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

**Man O War Shoal Marine Park**  
The Kingdom of the Netherlands

Date when making the proposal : 9/2/14

**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: Man O War Shoal Marine Park**

Country: The Kingdom of the Netherlands

**Contacts**

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**SUMMARY**

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**ANNEXED DOCUMENTS**

7 - Lagoon2013.pdf  
6 - Water Quality Testing december 2013.pdf  
5 - Working Paper Economic Valuation SXM Reefs.pdf  
4 - Report SepOct2013.pdf  
3 - St Maarten Proposed Land Parks Management Plan 2009.pdf  
1 - Man of War Shoal Marine Park Management Plan 2011.pdf  
2 - St Maarten Marine Park Management Plan 2007.pdf  
8 - climate change.pdf  
9 - Mullet Pond report.pdf  
10 - Tilapia Report (2).pdf  
11 - Press Release Man of War Shoal Marine Park.pdf

# Chapter 1. IDENTIFICATION

**a - Country:**

The Kingdom of the Netherlands

**b - Name of the area:**

Man O War Shoal Marine Park

**c - Administrative region:**

St. Maarten

**d - Date of establishment:**

12/30/10

**e - If different, date of legal declaration:**

not specified

**f - Geographic location**

*Longitude X:* 18.001958

*Latitude Y:* -63.047061

**g - Size:**

31 sq. km

**h - Contacts**

*Contact address:* Wellsburg Street Unit 1 Apt# 15-16. Cole Bay, St. Maarten Dutch West Indies

*Website:* [naturefoundationsxm.org](http://naturefoundationsxm.org)

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**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 :**

The boundaries of the Man o War Shoal Marine Park are between 18N and 17-57.0 N and 63-01.03 W and 63-04.05 W, in 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 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. The draft ordinance also clashed with the Minister’s responsibilities for ensuring safe waterways and anchorages.

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.

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

The Man o War Shoal 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 species listed in other conservation initiatives.

Man O War Shoal Marine Park is a popular area for divers. Numerous dive operators work with tourists on St Maarten, bringing in significant amounts of income to the economy annually. Proselyte reef is a favoured dive site, being the site of a wreck of a Spanish warship that sank in 1801. Traditional fishing methods are also used within the park boundaries.

Man O War Shoal Marine Park was legally recognized in 2010 and Nature Foundation St Maarten has a mandate to manage the site, along with seven other dive sites outside the park and a 100m radius around those sites. Established in 1997, Nature Foundation St Maarten is an experienced nature management organization, and continues to work effectively with stakeholders in the pursuit of its conservation goals.

The Man O War Shoal Marine Park is a hub for ecological and management networking between neighboring marine parks and their management organisations in St Martin (French side), Saba and St Eustatius as well as other neighboring islands. The management body of Man O War Shoal Marine Park, Nature Foundation St Maarten, is also a key part of a wider regional networking initiative - The Dutch Caribbean Nature Alliance.

St Maartens population 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 we face with regards to coastal resource management. The Man O War Shoal 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:**

31 sq. km

**Global comment for the 3 previous fields (optional):**

The Man of War Shoal Marine Park encompasses 31 sq Km of biologically diverse Coral Reef, Seagrass, Sandy Bottom and Open Ocean Ecosystems.

**b - Physical features****Brief description of the main physical characteristics in the area:**

Most reefs within the Man O War Shoal Marine Park are patch reefs, small isolated reef areas that develop from the substrate. The upper reef slopes have spur and groove features; coral ridges alternated by sand channels. The spurs are typically dominated by massive coral species. Algae, sponges and corals have established themselves on the spurs. The sandy groove areas support little coral or algae growths because of the mobile, scouring nature of the sand. The grooves often open out to an area of rubble and coarse sand.

**Geology:**

Very little is known about the specific geology of the Man O War Shoal Marine Park. However, there is more information about St Maarten and its neighbouring islands, which are often described as having geologically evolved in similar ways.

The islands of Saint Martin and Saint Bartholomew consist of andesitic tuffs and tuff-breccias of Middle and Late Eocene age, respectively, which have been intruded by hypabyssal basalt, andesite, and quartz diorite of a slightly later age. No older "basement rocks" are present as previously supposed. During the late Eocene and early Oligocene, these islands are believed to have been the sites of active volcanoes whose centers of activity shifted from east to west. The tuff series were tilted and faulted as a result of the volcanic activity and on St. Martin they were extensively metamorphosed.

By the end of the Oligocene, the area had been eroded to the roof level of the intrusive rocks and the Oligocene-Miocene limestone and marls were deposited unconformably on the tuffs. On Anguilla, limestone of a similar age covers the entire island except for two small outcrops of tilted tuffs and basalt.

At some later date, the limestones were gently folded, and, during the Pliocene and Pleistocene, the islands were probably connected to form one large island. The area is now submerged to form the Anguilla bank with the mountainous portions being the present islands.

*R. A. Christman (1951), Geology Of St. Bartholomew, St. Martin, And Anguilla, Lesser Antilles, U. S. Geological Survey, Denver Federal Center, Denver, Colo. Princeton Investigation Of Caribbean Geology Number 6. Received June 15, 1951.*

**Soil:**

N/A

**Topography:**

N/A

**Bathymetry:**

Man O War Shoal Marine Park is located on the edge of an undersea plateau, known as the Anguilla Bank, where depths generally do not exceed 36m. This is shared with St Barthélemy and Anguilla. The Southern edge of the Man O War Shoal Marine Park dips down into the St Barthelemy Channel, with depths within the boundaries

of the marine park reaching down to 80m (Attachment 2).

The top of the Prosetylyte Reef Complex, known as Spanish Rock, is at 3m depth. Rock outcrops, spur and groove formations, canyons and sandy bottoms make for a varied topography around the reef.

#### **Hydrodynamics:**

St Martin and the neighbouring 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 centred 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  $33 \pm 10.9$  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 of the St Barthelemy Channel are thought to have some influence on the environment and ecology of the Man O War Shoal Marine Park.

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:**

The near-by island of St Maarten has some old volcanic features, the centre of the island being mountainous with isolated peaks reaching 400m height.

Little is known about the volcanic influences on the geology in the Man O War Shoal Marine Park.

#### **Sand dunes:**

N/A

#### **Underwater formations:**

The main underwater formations are best described in relation to their dive site names;

In the boundaries of Man O War Shoal Marine Park, shallow spur and groove reefs can be found at 'Spanish Rock' (3-8m). At 'Molly BeDay' dive site a large rock and smaller boulders show considerable coral cover at depths down to 20m. 'Hen and Chick' is a series of rocks with a mini sub-marine wall dropping down 20+m to a sandy bottom, giving the area the appearance of a crater.

The Maze reef offers some mini-cave diving where turtles, rays and large French Angelfish are common. Long submarine canyons run parallel to each other at depths of 20m at a site known as Time Tunnels,. The 'Alleys' is a series of rock formations with a cave at their base. Further south is 'Cable Reef' with more caves and an abundance of fish life.

'Fish bowl' reef is a coral garden. 'Little Sister' is a reef formation lying in +/-30m of water, in the middle of a large sandy area. A deep reef – 'Isabella Reef' lying in 35+m of water, is the home to large stingrays, Garden Eels (*Heteroconger halis*), lobsters and giant tube sponges.

A dive site known as 'One Step Beyond' is one of the larger patch reefs of St Maarten. Staghorn Coral and many other coral species are home to fish in large quantities. At +/-30m depth, barracuda, moray eels, turtles, and lobster can be found.

#### **Others:**

The monthly average sea surface temperature ranges from 25°C in January-March to 29°C in August-November. Visibility ranges from 15m to 30+m. There are usually two high tides and two low tides every day in St Maarten, with about six hours between high tide and low tide. The average tidal range is around 45cm.

St Maarten lies within the Northeast Trade Wind zone, which causes wind swell for much of the year. Waves produced by the wind are generally highest from June to July and from December to March when the wind speeds are highest. Wave direction varies according to the time of year. Waves approach from a predominantly easterly direction. For this reason, the waves are highest on the east or windward coasts (Man O War Shoal Marine Park is

on the south east of the island) where average wave height is more than 1 m (3 ft). On the leeward coasts, average wave height is usually less than 0.3 m (1 ft). Wave energy is diffused to some extent by the shallower parts of the Proselyte Reef Complex.

Waves, known as ground swell are produced by low pressure weather systems at sea. The majority of these form in the Western Atlantic and send waves towards St Maarten through winter months. A result of swell, large waves may be seen breaking on the coast even on calm, sunny days in winter. During each winter season, there may be from five to ten swell events, each lasting from one to eight days. Research has also shown that intense winter swell activity often runs in cycles, several active years being followed by several less active years. The height of swell waves on a usually calm leeward coast may vary between 1 m and 3 m (3–10 ft), although occasionally they may be as high as 5 m (16 ft).

### 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):**

There are four main habitats in the Man O War Shoal Marine Park;

Open water: supporting planktonic and pelagic sea creatures including fish and migratory species such as dolphin and turtles.

Coral reefs: Patch reefs, spur and grove reefs, cryptic habitats 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: 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.

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 St Maarten, the coral reefs, seagrass and mangrove areas . As the waters adjacent to St Maarten are relatively shallow, without much exchange between coastal and deep water currents, corals and other organisms on reefs to the north of Man O War Shoal Marine Park are exposed to any terrestrial influences. This includes freshwater runoff, sediments, nutrients and any form of pollution, which all stress and eventually kill marine organisms.

#### Detail for each habitat/ecosystem the area it covers:

<i>Marine / coastal ecosystem categories</i> <b>Detail for each habitat / ecosystem the area covers</b>	Size (estimate) unit	Description and comments
<i>Coral reefs</i>		
Man of War Shoal Marine Park	ha	700
<i>Sea grass beds</i>		
Man of War Shoal Marine Park	ha	15
<i>Sand cover</i>		
Man of War Shoal Marine Park	ha	1500
<i>Deep ecosystems</i>		
Man of War Shoal	ha	not given

Marine Park		
Terrestrial ecosystems	Size (estimate)	
	unit	

## Flora

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

The seagrass stands in Man O War Shoal Marine Park are dominated by Turtle grass (*Thalassia testudinum*) together with Manatee grass (*Syringodium filiforme*) and banks of calcareous alga (*Halimeda* sp).

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

List of species in SPAW annex I	Estimate of population size	Comments if 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: <i>Thalassia testudinum</i>	Area covered: 15 ha	
Hydrocharitaceae: <i>Halophila baillonis</i>	Area covered: 15 ha	
Hydrocharitaceae: <i>Halophila decipiens</i>	Area covered: 15 ha	
Hydrocharitaceae: <i>Halophila engelmannii</i>	Area covered: 15 ha	

### 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: <i>Halophila baillonis</i>	VU - Vulnerable	Area covered: 15 ha	
Stargrass: <i>Halophila engelmannii</i>	EN - Endangered	Area covered: 15 ha	

### 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: <i>Thalassia testudinum</i>	Area covered: 15 ha	

## Fauna

### Brief description 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 St Maarten's 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 St Maarten, including; Humpback Whales (*Megaptera novaeangliae*), Spinner Dolphins (*Stenella longirostris*), Bottlenose Dolphins (*Tursiops truncatus*). A survey conducted by the Nature Foundation in the Fall of 2010 looked in detail at the coral reefs at 3 dive sites; Hen & Chicken, Proselyte and Mike's Maze. At Hen and Chicken dive site the most abundant species was Fire coral (*Millepora alcicornis*, *Millepora squarrosa*). Fire coral and Boulder star coral (*Montastrea annularis*) were the most abundant at Molly Béday. Symmetrical Brain coral (*Diploria strigosa*), Fire coral and Mustard hill coral (*Porites asteroides*) were the most abundant at Mike's Maze. Rough star coral (*Isophyllastrea rigida*) and Ten-ray star coral (*Madracis decactis*) were the least evident species of coral, only covering 1.3% of the study site at Molly Béday. Elkhorn coral (*Acropora palmata*) and Staghorn coral (*Acropora cervicornis*) are not common in The Man of War Shoal Marine Park. By contrast, Pillar Coral (*Dendogyra cylindrica*), sponges and soft corals such as sea fans, sea whips and other gorgonians are abundant.



Lobster (*Panulirus argus*), Queen Conch (*Stombuis gigas*) can also be found within the MPA.

**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>	Area covered: 5 ha	Anecdotal Reports of <i>C. caretta</i> within the MPA
Reptiles: <i>Chelonia mydas</i>	Area covered: 35 ha	35 nesting females recorded (2010)
Reptiles: <i>Eretmochelys imbricata</i>	Area covered: 14 ha	14 nesting females recorded(2010)
Reptiles: <i>Dermochelys coriacea</i>	Area covered: 9 ha	9 nesting females recorded(2010)
Birds: <i>Puffinus lherminieri</i>	Area covered: 15 ha	15 individuals have been recorded
Birds: <i>Sterna dougallii dougallii</i>	not given	Data deficient
Mammals: <i>Megaptera novaeangliae</i>	Area covered: 33 ha	33 individuals recorded (2010)
Mammals: <i>Stenella longirostris</i>	Area covered: 9 ha	9 individuals recorded (2011)
Mammals: <i>Tursiops truncatus</i>	Area covered: 19 ha	19 individuals recorded (2011)

**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	Extensive areas of Milleporidae, though no concrete numbers on distribution
Anthozoa : Antipatharia	not given	Few remaining areas of Antipatharia left
Anthozoa : Gorgonacea	not given	Extensive areas of Gorgonacea, though no concrete numbers on distribution
Anthozoa : Scleractinia	not given	Extensive areas of Scleractinia, though no concrete numbers on distribution
Molluscs: <i>Strombus gigas</i>	Number of individuals: 500 - Unit used (individuals, spots, etc): not given	Serious decline in the once vibrant <i>S. gigas</i> population
Crustaceans: <i>Panulirus argus</i>	Number of individuals: 1500 - Unit used (individuals, spots, etc): not given	Serious decline in the once vibrant <i>P. argus</i> population

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
-: <i>Acropora palmata</i>	CR - Critically endangered	not given	Elkhorn coral
-: <i>Acropora cervicornis</i>	CR - Critically endangered	not given	Staghorn coral
-: <i>Hyporthodus nigritus</i>	CR - Critically endangered	not given	Warsaw grouper
-: <i>Eretmochelys imbricata</i>	CR - Critically endangered	not given	Hawksbill turtle
-: <i>Dermochelys coriacea</i>	CR - Critically endangered	not given	Leatherback turtle
-: <i>Pterodroma hasitata</i>	EN - Endangered	not given	Black-capped Petrel
-: <i>Montastrea annularis</i>	EN - Endangered	not given	Mountainous Star Coral
-: <i>Montastrea faveolata</i>	EN - Endangered	not given	Boulder star coral
-: <i>Millepora striata</i>	EN - Endangered	not given	Bladed Box Fire Coral
-: <i>Epinephelus striatus</i>	EN - Endangered	not given	Nassau Grouper

-: <i>Dipturus laevis</i>	EN - Endangered	not given	Barndoor Skate
-: <i>Leucoraja ocellata</i>	EN - Endangered	not given	Winter Skate
-: <i>Balaenoptera physalis</i>	EN - Endangered	not given	Fin Whale
-: <i>Balaenoptera borealis</i>	EN - Endangered	not given	Coalfish Whale
-: <i>Balaenoptera musculus</i>	EN - Endangered	not given	Blue Whale
-: <i>Eubalaena glacialis</i>	EN - Endangered	not given	North Atlantic Right Whale
-: <i>Chelonia mydas</i>	EN - Endangered	not given	Green Turtle
-: <i>Agaricia lamarcki</i>	VU - Vulnerable	not given	Leaf Coral
-: <i>Dendrogyra cylindrus</i>	VU - Vulnerable	not given	Pillar Coral
-: <i>Dichocoenia stokesii</i>	VU - Vulnerable	not given	Elliptical Star Coral
-: <i>Mycetophyllia ferox</i>	VU - Vulnerable	not given	Rough cactus coral
-: <i>Montastrea franksi</i>	VU - Vulnerable	not given	Bumpy Star Coral
-: <i>Hippocampus erectus</i>	VU - Vulnerable	not given	Lined Seahorse
-: <i>Epinephelus flavolimbatus</i>	VU - Vulnerable	not given	Yellowfinned Grouper
-: <i>Hypoplectrus providencianus</i>	VU - Vulnerable	not given	Masked Hamlet
-: <i>Hyporthodus flavolimbatus</i>	VU - Vulnerable	not given	Poey's Grouper, Grouper, White Grouper, Yellowedge Grouper, Yellowfinned Grouper
-: <i>Hyporthodus niveatus</i>	VU - Vulnerable	not given	Seabass, Snowy Grouper, Spotted Grouper
-: <i>Lachnolaimus maximus</i>	VU - Vulnerable	not given	Hogfish
-: <i>Lujanus cyanopterus</i>	VU - Vulnerable	not given	Cubera Snapper
-: <i>Lutjanus analis</i>	VU - Vulnerable	not given	Mutton Snapper
-: <i>Mycteroperca interstitialis</i>	VU - Vulnerable	not given	Yellowmouth Grouper
-: <i>Thunnus obesus</i>	VU - Vulnerable	not given	Bigeye Tuna
-: <i>Balistes vetula</i>	VU - Vulnerable	not given	Queen Triggerfish
-: <i>Dermatolepis inermis</i>	VU - Vulnerable	not given	Marble Grouper
-: <i>Manta birostris</i>	VU - Vulnerable	not given	Giant Manta Ray
-: <i>Carcharias taurus</i>	VU - Vulnerable	not given	Sand Tiger, Grey Nurse Shark, Grey Nurse Shark, Sand Tiger Shark, Spotted Ragged-tooth Shark, Spotted Raggedtooth Shark
-: <i>Odontaspis ferox</i>	VU - Vulnerable	not given	Small-tooth Sand Tiger Shark, Herbst's Nurse Shark, Ragged-tooth Shark, Sand Shark, Smalltooth Sand Tiger Shark
-: <i>Alopias superciliosus</i>	VU - Vulnerable	not given	Bigeye Thresher Shark
-: <i>Carcharhinus obscurus</i>	VU - Vulnerable	not given	Dusky Shark
-: <i>Carcharhinus plumbeus</i>	VU - Vulnerable	not given	Sandbar Shark
-: <i>Carcharhinus signatus</i>	VU - Vulnerable	not given	Night Shark
-: <i>Centrophorus granulosus</i>	VU - Vulnerable	not given	Gulper Shark
-: <i>Isurus paucus</i>	VU - Vulnerable	not given	Longfin Mako
-: <i>Rhincodon typus</i>	VU - Vulnerable	not given	Whale Shark
-: <i>Carcharodon carcharias</i>	VU - Vulnerable	not given	Great White Shark
-: <i>Glaucostegus thouin</i>	VU - Vulnerable	not given	Clubnose Guitarfish
-: <i>Gymnura altavela</i>	VU - Vulnerable	not given	Butterfly ray
-: <i>Physeter catodon</i>	VU - Vulnerable	not given	Great Sperm Whale
-: <i>Physeter macrocephalus</i>	VU - Vulnerable	not given	Sperm Whale, Cachelot, Pot Whale, Spermacet Whale
-: <i>Megaptera novaeangliae</i>	VU - Vulnerable	not given	Humpback Whale

**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
-: Elasmobranchii	not given	Sharks are protected in the MPA by specific legislation.

**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	30000	100000

**Comments about the previous table:**

Populations adjacent to the MPA number approximately 30,000. During the tourist high season the population increases to approximately 100,000 individuals. In 2013, a further 1.8 million visitors arrived by cruise ship, involving 631 vessel calls.

**Description of population, current human uses and development:**

The main threats to the biodiversity of the MPA are habitat destruction and degradation caused by the growth of inhabited areas, tourism development and pollution. Since the 1950's, several groups have argued for the need to preserve valuable nature areas, not only for conservation but also for the benefit of tourism.

Overfishing of St Maarten's territorial waters is a potential problem. In this context it is also important to note that in addition to pelagic fish, globally endangered sea turtles, sea birds and dolphins are threatened by illegal fishing activities.

The seagrasses have all but disappeared as a result of pollution, anchoring and eutrophication caused by excessive nutrients entering coastal waters. The overfishing of Queen Conch (*Strombus gigas*) has also disrupted the dense root networks of the seagrasses removing their sediment binding and trapping function which results in murkier waters and mobile sediments.

Increases in nutrient and sediment runoff due to coastal development are harmful to coral reefs. The higher concentration of particles in the water leads to increased turbidity and lower light availability for coral growth. The raised nutrient concentrations stimulate the growth of algae, which can out compete hard corals for settlement space. Nutrients usually enter the marine environment as part of a sewage or runoff cocktail that includes pollutants such as hydrocarbons, heavy metals and toxic chemicals, all of which kill corals and effect fish life.

From the study carried out in 2001 Hen & Chicken Reef is the shallowest and closest to shore of the three reefs studied. It also has the highest percent bottom cover by algae. This suggests that unsustainable coastal development on St Maarten (nutrients, run off and pollution) is directly affecting the coral reef communities.

St Maarten's coral reefs face a number of pressures, some natural and some man-made, though global warming is clearly the most significant. In addition to storm damage, significant natural impacts on local reefs during the 1970s and 1980s include an outbreak of white band disease (1980-1982), which caused the death of 90% of the standing stock of Staghorn Coral (*Acropora cervicornis*) and Elkhorn Coral (*Acropora palmata*). This was followed by the mass mortality of Black Spiny Sea Urchin (*Diadema antillarum*) one of the most important grazers on Caribbean reefs. Both events were thought to have been caused by a water-borne pathogen and both impacted on the entire Caribbean Basin.

There has been repeated Caribbean wide coral bleaching events since 1989 some of which have caused wide spread mortality of corals. Particularly sever episodes were recorded in 1990, 1992, 1993, 1995, with the most significant global mass bleaching event ever recorded in 1998. Most recently, in 2005 a particularly intense coral bleaching event occurred which affected most parts of the Caribbean.

Activities	Current human uses	Possible development	Description / comments, if any
Tourism	very important	increase	There is a continued tourism development thrust which has significant repercussions for the Marine Park
Fishing	limited	decrease	Due to the Marine Resource being severely depleted there is very limited fishing pressure occurring.
Agriculture	absent	unknown	
Industry	significant	increase	There are plans to develop an industrial area which is downstream from the MPA. This could result in pollution originating from industrial points affecting the MPA.
Forestry	absent	unknown	
Others	absent	unknown	

### e - Other relevant features

#### Educational feature:

Education is an important function of the MPA. Local educational oriented programs and those from abroad all occur within the limit of the MPA

#### Scientific feature:

The MPA presents an area which is of high value to science, particularly with regards to the study of coral reef and benthic organisms.

#### Research feature:

Various research projects are currently under way in the MPA to determine the composition of the ecosystem

#### Historical feature:

The Man of War Shoal Marine Park also includes Proselyte Reef, which was named after the HMS Proselyte, a 32 gun frigate which struck the “man of War Shoal” on September 4th 1801. Artifacts such as large anchors, cannons, barrel hoops, cannon balls, and pottery are still evident on this popular St. Maarten Dive site. The site is also considered a Marine Archeological treasure.

#### Archaeological feature:

the Man of War Shoal Marine Park also includes Proselyte Reef, which was named after the HMS Proselyte, a 32 gun frigate which struck the “man of War Shoal” on September 4th 1801. Artifacts such as large anchors, cannons, barrel hoops, cannon balls, and pottery are still evident on this popular St. Maarten Dive site. The site is also considered a Marine Archeological treasure.

### 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	significant	decrease	increase	Panulirus argus Lutjanus campechanus Ocyurus chrysurus Strombus gigas Acanthocybium solandri Coryphaena hippurus Thunnus sp.	Coral Reef, Seagrass, Open Ocean	Although artesanal in Nature, fishing still poses a significant threat.
Exploitation of natural resources: Agriculture	limited	unknown	unknown			N/A
Exploitation of	significant	increase	increase	All within MPA	Coral	Pressures from the

natural resources: Tourism					Reef, Seagrass, Open Ocean	diving industry, particularly cruise tourism continue to affect the ecosystem.
Exploitation of natural resources: Industry	limited	unknown	unknown			N/A
Exploitation of natural resources: Forest products	limited	unknown	unknown			N/A
Increased population	significant	increase	increase	All within MPA	Coral Reef, Seagrass, Open Ocean	Increased population will in turn result in increased pressure on the MPA due to overfishing and land based sources of stress.
Invasive alien species	significant	increase	increase	Labridae, Panulirus argus, Lutjanus campechanus, Scaridae, Pomacentridae, and various other Spp.	Coral Reef	The introduction of the invasive lionfish has already had a negative effect on the population of fish species within the MPA.
Pollution	significant	increase	increase	All within MPA	Coral Reef, Seagrass	Land sources of pollution will increase and the negative effects on the ecosystem will continue.
Other	limited	unknown	unknown			N/A

#### 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	very important	increase	increase	Panulirus argus Lutjanus campechanus Ocyurus chrysurus Strombus gigas Acanthocybium solandri Coryphaena hippurus	Coral Reef, Seagrass, Open Ocean	Although artesanal in Nature, fishing still poses a significant threat
Exploitation of natural resources: Agriculture	limited	unknown	unknown			N/A
Exploitation of natural resources: Tourism	significant	increase	increase	Various	Coral Reef, Seagrass, Open Ocean	Tourism Pressure is significantly on the rise surrounding St. Maarten
Exploitation of natural	significant	increase	increase	Various	Coral Reef,	proposed tourism development will

ressources: Industry					Seagrass, Open Ocean	increase industry effects on the ecosystem
Exploitation of natural ressources: Forest products	limited	unknown	unknown			N/A
Increased population	very important	increase	increase	Various	Coral Reef, Seagrass, Open Ocean	Increased population will in turn result in increased pressure on the marine ecosystem due to overfishing and land based sources of stress
Invasive alien species	significant	increase	increase	Labridae, Panulirus argus Lutjanus campechanus, Scaridae, and Pomacentridae, and various other Spp.	Coral Reef	invasive lionfish has already had a negative effect on the population of fish species
Pollution	very important	increase	increase	Various	Coral Reef, Seagrass, Open Ocean	Land sources of pollution will increase and the negative effects on the ecosystem will continue
Other	limited	unknown	unknown			N/A

## h - Information and knowledge

### Information and knowledge available

Despite it being a relatively newly established MPA there is quite a bit of documentation available on the species composition, baseline inventories, and social and economic valuations;

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;

Nautical chart; Nature Foundation St Maarten Imray chart.

Tide tables; Web/press.

Community descriptions; very basic descriptions in the Management Plan.

Species lists; Keystone species as listed by nature Foundation St Maarten.

Status of commercially important species; Some shark data, anecdotal data on other species.

Status of endangered, threatened and endemic species; online CITES list and RED List data, endemic species information does not exist.

Aerial photographs; 2011 photos of run off shoreline, none of the MPA itself.

Land use plans; 1993 VROM zoning plan for St. Maarten

Topographical maps; 1977, VROM Arcview programme

Economic valuation; carried out by Nature Foundation St Maarten in 2010.

User Fee Survey; carried out by Nature Foundation St Maarten 2011 (willingness to pay).

GIS; Basic files for producing location (base) maps.

The following important sources of information for the MPA are not available;

Maps of currents

Bathymetric charts

Baseline habitat maps

Digital Satellite Images  
 Hydrological survey  
 Cultural valuation  
 Traditional usage  
 Current use and usage levels  
 Socio-economic survey

**List of the main publications**

Title	Author	Year	Editor review /
Nature Foundation Bleaching Response Plan	Tadzio Bervoets	2010	N/A
Nature Foundation Lionfish Response Plan	Tadzio Bervoets	2010	N/A
Report St. Maarten Marine Mammal Census	Tadzio Bervoets	2011	N/A
Report Halophilia stipulacea	Tadzio Bervoets	2011	N/A
RESULTS OF NATURE FOUNDATION AQUATIC RESEARCH PROJECT	Tadzio Bervoets	2010	N/A
REPORT ON THE VALUATION OF ST. MAARTEN'S CORAL REEF ECOSYSTEMS	Tadzio Bervoets	2010	N/A

**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)
Marine Mammals	Annual	Marine Mammal Monitoring Occurs from January to May
Lionfish	Monthly	Lionfish monitoring for effects on coral reefs occurs on a monthly basis
Coral Bleaching	Six times annually or higher	Coral Bleaching monitoring is conducted six times yearly or more frequent based on bleaching events
Coral Reef Monitoring	Monthly	Coral Reef Monitoring Occurs once a month
Seagrasses	Bi-annually	seagrasses are monitored twice a year

**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 Man O War Shoal Marine Park represent the most of the healthiest reefs found in the waters off St Maarten. They are significant for their structure, the habitat they provide as well as for the animals and plants that live there. The different reef formations; patch reefs, spur and groove reefs as well as caves and canyons represent many of the reef types found in the region.

The Man O War Shoal Marine Park is an important habitat for turtles, Caribbean Reef Sharks and Nurse sharks, as well as other species of shark. These animals also migrate between Anguillan and St Bathelémy's waters.

**Conservation value:**

The habitats within the Man O War Shoal 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), see

#### Attachment 4.

The Shark Research Project within Man O War Shoal Marine Park, which is carried out by nature Foundation St Maarten is providing further information on shark abundance, migratory patterns and home range in the marine park and near coastal waters. This information will allow the decision makers to continuously fine-tune and enforce the decree for protection of sharks and rays on St. Maarten.

Along with neighbouring MPA's the Man O War Shoal Marine Park forms part of the AGOA marine mammal sanctuary, offering protection to all mammals, from the smaller dolphin species to the larger Humpback Whales.

#### **Rarity:**

The coral reef habitats found within Man O War Shoal Marine Park have been depleted across their range throughout the wider Caribbean. Coral reefs and seagrass beds are globally threatened by anthropogenic stresses.

#### **Naturalness:**

Due to its location off shore, the area covered by the Man O War Shoal Marine Park has, so far, seemingly avoided many local anthropogenic disturbances. Most of the Man O War Shoal Marine Park is between 1km and 7 km off shore, making it less vulnerable (but not totally isolated from) to terrestrial inputs than islands with MPA's that contain fringing reefs. Fishing has had an impact on the ecology of the area, but the establishment of the MPA in 2010 will hopefully go some way to addressing this. The structure, function and species of the various habitats are largely intact.

#### **Critical habitats:**

The coral reef, seagrass and benthic habitats within the Man O War Shoal 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 area was also once home to conch populations which now 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 Man O War Shoal 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 the local human population.

#### **Connectivity/coherence:**

The Man O War Shoal Marine Park is relatively close to other marine parks; Reserve Natural St Martin, located on the French Side of St Maarten, which is only 6km from the North West boundary along the relatively undisturbed East Coast of St Maarten. Over open sea, the Man O War Shoal Marine Park is also connected to Saba National Marine Park (45km), Saba Bank National Marine Park (55km) and St Eustatius National Marine Park (60km), which may possibly act as seeding grounds for species with free swimming larval stages of their life cycles. The Man O War Shoal 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.

The deeper St Barthelemy Channel to the south of the Man O War Shoal Marine Park, including the deeper water in the MPA is likely to act as an ecological and biological corridor.

#### **Resilience:**

As a protected site, the Man O War Shoal Marine Park will provide a source of juveniles for nearby marine habitats on St Maarten. 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 St Maarten are under threat from pollution, sedimentation and development, making the Man O War Shoal Marine Park a critical site for aiding recovery. The habitats and species within the Man O War Shoal Marine Park are relatively



resilient to natural threats because of their distance from the nearest terrestrial influences on stress to marine organisms.

## **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 Man O War Shoal 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, seagrasses and benthic habitats within and adjacent to the Man O War Shoal Marine Park. This provides a wide variety of natural resources that are used by the local human population, from those that are directly extracted, such as fish caught in the artisanal fishery, to marine sediments that help form the valued beaches of St Maarten.

### **Cultural and traditional use:**

There are a small number of artisanal fisherfolk who make use of the the Man O War Shoal Marine Park using traditional hand line capture methods. A fish market that is subsidised by the government takes place every day north of Simpson Bay Lagoon on St Maarten.

### **Socio-economic benefits:**

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 O 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. The ongoing management of the Man O War Shoal Marine Park, to which regional networking is essential, goes some way to ensuring the benefits can be enjoyed into the future.

## **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 Man O War Shoal Marine Park is legally protected through a Ministerial Decree signed on 17th December 2010 (Attachment 9).

St Maarten, under the Netherlands Antilles was party to:

- The CITES convention
- Cartagena Convention
- Inter American Convention For The Protection And Conservation Of Sea Turtles
- 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

The international treaties signed by the central Government of the Kingdom of the Netherlands also bound the Netherlands Antilles, and local governments were, and still are under the obligation to implement provisions of the international treaties. Although there is not usually any formal enforcement at the local level, continuous or serious breaches of obligations under the international agreement may result in exclusion from the convention, which may result in certain economical and political pressures on the non-compliant member state. The Netherlands Antilles is Party to a number of treaties, and are home to many sites and species protected under the Conventions.

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

Unknown

**b - Management structure, authority**

St. Maarten Nature Foundation has a service level agreement to be the management and scientific authority for marine and terrestrial ecosystems in St. Maarten. Subsequently, St. Maarten Nature Foundation has the contract with the government for the management of the Man O War Shoal Marine Park.

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

**Description of the management authority**

St. Maarten Nature Foundation is authorized “to make and execute all decisions pertaining to the management of the marine and terrestrial ecosystems, species management and specifically introduced species”. This includes the management of the Man O War Shoal Marine Park (see above).

The St. Maarten Nature Foundation is a non-profit organisation that was established to enhance St. Maarten’s natural environment through effective management, education, awareness and protection of natural resources.

The St. Maarten Nature Foundation’s vision is a thriving actively managed and sustainably used marine environment around St. Maarten, which it aims to fulfill through the following mission: “to manage, conserve and restore St. Maarten’s marine ecological, cultural and historical resources for education, ecological functionality and sustainable use with continued stakeholder participation, for the benefit of current and future generations”.

**Means to implement the framework**

Nature Foundation St. Maarten is the body charged with the management of the Man of War Shoal Marine Park. It is a foundation registered locally on St. Maarten and governed by a volunteer Board of seven local people who oversee the Nature Foundation St. Maarten activities and direct overall policy and strategy. Elected Board members have additional responsibilities in accordance with respective positions. Board meetings are called monthly, with minutes being circulated to the board. Meetings between the Nature Foundation St. Maarten manager, Tadzio Bervoets and board representatives take place as necessary. The day to day management of the Foundation is carried out by the manager and two further full time staff members along with part time consultants and volunteers.

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

Objective	Top priority	Comment
Facilitate the use of St. Maarten’s marine environment for: a) tourism, yachting and diving; b) education and c) research, monitoring and training.	No	
Manage St. Maarten’s Man of War Shoal Marine Park as a regionally and globally significant protected area, within an effective legislative framework and with commitment from stakeholders.	No	
Ensure the promotion of the marine environment as a traditionally and contemporarily valuable, sustainable, multiple use resource whilst establishing rules, guidelines, permits and enforcing legislation	No	
Ensure the involvement of the local community and stakeholders, to cultivate a sense of	No	

ownership and continuing support for the zoning, regulations and management practices of Man of War Shoal Marine Park		
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**Comments:**

ALSO: (interface will not allow this one to be entered) Conserve and restore, through practical conservation and active management; a) the natural values of the marine park, including threatened, rare and endangered species, habitats, water quality, biological diversity, ecosystem processes and aesthetic values and b) the cultural and historical marine resources of St. Maarten

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

The first management plan for the "St Maarten Marine Park" was written in 2007, this is available in Attachment 11. With the signing of the ministerial decree in 2010 for the Man O War Shoal Marine Park, the existing management plan became outdated. There is a current initiative to establish a new plan for the MPA as soon as practically possible.

**Management plan - date of publication**

: 7/1/07

**Management plan duration**

: 5

**Date of Review planned**

: 9/9/14

**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	Research and monitoring, patrols.
Sea grass beds	yes	yes	yes	Research and monitoring
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: Thalassia testudinum	yes	yes	no	
Hydrocharitaceae: Halophila baillonis	no	no	no	
Hydrocharitaceae: Halophila decipiens	no	no	no	
Hydrocharitaceae: Halophila engelmannii	no	no	no	

**Fauna**

Species from SPAW Annex 2 present in your area	Management measures	Protection measures	Recovery measures	Comments/description of measures
Reptiles: Caretta caretta	yes	yes	no	
Reptiles: Chelonia mydas	yes	yes	no	
Reptiles: Eretmochelys imbricata	yes	yes	no	
Reptiles: Dermochelys coriacea	yes	yes	no	
Birds: Puffinus lherminieri	yes	yes	no	
Birds: Sterna dougallii dougallii	yes	yes	no	

Mammals: Megaptera novaeangliae	yes	yes	no	
Mammals: Stenella longirostris	yes	yes	no	
Mammals: Tursiops truncatus	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	
Anthozoa : Antipatharia	yes	yes	no	
Anthozoa : Gorgonacea	yes	yes	no	
Anthozoa : Scleractinia	yes	yes	no	
Molluscs: Strombus gigas	yes	yes	yes	
Crustaceans: Panulirus argus	yes	yes	yes	

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

N/A

**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
Conservation Zone	Within the Conservation Area, the following activities are also prohibited (Article 15 of the Island Ordinance Nature Conservation and Protection Sint Maarten): The use of water scooters Fishing of any kind Sailing with a vessel with an average draft of more than six meters Removal of live or dead animals or plants Possession of live or dead fish or other sea animals or plants that are found not to originate from elsewhere.
Traffic Zone	Ships sailing outside the routes to and from ports must keep a distance of at least 100m with respect to the coast. Ships that arrive from abroad and are allowed into Great Bay and/or depart from Great Bay must make use of the designated shipping areas.

**i - Enforcement measures and policies**

In 2013 there were five patrols throughout the week, including weekends. During the day, the patrols last for up to four hours and include some maintenance on boat moorings, lines and pick ups. Patrols also take place at sunrise, sunset and during the night for two hours to gather information on shark poaching. There were three weekly beach patrols, each for three hours throughout the 36 week turtle nesting season from the end of March to the beginning of November.

There were six logged incidents in 2013 relating to; two oil spills, one vessel grounding, two incidences of fishing in marine park and one incident of shark poaching. A number of verbal warnings were also given. There were three PV prosecutions and three written warnings , all legal incidents now include written warnings which are also communicated to prosecutor and relevant government departments. Nine CITES permits were issued for tourists leaving the country with shells and coral fragments (rock).

Through 2013 lobbying took place on five key issues:

- Structured government subsidy for the Marine Park.
- MPA ordinance development
- A zoning plan for the island
- Extension of the marine park, to include parts if the East Coast.
- The listing of Mullet Bay and Simpson Bay Lagoon as a Ramsar site.

The Manager provided advice and consultancy on five issues relating to the marine park;

- Survey for an extension of the runway.
- Netting of shallow seagrass areas to isolate them from a Mega Yacht Marina.
- Maritime affairs liaison.
- Man and biosphere committee

Millennium Acceleration Framework Committee.

**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	no	
World heritage site (UNESCO)	no	
Others:	no	

**k - Site's contribution to local sustainable development measures or related plans**  
not specified

**l - Available management resources for the area**

Resources		How many/how much	Comments/description
Human resources	Permanent staff	3	In 2013 Twenty one local volunteers contributed a total of four weeks of work assisting with Reef Check, lionfish removal, patrolling, coral transplanting and turtle research. One local intern and spent a total of 24 weeks working on lionfish predation research. Partners are consultants and contractors. Staff work with in excess of 35 stakeholder groups.
	Volunteers	22	
	Partners	5	
Physical resources	Equipments	Staff have access to a range of equipment for communication, science, diving and operations at sea	For more details see the Attachment 10 "Physical resources"
	Infrastructures	Nature Foundation St. Maarten has rented offices and access to a boat shed and workshop. It also maintains 25 moorings as part of it's infrastructure.	
Financial resources	Present sources of funding	Grants Fees Donors	Budget as of 2014
	Sources expected in the future	DCNA trust fund income Grants Fees Donors	
	Annual budget (USD)	140000	

**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. The 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 St Maarten Nature Foundation for the management of The Man O War Shoal Marine Park. There is of course space for progression and growth within the framework, especially with respect to the human resource capacity should the necessary funding become available. This will allow even more work to be carried out to address the stated objectives.

## Chapter 7. MONITORING AND EVALUATION

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

The Marine Park Manager and Ranger along with volunteers continued with 12 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 coral reefs, turtles, marine mammals and sharks - species of which are included in SPAW Annexes II and III. Other programmes cover threats facing the MPA, including bleaching and the invasive lionfish. The table below gives a summary of the monitoring programme.

Monitoring Programme	Frequency	Detail
Sea turtle nesting beaches	215 days of nesting season.	Five beaches observation of turtle nests, every day April to November carried out by volunteers and the MPA manager, using the SWOT Protocol.
Sea turtle hotline	Ongoing	Reports of turtle nesting activity.
Marine mammal monitoring	Once a week	AGOA protocol from French side of St. Maarten. Further analysis to be carried out eventually.
Bleaching	May to October once a week	NAFSXM bleaching response plan, data collected and submitted to CORAL WATCH.
REEF CHECK	Once a month, bi-weekly in bleaching season. May through October being bleaching season.	NAFSXM analyses the data first then sends it off to NOAA to form part of the ICRI state of the worlds reefs database.
Lionfish monitoring	3-4 times a week	Since July 15th, data analysed is by NAFSXM. Fish counts protocol from Lionfish response plan.
Pelican monitoring	Once a week	

In addition to environmental monitoring, the Nature 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.

**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.
Threats vs effort	Independent evaluation of the threats facing the park vs effort spent addressing the threats.
<i>Evaluation of conservation measures on the status of species populations within and around protected area</i>	
Time series data	Data 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 the Nature Foundation
Shark census	
Marine mammal	

monitoring	
Turtle nest monitoring	
Lionfish monitoring	
Seagrass monitoring	
Pelican monitoring	
<i>Evaluation of conservation measures on the status of habitats within and around the protected area</i>	
Disease incidence in corals	REEFCHECK
Coral cover	
Coral diversity	REEFCHECK
Seagrass diversity	
<i>Evaluation of conservation measures on the status of ecological processes within and around the protected area</i>	
Water quality testing.	
<i>Evaluation of the impact of the management plan on the local communities</i>	

## 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

Stakeholders involvement	Involvement	Description of involvement	Specific coordination measures	Comments (if any)
Institutions	yes	Unclear on what "institutions" are.		
Public	yes	Regular public presentations and events. Press releases, programs and Radio shows.	Encouraging awareness, building understanding, fundraising.	Staff are also very active with social media with 1800 Facebook friends for Nature Foundation St Maarten.
Decision-makers	yes	Staff work with a host of decision makers. Mostly ad hoc meetings, more frequently with some than others. tours also given to ministers and other groups.	Dependent on the stakeholder.	Department of maritime affairs; MPA, Ballast testing, Project Advice, Commercial activity in the lagoon. Building and zoning department; Infractions Public works; Equipment use Environmental service; MPO, Environmental standards, Service Level Agreements. Legal department; Pending legislation Prosecutors office; Reporting crimes Harbour office; Moorings, shipping, MPA map Coast Guard; CITES, Fisheries, boating issues, nets Agriculture department (Govt); CITES and animal control Tourism department (Govt); Funding, joint projects Schools; Environmental education and contributions of the Nature Foundation. Police; Infractions, fishing licence for lion fish
Economic-sectors	yes	Ad hoc meetings with some,		Tourism association SHTA: MPA in general Dive Operators; Moorings

		structured meetings with dive operators and the SHTA (tourism association)		and fees Hoteliers; Hospitality and trade
Local communities	yes	Work with fishermen and schools, local youth groups. Includes meetings, presentations, tours of the marine park.		Fisherfolk; MPA Map / zoning/fishing areas
Others	yes	Many different NGO's for advice, networking and management of the MPA. Tours for airport personnel, religious groups and trade associations.		WIDECAST; Turtles CaMPAM; MPA research Coral List; Various DCNA; Networking The Nature Conservancy (TNC); Sustainability Reefcheck; Data exchange NACRI; Reefs SPAW; MPA work

## 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)
Public awareness, education, and information dissemination programmes	yes	The NAFSXM website was being updated throughout 2013. The NAFSXM Facebook page had 820 friends at the end of 2011 and 1072 friends at the end of 2012 and 1838 in 2013. Time was spent designing and producing dive tags for the marine park Nature Foundation staff carry out a range of activities to communicate with stakeholders, educate and disseminate information. Annually this includes; +/-70 press releases on a variety of topics including the MPA, law enforcement, lionfish and research activity, all as a part of the manager continuing to improve contact with the press. NAFSXM has it's own radio show called 'Nature Watch' on Fridays between 10 and 11 a.m., where recordings are made in the field about the work done by park staff. Several appearances by the manager on the television, each for an hour. Presentations to a variety of audiences, including, local, regional and international NGO's, Parliament, the council of ministers, hospitality and trade associations, the marine associations, and a religious groups. Tours of the MPA are also given to audiences as varied as; Royal dignitaries, Dutch Caribbean Governors, the St Maarten Governor, Harbour personnel, Airport personnel, visiting film groups, raffle winners and four school groups. Signage is placed at significant points disseminating information about nesting, although this is not specifically in the MOWSMP.	
Capacity building of staff and management	yes	Every year the staff of Nature Foundation St Maarten take part in capacity building workshops and meetings. For example, in 2013, the manager took part in one DCNA board meeting, on Bonaire, an education workshop, Bonaire, the IMPAC meeting in Marseille, a marine mammals meeting St. Martin and mooring training for the installation of helix moorings on Saba.	
Research, data	yes	Nature foundation St Maarten carries out it's own research and	



storage, and analysis		analysis when the need and capacity is sufficient. Data from monitoring programmes are also contributed to international databases. Other NGO's and researchers occasionally carry out work in the MPA and their work is stored centrally by Nature Foundation staff. More recently The DCNA has instigated a central database for the storage of all monitoring and research outputs.	
Surveillance and enforcement	yes	There were five patrols throughout the week, including weekends. During the day, the patrols last for up to four hours and include some maintenance on boat moorings, lines and pick ups. Patrols also take place at sunrise, sunset and during the night for two hours to gather information on shark poaching. There were three weekly beach patrols, each for three hours throughout the 36 week turtle nesting season from the end of March to the beginning of November. The turtle hotline is also a facility for members of the public to get in touch if they see any nesting activity.	
Participation of exterior users	yes	As part of management planning, extensive stakeholder consultations were carried out. These will be repeated as necessary with a professionally designed process, when planning commences again in 2014. During the interim, staff have met with users as required and communicated through a variety of media (see above).	
Alternative and sustainable livelihoods	no		
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 MOWSMP), including the external environment (context), issues and threats and the park operational management. Management planning 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.	

## Chapter 10. OTHER RELEVANT INFORMATION

### Contact addresses

	Name	Position	Contact adress	Email adress
who is submitting the proposal (national focal point)	BERVOETS Tadzio	Focal Point		manager@naturefoundationsxm.org
who prepared the report (manager)	MacRae Duncan	Director , Coastal Zone Management (UK)	Wellsburg Street Unit 1 Apt# 15-16. Cole Bay, St. Maarten Dutch West Indies	solutions@cozm.co.uk

### Date when making the proposal

: 9/2/14

### List of annexed documents

Name	Description	Category	
7 - Lagoon2013.pdf	Simpson Bay Lagoon Ecological Important Area Monitoring	Physical features	<a href="#">View</a>
6 - Water Quality Testing december 2013.pdf	Water Quality Testing December 2013	Physical features	<a href="#">View</a>
5 - Working Paper Economic	Working Paper on the Economic Valuation of	Cultural and socio-	<a href="#">View</a>

Valuation SXM Reefs.pdf	Country St. Maarten's Coral Reef Resources	economic criterias	
4 - Report SepOct2013.pdf	Monitoring Project September / October 2013	Publications	<a href="#">View</a>
3 - St Maarten Proposed Land Parks Management Plan 2009.pdf	St Maarten Proposed Land Parks Management Plan 2009	Management plan	<a href="#">View</a>
1 - Man of War Shoal Marine Park Management Plan 2011.pdf	Man of War Shoal Marine Park Management Plan 2011	Management plan	<a href="#">View</a>
2 - St Maarten Marine Park Management Plan 2007.pdf	St Maarten Marine Park Management Plan 2007	Management plan	<a href="#">View</a>
8 - climate change.pdf	Response Plan for the Effects of Climate Change on the Marine and Coastal Zones of St. Maarten	Others	<a href="#">View</a>
9 - Mullet Pond report.pdf	Baseline Environmental and Ecological Assessment of the Mullet Pond Section of the Simpson Bay Lagoon	Physical features	<a href="#">View</a>
10 - Tilapia Report (2).pdf	Recommendation Plan Regarding Large Fish Die-Off Events in the Great Salt Pond	Publications	<a href="#">View</a>
11 - Press Release Man of War Shoal Marine Park.pdf	Press Release Man of War Shoal Marine Park.	Publications	<a href="#">View</a>