism association: Overlapping issues. Construction Industry: General information exchange.		
Local communities	yes	Work with fishermen and schools, local youth groups. Includes meetings, presentations, tours of the marine park.		
Others	yes	Work with other NGOs and education organisations including; Religious groups Volunteer groups Univeristies and academic centres WIDECAST CaMPAM Coral List DCNA International Coastal Cleanup Broadreach (education, catermeran of students) Seamester		

Chapter 9. IMPLEMENTATION MECHANISM

Describe the mechanisms and programmes that are in place in regard to each of the following management tools in the nominated site (fill only the fields that are relevant for your site)

Management tools	Existing	Mechanisms and programmes in place	Comments (if any)
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Public awareness, education, and information dissemination programmes	yes	<p>The SCF Facebook page is maintained with video and photograph updates as well as live streams of information on Facebook and Twitter. There are frequent press releases on relevant stories and new outreach materials are developed every year. Annually five editions of the Saba Sparks newsletter are sent out to 3600 people on the SCF contact list. A range of other events are coordinated by SCF including presentations, guided tours of the marine park for a variety of groups and individuals and coastal clean up events. Education programmes are operated through The Sea and Learn, which involves 200 tourists and locals annually. Dive Guide Orientations are run for new dive professionals on the island when they arrive. Junior ranger courses and snorkel club continue to be popular with local children. IN 2013 a junior ranger exchange also took place. A dedicated Environmental Education school programme covers topics including the Marine Park involving 150 participants annually. In addition, staff members visit schools to give presentations on relevant marine related topics. Students also have the opportunity to take part in the summer intern programme, gaining experience working with SCF for five ours a day, five days a week for a month. Students are also able to gain SCUBA diving certifications through the ‘Youth environmental leadership programme’ run by SCF.</p>	
Capacity building of staff and management	yes	<p>The staff of Saba Conservation Foundation frequently take part capacity building exercises relevant to the management of the marine park. This includes international symposia and meetings such as IMPAC and EU overseas territories meetings as well as specific training on species, maintenance and disaster response. Staff also take part in exchanges with other protected area management organisations in the DCNA, and routinely participates in the Agoa marine mammal surveys</p>	
Research, data storage, and analysis	yes	<p>Saba Conservation Foundation carries out it's own research and analysis when the need and capacity is sufficient. Data from monitoring programmes are also contributed to international databases. Other Institutions, NGO's and researchers occasionally carry out work in the MPA and their work is stored centrally by SCF staff. More recently The DCNA has instigated a central database for the storage of all monitoring and research outputs.</p>	
Surveillance and enforcement	yes	<p>There are three formal patrols in the marine park each week, each for three hours. Surveillance and enforcement also play a part in every day activities when staff are in the field working with stakeholders or carrying out maintenance tasks. Staff are active in handing out verbal and written warnings and prosecutions are followed up as necessary. The manager is on call for emergencies 24 hours a day.</p>	

Participation of exterior users	yes	SCF staff continue to meet with users as required. Communications take place not only through formal and informal meetings but also through a variety of media (see above). The opinions of exterior users are considered carefully in the management of the park.	
Alternative and sustainable livelihoods	yes	SCF has worked on renewable energies to supply the office with electricity. This includes a wind turbine and solar panels.	
Adaptative management	yes	The DCNA Management Success Project aims to provide detailed information on the successes and challenges of each park in the Dutch Caribbean (including SNMP), including the external environment (context), issues and threats and the park operational management. Management planning and an institutional review will hopefully take place at some point in 2014/15, when capacity allows. The monitoring of activity through the Management Success Project, and management planning will facilitate management that can be adapted to fit with current threats and capacities. Currently adaptive management is not defined and is carried out in situ by the manager and the board of SCF.	

Chapter 10. OTHER RELEVANT INFORMATION

Contact addresses

	Name	Position	Contact adress	Email adress
who is submitting the proposal (national focal point)	HOETJES Paul	Policy Coordinator Nature		Paul.Hoetjes@rijksdienstcn.com
who prepared the report (manager)	Wulf Kai	Manager	P.O. Box 18, The Bottom, Saba, Dutch Caribbean	sabapark.manager@gmail.com

Date when making the proposal

: 7/7/14

List of annexed documents

Name	Description	Category	
Attachment 1 Leeward Islands map		Geographical map	View
Attachment 2 SNMP Management Plan 1999		Management plan	View
Attachment 3 Buchan 1998 Saba Report		Cultural and socio-economic criterias	View

Attachment 4 Economic and social Study	Includes 5 documents	Cultural and socio-economic criterias	View
Attachment 5 Volcanology		Physical features	View
Attachment 6 Dr J Rahn Seamount Maps		Geographical map	View
Attachment 7 Tourism Plan		Cultural and socio-economic criterias	View
Attachment 8 Legislation	Includes 9 documents	Legal and policy framework	View
Attachment 9 Zone maps	Includes 4 documents	Zoning map	View
Attachment 10 Physical resources		Others	View
Attachment 11 Socio economic study		Cultural and socio-economic criterias	View
Attachment 12 Conservation Species	Includes 5 documents	Ecological criterias	View
Attachment 13 Marine Mammals	Includes 3 documents	Ecological criterias	View
Attachment 14 Debrot 2013 Whale Shark observations		Ecological criterias	View
Attachment 15 Bathymetry		Geographical map	View
Attachment 16 Bak 1977 Coral reef zonation		Ecological criterias	View
Attachment 17 Important Bird Areas		Ecological criterias	View
Attachment 18 SCF dive brochure		Publications	View
Attachment 19 Integrating economics		Cultural and socio-economic criterias	View
Attachment 20 Monitoring review		Others	View
Attachment 21 Oil pollution		Others	View
Attachment 22 Status of reefs		Ecological criterias	View
Attachment 23 CaMPAM capacity assessment 2011		Others	View
Attachment 24 CARNARI management report.		Others	View
Attachment 25 DC-Management Success data report		Others	View
Attachment 26 NaturePolicyPlanSaba_Oct 2003		Legal and policy framework	View
Attachment 27: Nature Policy Plan for the Caribbean Netherlands		Legal and policy framework	View