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

**Seaflower Marine Protected Area
Colombia**

Date when making the proposal : *October 5th, 2010*

CRITERIA SATISFIED :

Ecological criteria

Representativeness
Conservation value

Cultural and socio-economic criteria

Cultural and traditional use

Area name: Seaflower Marine Protected Area

Country: Colombia

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SUMMARY

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Chapter 1. IDENTIFICATION

a - Country:

Colombia

b - Name of the area:

Seaflower Marine Protected Area

c - Administrative region:

San Andres Archipelago

d - Date of establishment:

1/27/05

e - If different, date of legal declaration:

not specified

f - Geographic location

Longitude X: -81.71751

Latitude Y: 12.555066

g - Size:

65000 sq. km

h - Contacts

Contact adress: Ministry of Environment, Housing and Territorial Development - Columbia

Website:

Email address: manager@seaflower.com

i - Marine ecoregion

67. Southwestern Caribbean

Comment, optional

none

Chapter 2. EXECUTIVE SUMMARY

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

The San Andres Archipelago includes 3 small inhabited islands and a number of uninhabited small cays, atolls, banks, and reefs extending for more than 500 km in the Southwestern Caribbean. The largest island and center of government, San Andres (SAI), is about 800 km northwest of Colombia and 100 km east of Nicaragua. Old Providence and Santa Catalina (OPSC) are 80 km north of San Andres. The Seaflower Marine Protected Area (MPA) is part of the Seaflower Biosphere Reserve (UNESCO 2000), which encompasses the total area of the archipelago. The MPA was designed to implement biosphere reserve objectives in significant marine and coastal ecosystems and includes the largest, most productive open-ocean coral reefs in the Caribbean.

The MPA includes 2,000 km² of coral reefs, atolls, mangroves and seagrass beds, including: (i) the barrier and fringing reefs, lagoons, seagrass beds, and mangroves circling the inhabited islands; (ii) Courtown (ESE Cay) - a kidney-shaped atoll 6.4 km by 3.5 km; (iii) Albuquerque (SSW Cay) - a circular atoll with a diameter over 8 km; (iv) Roncador - an atoll 15 km by 7 km with a 12-km reef to windward and 30 km² of live coral coverage; (v) Serrana - an atoll 36 km long and 15 km wide with a complex reef system 37 km by 30 km, with 75 km² live coral coverage; and (vi) Quitasueño (Queen) - the archipelago's largest coral structure, 60 km long and 10 to 20 km wide with a 40-km reef wall and 496 km² of live coral coverage (see annex for maps).

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

It contains the largest, most productive open-ocean coral reefs in the Caribbean. They are particularly complex due to exposure to currents, wave action, and other physical oceanographic factors and include extensive benthic habitats such as barrier reefs, reef lagoons, reef slopes, forereefs, deep coral plateaus, numerous seamounts, and deep coral reefs. Representative examples of other coastal and marine ecosystems found in the Caribbean region are found in the MPA, including mangroves, seagrass and algal beds, soft and hard bottoms, beaches, and the open ocean. As new scientific information becomes available, there is an increasing understanding of genetic and ecological connectivity in the Caribbean, and the role Seaflower plays in this, from both an ecological and an oceanographic perspective. The islands and atolls of the Seaflower MPA have a significant role in water circulation regionally, with the formation of the Yucatan current from the diverted Caribbean current, and the generation of the Colombia-Panama gyro (SE current).

The MPA was created in response to a demand from the islander community -- that has depended on marine resources for their livelihoods for centuries -- for improved conservation of marine biodiversity and management to promote sustainable use. The major uses are subsistence, artisanal, and industrial fishing and recreation and tourism (diving, snorkeling, swimming, assorted water sports, marine tours, etc.). The 7th largest MPA in the world, Seaflower's design combined the best available biological and socioeconomic information with strong stakeholder ownership of the MPA's Integrated Management Plan (IMP). The MPA declaration and IMP resulted from a 5-year, highly participatory process led by the Corporation for the Sustainable Development of the Archipelago of San Andres, Old Providence, and Santa Catalina CORALINA, the regional autonomous representative of Colombia's National Environment System (SINA) for the archipelago and MPA management authority.

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

Representativeness
Conservation value

Cultural and socio-economic criteria

Cultural and traditional use

Chapter 3. SITE DESCRIPTION

a - General features of the site

Terrestrial surface under sovereignty, excluding wetlands:

650 sq. km

Wetland surface:

250 ha

Marine surface:

65000 sq. km

Global comment for the 3 previous fields (optional):

The Seaflower MPA includes 65,000 km². The territory is under the jurisdiction of the Colombian State, with the native community (known as raizales) having tenure rights under the Constitution (Art. 310) and subsequent regulations.

b - Physical features

Brief description of the main physical characteristics in the area:

See details below.

Geology:

The Seaflower MPA includes a series of oceanic islands, barrier reef complexes, atolls and coral shoals, of volcanic origin, linked to the formation of the Nicaraguan Rise and the Caribbean Sea. It is characterized by 2 barrier reef complexes on the windward sides of the main populated islands of San Andres and Old Providence (linked to the smaller island of Santa Catalina by bridge), and a series of atolls and coral banks lined up in a NNE direction that extend for over 500 km. The Seaflower MPA includes Courtown (ESE Cay) - a kidneyshaped atoll 6.4 km by 3.5 km; Albuquerque (SSW Cay) - a circular atoll with a diameter over 8 km; Roncador - an atoll 15 km by 7 km with a 12-km reef to windward; Serrana - an atoll 36 km long and 15 km wide with a complex reef system 37 km by 30 km; and Quitasueño (Queena) - the archipelago's largest coral structure, a half-atoll, 60 km long and 10 to 20 km wide with a 40-km reef wall.

Geister and Diaz (1997) estimate that as the islands and atolls appear to be closely linked to the formation of the Nicaraguan Rise and the Caribbean Sea, the early pre-island history may date back to the late Cretaceous period. The islands, atolls, and banks are volcanic in origin, formed from the subsidence of volcanic basements and the capping of sea mounts by carbonates in Tertiary to Quaternary times. The San Andres Trough, a tectonic graben on the lower-Nicaraguan Rise (15° NNE), separates the archipelago from the Middle American continental shelf. The Trough itself is part of a regional tectonic pattern deemed remarkable for its fracture zones.

Because of its remote location within the Caribbean region, according to the 2004 World Resources Institute's (WRI) Reefs at Risk analysis, the Seaflower MPA represents not only one of

the most extensive reef areas in the Western Atlantic but also a particularly complex one due to its exposure to currents, wave action, and other physical oceanographic factors. Furthermore, the islands and atolls of the Seaflower MPA play a significant role in water circulation regionally, with the formation of the Yucatan current from the diverted Caribbean current, and the generation of the Colombia-Panama gyro (SE current).

Topography:

The Seaflower MPA includes slightly over 250 ha of mangroves in 12 coastal, estuarine swamps. Four species – red, black, white, and buttonwood – are found. San Andres is the archipelago's largest island. In 1996, mangroves covered 161 ha. Following education, reforestation, and establishment of protected areas, total mangrove area has increased to close to 200 ha. The Hooker Bight/Honda Bay mangroves are the island's largest wetland at 51 ha. This ecosystem is protected in the Old Point Regional Mangrove Park. Other mangrove forests are Cocoplum, Salt Creek, Sound Bay, Smith Channel, and Cove Seaside, all of which are protected.

In Old Providence and Santa Catalina mangroves covered a total area of 54 ha in 1996. With an area of 30 hectares, the Oyster Creek mangroves are the largest and most productive and form part of the only national park in the archipelago, Old Providence McBean Lagoon. Other small but productive stands of mangroves are Southwest Bay, Old Town, Manchineel Bay, Jones Point, and Santa Catalina.

Others:

Length of beaches (in km), including islands :

- a) Length of sandy beaches: 2.4 km in length
- b) Length of pebble or stony beaches: .8 km in length
- c) Length, height and depth of active sand-dunes: 3.8 km² in area with 2.5-3.5 m in height

Mean annual precipitation (in mm) 1700 mm

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):

The Seaflower MPA contains the largest, most productive open-ocean coral reefs in the Caribbean and includes complete extended coral reefs with all associated ecosystems and a high level of habitat representation. Other habitat types include mangrove forests, sea grass and algal beds, soft bottoms, beaches, and open ocean. These offer sea bird and sea turtle nesting sites; fish spawning, nursery, and aggregation sites; habitat for a number of threatened species; and demonstrated local and regional genetic and ecological connectivity.

Coral reef formations are particularly complex here as a result of their oceanic location and the heavy wave action and turbulence to which they are subjected as the result of high swells generated by the trade winds over a 2,000 km wave fetch (Geister and Diaz 1997). This is a major influence on coral reef morphology, sedimentology, and reef community structure. There are over 200,000 ha of coral; extensive and diverse benthic habitats include barrier reefs, reef lagoons, reef

slopes, fore-reefs, deep coral plateaus, numerous seamounts, and deep coral reefs (Diaz et al. 2000). The MPA features rare and beautiful coral reef formations such as tall pinnacles, steep walls, extensive meander-like *Montastrea* lagoons, and ribbon reefs with high *Acropora* coverage.

Each site exhibits its own special characteristics. For example, the Old Providence and Santa Catalina reef complex, covering an area of approximately 25,500 ha, is one of the largest in the western hemisphere (Geister and Diaz 1997). The windward reefs of Courtown are considered to be a unique and unusual reef environment (Geister and Diaz 1997) due to the influence of strong waves and currents, turbulences and the presence of an intricate system of caves. Remote areas such as Roncador demonstrate high reef integrity with little anthropogenic influence. Unlike most Caribbean reefs, the dominant reef-building coral at Roncador is *Montastraea franksi*.

In regard to other habitats, there are 12 mangrove lagoons (covering over 250 ha) on San Andres, Old Providence and Santa Catalina, showing classic zoning patterns. They provide habitat, food and refuge to a wide variety of marine and coastal fauna and flora. Productive and healthy seagrass beds (estimated at over 2,000 ha) are also found primarily along the shores of these islands. They stabilize the sea bottom, help control erosion, and provide food, oxygen, and habitat for marine life. Algal beds, soft bottoms, beaches, and the deep ocean are other habitats found in the MPA. Sea turtle nesting occurs on the more isolated beaches. Deep sea areas are largely unexplored but are considered to be important for flows, connectivity, spawning aggregations, larval dispersal and maintaining marine food webs.

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>Mangroves</i>			
Estuarine areas	ha	250	The Seaflower MPA includes slightly over 250 ha of mangroves in 12 coastal, estuarine swamps. Four species – red, black, white, and buttonwood – are found.
<i>Coral reefs</i>			
Corals	ha	218850	There are over 200,000 ha of coral; extensive and diverse benthic habitats include barrier reefs, reef lagoons, reef slopes, fore-reefs, deep coral plateaus, numerous seamounts, and deep coral reefs (Diaz et al. 2000).
<i>Sea grass beds</i>			
Seagrass beds	ha	2000	Productive and healthy seagrass beds (estimated at over 2,000 ha) are also found primarily along the shores of these islands.v
<i>Other marine ecosystems</i>			
Algal beds	ha	4310	
Terrestrial ecosystems	Size (estimate)		
	unit	Area covered	
<i>Other terrestrial ecosystems</i>			
Beaches	sq.km	29	Beaches – 2,940 ha

Flora

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

The Seaflower MPA features 3 seagrass species and 4 mangrove and associated species; including red, white, black and buttonwood mangroves. Native beach vegetation includes The greatest diversity of marine flora occurs within the algae, with Seaflower supporting at least 163 species. Native beach vegetation includes trees such as sea grape, mahoe, and beach almond; shrubs including sea purslane, bay cedar and sea lavender; grasses and trailing vines.

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
Combretaceae: Conocarpus erectus	not given	
Compositae : Laguncularia racemosa	not given	
Cymodoceaceae: Halodule wrightii	not given	
Cymodoceaceae: Syringodium filiforme	not given	
Hydrocharitaceae: Thalassia testudinum	not given	
Rhizophoraceae: Rhizophora mangle	not given	
Verbenaceae: Avicennia germinans	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
Syringodium : filiforme	Unknown	not given	
Thalassia: testudinum	Unknown	not given	
Halodule : wrightii	Unknown	not given	
Rhizophora: mangle	Unknown	not given	Red mangrove
Avicennia : germinans	Unknown	not given	Black mangrove
Laguncularia : racemosa	Unknown	not given	White mangrove
Conocarpus: erectus	Unknown	not given	Silver-leaved Buttonwood
Cedrela : odorata	VU - Vulnerable	not given	Spanish Cedar

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
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Fauna

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

Seaflower MPA contains some of the largest, most productive and diverse coral ecosystems in the region. With respect to scleractinian coral species, Seaflower supports 48 documented species (of approximately 60-70 species known to exist in the Caribbean). There are at least 54 species of octocorals, including 3 black coral species and 11 undescribed species, with possible high endemism. A total of 44 species of octocorals was identified at Old Providence alone, the highest species diversity in the western Caribbean according to Sanchez et al. (1998). The highest gorgonian density in the Colombian Caribbean (up to 22 colonies per m²) was recorded in 2003 at Roncador (Heinemann et al. 2004).

Seaflower has documented just over 300 fish species, of which there is one known endemic fish. A total of 124 sponge species have also been documented. Little research has been conducted on other invertebrates such as molluscs, crustaceans, echinoderms, and tunicates. Of data available, there are at least 2 zoanthid species, 2 anemone species, 3 sea jelly species, 17 echinoderm species, 23 crustacean species, 28 mollusc species, 1 tunicate species and 5 annelid species. The mangroves are home to an endemic mud turtle, and beaches provide nesting sites for 4 marine turtle species.

The Seaflower Biosphere Reserve (which includes the Seaflower MPA) has been classified a secondary Endemic Bird Area and declared an Important Bird Area by BirdLife International. Of the 155 total bird species, 21 are classified as shorebirds and 22 as seabirds (see Annex 4).

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	Loggerhead
Reptiles: <i>Chelonia mydas</i>	not given	Green Turtle
Reptiles: <i>Eretmochelys imbricata</i>	not given	Hawksbill Turtle
Reptiles: <i>Dermochelys coriacea</i>	not given	Leatherback
Birds: <i>Puffinus lherminieri</i>	not given	
Birds: <i>Falco peregrinus</i>	not given	Peregrine Falcon
Birds: <i>Sterna antillarum antillarum</i>	not given	Least Tern
Mammals: <i>Stenella attenuata</i>	not given	Pantropical Spotted Dolphin
Mammals: <i>Tursiops truncatus</i>	not given	Common Bottlenose Dolphin

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
Molluscs: <i>Strombus gigas</i>	not given	
Crustaceans: <i>Panulirus argus</i>	not given	
Reptiles: <i>Iguana iguana</i>	not given	
Reptiles: <i>Kinosternon scorpioides</i>	not given	Tabasco Mud Turtle

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	IUCN Status	Estimate of	Comments if any
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are present in your site		population size	
Panulirus : argus	Unknown	not given	Caribbean Spiny Lobster
Acropora : palmata	CR - Critically endangered	not given	Elkhorn Coral
Agaricia : agaricites	Unknown	not given	Lettuce Coral
Agaricia : fragilis	Unknown	not given	Fragile Saucer Coral
Agaricia : humilis	Unknown	not given	Lowrelief Lettuce Coral
Agaricia : lamarcki	VU - Vulnerable	not given	Lamarck's Sheet Coral
Agaricia : tenuifolia	Unknown	not given	Thin Leaf Lettuce Coral
Colpophyllia : natans	Unknown	not given	Boulder Brain Coral
Dendrogyra : cylindrus	VU - Vulnerable	not given	Pillar Coral
Dichocoenia : stokesii	VU - Vulnerable	not given	Elliptical Star Coral
Diploria : clivosa	Unknown	not given	Knobby Brain Coral
Diploria : labyrinthiformis	Unknown	not given	Grooved Brain Coral
Diploria strigosa: strigosa	Unknown	not given	Symmetrical Brain Coral
Eusmilia : fastigiata	Unknown	not given	Smooth Flower Coral
Favia : fragum	Unknown	not given	Golfball Coral
Isophyllastrea: rigida	Unknown	not given	Rough Star Coral
Isophyllia : sinuosa	Unknown	not given	Sinuuous Cactus Coral
Leptoseris: cucullata	Unknown	not given	Sinuuous Cactus Coral
Madracis : decactis	Unknown	not given	Ten-ray Star Coral
Manicina : areolata	Unknown	not given	Rose Coral
Meandrina : meandrites	Unknown	not given	Maze Coral
Millepora : alcicornis	Unknown	not given	
Millepora : complanata	Unknown	not given	
Montastraea : annularis	Unknown	not given	Boulder Star Coral
Montastraea : cavernosa	Unknown	not given	Great Star Coral
Montastraea : faveolata	EN - Endangered	not given	
Montastraea : franksi	VU - Vulnerable	not given	
Mussa : angulosa	VU - Vulnerable	not given	
Mycetophyllia : danaana	Unknown	not given	Lowridge Cactus Coral
Mycetophyllia: lamarckiana	Unknown	not given	Ridged Cactus Coarl
Porites : astreoides	Unknown	not given	Mustard Hill Coral
Porites : porites	Unknown	not given	Finger Coral
Siderastrea : radians	Unknown	not given	Lesser Starlet Coral
Siderastrea: siderea	Unknown	not given	Massive Starlet Coral
Solenastrea : bournoni	Unknown	not given	Smooth Star Coral)
Epinephelus : itajara	CR - Critically endangered	not given	Atlantic Goliath Grouper
Epinephelus : striatus	EN - Endangered	not given	Nassau Grouper
Epinephelus : guttatus	Unknown	not given	Red Hind
Mycteroperca: bonaci	Unknown	not given	Black Grouper

Mycteroperca : tigris	Unknown	not given	Tiger Grouper
Mycteroperca : microlepis	Unknown	not given	Gag
Mycteroperca : venenosa	Unknown	not given	Yellowfin Grouper
Pagrus : pagrus	EN - Endangered	not given	Common Seabream
Lachnolaimus : maximus	Unknown	not given	Hogfish
Lutjanus : analis	VU - Vulnerable	not given	Mutton Snapper
Lutjanus : cyanopterus	VU - Vulnerable	not given	Canteen Snapper
Scarus : guacamaia	Unknown	not given	Rainbow Parrotfish
Hippocampus : reidi	Unknown	not given	Longsnout Seahorse
Carcharhinus : perezi	Unknown	not given	Caribbean Reef Shark
Rhizoprionodon: porosus	Unknown	not given	Caribbean Sharpnose Shark
Ginglymostoma : cirratum	Unknown	not given	Nurse Shark
Galeocerdo : cuvier	Unknown	not given	Tiger Shark
Sphyrna : mokarran	EN - Endangered	not given	Squat-headed Hammerhead Shark
Balistes : vetula	VU - Vulnerable	not given	Queen Triggerfish
Thunnus : obesus	VU - Vulnerable	not given	Bigeye Tuna
Thunnus : thynnus	EN - Endangered	not given	Atlantic Bluefin Tuna
Gambusia : aestiputeus	Unknown	not given	
Caretta : caretta	EN - Endangered	not given	Loggerhead
Eretmochelys : imbricata	CR - Critically endangered	not given	Hawksbill Turtle
Dermochelys : coriacea	CR - Critically endangered	not given	Leatherback
Chelonia: mydas	EN - Endangered	not given	Green Turtle
Anolis : pinchoti	VU - Vulnerable	not given	Crab Cay Anole
Puffinus : lherminieri	Unknown	not given	Audubon's Shearwater
Pelecanus : occidentalis	Unknown	not given	Brown Pelican
Fregata : magnificens	Unknown	not given	Magnificent Frigatebird
Sula : dactylatra	Unknown	not given	Masked Booby
Sula : leucogaster	Unknown	not given	Brown Booby
Casmerodius : albus	Unknown	not given	Great Egret
Casmerodius : albus	Unknown	not given	Great Egret
Egretta : caerulea	Unknown	not given	Little Blue Heron
Egretta : tricolor	Unknown	not given	Tricoloured Heron
Nycticorax : nycticorax	Unknown	not given	Black-crowned Night-heron
Plegadis : falcinellus	Unknown	not given	Glossy Ibis
Pandion : haliaetus	Unknown	not given	Osprey
Falco : peregrinus	Unknown	not given	Peregrine Falcon
Falco : columbarius	Unknown	not given	Merlin
Fulica : caribaea	Unknown	not given	Caribbean Coot
Anous : stolidus	Unknown	not given	Brown Noddy

Sterna : fuscata	Unknown	not given	Sooty Tern
Sterna : hirundo	Unknown	not given	Common Tern
Sterna : maxima	Unknown	not given	Royal Tern
Sterna : sandvicensis	Unknown	not given	Sandwich Tern
Sterna : antillarum	Unknown	not given	Least Tern
Calidris : alba	Unknown	not given	Sanderling
Himantopus : mexicanus	Unknown	not given	Black-necked Stilt
Vireo : caribaeus	VU - Vulnerable	not given	San Andres Vireo
Molossus : molossus	Unknown	not given	Pallas's Mastiff Bat
Stenella: attenuata	Unknown	not given	Pantropical Spotted Dolphin
Tursiops : truncatus	Unknown	not given	Common Bottlenose Dolphin

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
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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	not given	not given

Description of population, current human uses and development:

The main uses of the MPA are artisanal, subsistence, and industrial fishing and recreation and tourism (diving, snorkeling, swimming, assorted water sports, marine tours, etc.).

Activities	Current human uses	Possible development	Description / comments, if any
Tourism	significant	unknown	Dive shops – 12 (30 employees) Boat and jet ski rentals – 8 Tour boats – 6 (45 employees) Launch cooperative – 1 Hotel watersports – 13 “Sun, sand, and sea tourism” Tourists – 350,000 annual average (+90% use MPA)
Fishing	significant	unknown	Artisanal fishing cooperatives – 4 Fishing associations - 4 Registered artisanal – 700 (390 classified as active) Registered industrial - 80
Agriculture	unknown	unknown	
Industry	unknown	unknown	
Forestry	unknown	unknown	
Others	not specified	not specified	

e - Other relevant features

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	decrease	Queen conch Reef fish Shore birds		Artisanal fishers traditionally used fishing methods and practices that were in general sustainable. They have lobbied to limit industrial fishing to selected sites in the Northern Section only and to ban the use of destructive industrial methods such as long lines and drag nets in the entire MPA. However, the sheer number of users and growing poverty now mean that even traditional methods contribute to overfishing. Consequently, MPA management measures include closed seasons for key species such as lobster and conch, protection of spawning sites and aggregations, size limits and quotas, and bans on fisheries of threatened and endangered species such as sea turtles, sharks, etc. in addition to the use of no-entry and no-take zones to balance use with conservation. Fisheries are known to be over-exploited. Research has been carried out on queen conch and some species of reef fish as well as on sea and shore birds, which are sometimes exploited for their eggs. Limited studies are currently being done but more research is needed to improve the quality and availability of scientific information and data to better inform MPA management. In 2009, especially significant was the study that was done on queen conch and information gathered from monitoring of fisheries by the Secretary of Fisheries, but carrying out more research is an urgent need.

Exploitation of natural resources: Agriculture	limited	not specified	not specified			Not commented
Exploitation of natural resources: Tourism	significant	increase	increase			Unsustainable tourism practices such as poor diving techniques, groundings from watercraft, and overuse of popular sites, also impact biodiversity and ecosystem condition.
Exploitation of natural resources: Industry	limited	not specified	not specified			Not commented
Exploitation of natural resources: Forest products	limited	not specified	not specified			Not commented
Increased population	limited	not specified	not specified			Not commented
Invasive alien species	very important	increase	increase			In addition to the local drivers, marine ecosystems have been increasingly affected in recent years by global drivers of biodiversity loss including introduced species (e.g., lion fish)
Pollution	limited	not specified	not specified			Not commented
Other	limited	not specified	not specified			Not commented

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	not specified	not specified			Not commented
Exploitation of natural resources: Agriculture	limited	not specified	not specified			Not commented
Exploitation of natural resources: Tourism	limited	not specified	not specified			Not commented
Exploitation of natural resources:	limited	not specified	not specified			Not commented

Industry						
Exploitation of natural resources: Forest products	limited	not specified	not specified			Not commented
Increased population	limited	not specified	not specified			Not commented
Invasive alien species	limited	not specified	not specified			Not commented
Pollution	significant	not specified	not specified			Although water quality is improving from better managed waste disposal on land, there is still non-point source pollution in coastal waters from uncontrolled dumping of solid waste, discharge of liquid waste, and runoff of contaminated storm water directly into the sea and mangroves or as carried by gullies.
Other	limited	not specified	not specified			Not commented

h - Information and knowledge

Information and knowledge available

Despite being located within the Western Caribbean Coral Reef Hotspot, one of the world's top ten regions exceptionally rich in marine species and facing extreme threat, the significant tropical ecosystems of Seaflower have received little scientific attention, except for narrow targeted research. Available information does, however, indicate a wide diversity of fish and marine invertebrates. Seaflower exhibits the highest octocoral species diversity found in the Western Caribbean, and fish and coral diversity comparable to sites outside the Caribbean. Seaflower is also an important site for turtle nesting, seabird breeding and, being at the edge of the western flyway, it is a significant stopover site for 130 migrant bird species.

List of the main publications

Title	Author	Year	Editor / review
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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)
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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:

Name the type of habitats considered of Caribbean representativeness and their estimated cover (ha).

- Coral reefs – 218,850 ha
- Mangroves – 250 ha
- Seagrass beds – approximately 2,000 ha
- Algal beds – 4,310 ha
- Beaches – 2,940 ha

Conservation value:

- 1) No-entry, with use restricted to research and monitoring (11,600 ha);
- 2) No-take, allowing a variety of non-extractive uses (221,400 ha);
- 3) Artisanal fishing, for use by traditional fishers only (201,500 ha);
- 4) Special use, for specific uses like shipping lanes, large-vessel anchorage, ports, and marinas or uses with the potential to generate conflict like heavily used water sports areas (6,800 ha); and
- 5) General use, where minimal restrictions apply to preserve MPA integrity and promote marine conservation.

These zones were designed by the community and authorities using an ecosystem-based approach to assure the protection of ecologically important areas, and hence of biodiversity habitat and ecosystem services. Zoning criteria included representativeness, connectivity, key habitats, ease of demarcation, likelihood to foster compliance, and the potential to effectively meet MPA objectives.

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).

Cultural and traditional use:

The local raizal community identified the establishment of a multiple-use MPA as the preferred approach to address the problems caused by open access to resources, including diminishing resources, user conflicts and political and social marginalization. The archipelago has a long social and economic history distinct from that of mainland Colombia. Indigenous islanders (now known as raizales) descend from European (mainly English) settlers and Africans (slaves and runaway slaves from other islands) who came to the islands in the 17th, 18th, and 19th centuries. The islands' remoteness meant that for centuries the community had a high degree of autonomy and self-determination, depending on and managing the marine resources until the latter half of the

20th century.

The raizal identity is inextricably linked with the marine environment. In a study carried out during MPA planning, nearly 99% of raizal respondents considered traditional fishing essential to their identity as islanders, and as many said that the archipelago's marine territory was their patrimony and belonged to them by historical right. This sense of ownership and belief that their well-being as a people is linked with the health of the marine environment contributed significantly to the almost universal support for MPA conservation (97% in favor of marine reserves and 96% agreement that marine conservation would benefit them) (Howard et al. 2003).

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 MPA was declared in 2005 by the Minister of Environment, Housing, and Territorial Development (Resolution 107/05) (see Annex 1). The same year, three management sections and multiple-use zones (five zone types) were designated by CORALINA in Accords 021/05 and 025/05, respectively. Artisanal fishing zones were established by the San Andres Department fishing authority (Junta Departamental de Pesca) in Accord 004/05.

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

unknown

b - Management structure, authority

Minister of Environment, Housing, and Territorial Development

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

Description of the management authority

Zoning agreements were signed with stakeholders prior to legal designation.

MPA declaration:

- Minister of Environment, Housing, and Territorial Development Resolution 107/2005 – declared the Seaflower MPA
- CORALINA Accord 021/2005 – defined the MPA Northern, Central, and Southern administrative sections

Other relevant national laws include :

- Congressional Law 99/1993 – defined the national environmental framework, establishing CORALINA and declaring the San Andres Archipelago a Biosphere Reserve

- Congressional Law 165/1994 – defined the National Biodiversity Policy
- Congressional Law 136/1994 - declared mangroves protected areas throughout the nation
- Minister of Environment Resolution 1426/1996 – declared the archipelago’s coral reefs special management areas

Means to implement the framework

MPA declaration: - Minister of Environment, Housing, and Territorial Development Resolution 107/2005

- declared the Seaflower MPA
- CORALINA Accord 021/2005 – defined the MPA Northern, Central, and Southern administrative sections

Other relevant national laws include :

- Congressional Law 99/1993
 - defined the national environmental framework, establishing CORALINA and declaring the San Andres Archipelago a Biosphere Reserve
- Congressional Law 165/1994 – defined the National Biodiversity Policy
- Congressional Law 136/1994 - declared mangroves protected areas throughout the nation
- Minister of Environment Resolution 1426/1996
 - declared the archipelago’s coral reefs special management areas

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

Objective	Top priority	Comment
Stakeholders	Yes	Implement effective adaptive management in collaboration with stakeholders and in accordance with the IMP.
Financial mechanisms	Yes	Design and implement sustainable financial mechanisms for the long-term funding of MPA management.
Economic activities	Yes	Render key economic activities in the archipelago compatible with the objectives, guidelines, and regulations set out in the IMP and associated plans.
Monitoring an analysis	Yes	Implement a management-oriented monitoring and analysis system that supports adaptive management and informed decision-making.

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

The Seaflower MPA and Integrated Management Plan (IMP) were developed in collaboration with local stakeholders, especially those who live off the marine resources such as artisanal fishers and watersports operators, along with other institutions with jurisdiction in the marine area. Not only were stakeholders consulted and involved every step of the way, but they had final decision-making power; meaning that they reached consensus and signed formal agreements on MPA objectives, zoning, and management structure.

The general goal of the new project is to fully implement the MPA’s Integrated Management Plan

(IMP). The project's specific objectives are: 1) to implement effective adaptive management in collaboration with stakeholders and in accordance with the IMP; 2) to design and implement sustainable financial mechanisms for the long-term funding of MPA management; 3) to render key economic activities in the archipelago compatible with the objectives, guidelines, and regulations set out in the IMP and associated plans; and 4) to implement a management-oriented monitoring and analysis system that supports adaptive management and informed decision-making.

- Draft Seaflower MPA Integrated Management Plan (IMP), Parts I (background), II (management), and III (operations) completed and under participatory review by stakeholders and technical experts
- Key Species Conservation Action Plans (shore and sea birds, lobster, sharks, and conch)
- Seaflower MPA management structure in place, including Stakeholder and Institutional Advisory Committees with formal agreements 2005

Management plan - date of publication

: not specified

Management plan duration

: not specified

Date of Review planned

: not specified

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	no	no	no	
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
Combretaceae: Conocarpus erectus	no	no	no	
Compositae : Laguncularia racemosa	no	no	no	

Cymodoceaceae: Halodule wrightii	no	no	no	
Cymodoceaceae: Syringodium filiforme	no	no	no	
Hydrocharitaceae: Thalassia testudinum	no	no	no	
Rhizophoraceae: Rhizophora mangle	no	no	no	
Verbenaceae: Avicennia germinans	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	no	no	no	
Reptiles: Chelonia mydas	no	no	no	
Reptiles: Eretmochelys imbricata	no	no	no	
Reptiles: Dermochelys coriacea	no	no	no	
Birds: Puffinus lherminieri	no	no	no	
Birds: Falco peregrinus	no	no	no	
Birds: Sterna antillarum antillarum	no	no	no	
Mammals: Stenella attenuata	no	no	no	
Mammals: Tursiops truncatus	no	no	no	
Species from SPAW Annex 3 present in your area	Management measures	Protection measures	Recovery measures	Comments/description of measures
Molluscs: Strombus gigas	no	no	no	
Crustaceans: Panulirus argus	no	no	no	
Reptiles: Iguana iguana	no	no	no	
Reptiles: Kinosternon scorpioides	no	no	no	

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

not specified

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
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i - Enforcement measures and policies

To address these threats, information gathered in 2009 found that the most pressing management needs were identified to be stronger enforcement and economic development for vulnerable groups; i.e., to establish effective enforcement and compliance structures that are collaborative (community-based), transparent, legitimate, fair, and based on accurate information; and to promote sustainable and alternative livelihoods to alleviate poverty and achieve financial sustainability to support long-term MPA management and generation of local jobs in conservation. These results are in accord with on-going consultations with MPA users in which they consistently identified their main concerns as the need for stronger enforcement to achieve conservation and MPA management objectives, and for the MPA to generate new economic opportunities to alleviate local poverty and improve quality of life.

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

International status		Date of designation
Biosphere reserve	yes	1/1/00
Ramsar site	no	
Significant bird area	yes	1/1/04
World heritage site (UNESCO)	no	
Others:	no	

Comments

World Heritage Site, tentative list 2008, nomination in process

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	0	There is no permanent MPA staff at this time, with personnel dependent on short-term, grantdriven contracts. The Seaflower MPA was the major outcome of a 5-year GEF-World Bank project funded from 2000-05. Funding for MPA implementation has lacked consistency since the end of the
	Volunteers		
	Partners		

			project, so MPA staff has concentrated on management aspects of education, monitoring, and some ad hoc research. CORALINA personnel in projects related to the MPA have also supported priority management functions such as education, biophysical monitoring, mapping, and targeted research. A team to carry out the new MPA GEF-funded project to strengthen implementation of the Integrated Management Plan (IMP) will lead to the creation of permanent staff by 2014, including substantial staff training. Many CORALINA staff and MPA team members have already received extensive training in MPA
Physical resources	Equipments		
	Infrastructures		
Financial resources	Present sources of funding	158000 \$	The MPA has no regular, secure sources of income at this time. Since the conclusion of the project to establish the MPA in 2005, there has been no annual budget specifically for MPA management and implementation and no money has been received from national or departmental government. MPA priorities such as monitoring and education have been carried out through projects primarily funded by the Environment Ministry's Environmental Compensation Fund (Fondo de Compensación Ambiental). The amount spent on activities related to MPA management averaged US \$158,000 yearly for 2006-08. The estimated annual operating budget needed to fully implement the IMP is US \$750,000, which is expected to be self-financed by 2014. Additionally, several short-term grants for MPA programs were received in the last few years. Mainly these were from the NOAA Coral Conservation Fund and the White Water to Blue Water Initiative. These allowed ad hoc research and management actions to be carried out.
	Sources expected in the future		
	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).

Biophysical, socioeconomic and governance effectiveness indicators have been identified in a participatory process, however only few are being measured. See prior comments about the need to evaluate and streamline the many existing monitoring programs and protocols, as well as shifting to a question-based approach to best provide information needed to adequately support adaptive management.

This also applies to evaluation. Information management and analysis also need to be improved,

with results disseminated to stakeholders. Although consulted presently in an informal way, stakeholders will be formally incorporated into the new evaluation process to improve the transparency, responsiveness, and accountability of MPA management.

Chapter 7. MONITORING AND EVALUATION

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

Results of research and monitoring since 2006 revealed that the condition of most resources has remained the same, while a few have improved or others have even declined, since the establishment of the MPA. For example, in regard to species, a spiny lobster stock analysis showed a fishery that is presently stable but at high risk of overexploitation, and surveys of seabird colonies revealed reductions in numbers. As for ecosystems, monitoring showed that coral condition has remained generally the same, but the condition of some popular reef sites for divers and tourists has declined as have some seagrass beds. Exceptions are mangrove coverage that has grown and queen conch populations that show signs of recovery, both as the result of effective regulation, management, compliance and enforcement, and education.

Zones have been mapped and policies to reduce over-fishing, land-based sedimentation, coastal population, and adapt to climate change impacts have been developed. But the lack of financial resources has impacted CORALINA's ability to achieve MPA objectives and reduce threats. To date the MPA has been unable to slow the decreasing quality of life and growth of poverty in the islands linked to increasing costs of living, unemployment, crime, and ineffective immigration controls. Therefore, a main thrust of the new GEF project is to achieve financial sustainability and eliminate dependence on grants and outside funding

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>	
Governance effectiveness	Biophysical, socioeconomic and governance effectiveness indicators have been identified in a participatory process, however only few are being measured. See prior comments about the need to evaluate and streamline the many existing monitoring programs and protocols, as well as shifting to a question-based approach to best provide information needed to adequately support adaptive management. This also applies to evaluation. Information management and analysis also need to be improved, with results disseminated to stakeholders. Although consulted presently in an informal way, stakeholders will be formally incorporated into the new evaluation process to improve the transparency, responsiveness, and accountability of MPA management.
<i>Evaluation of conservation measures on the status of species populations within and around protected area</i>	
Socioeconomic	
<i>Evaluation of conservation measures on the status of habitats within and around the protected area</i>	
Biophysical	
<i>Evaluation of conservation measures on the status of ecological processes within and around the</i>	

<i>protected area</i>	
Management measures	However, the sheer number of users and growing poverty now mean that even traditional methods contribute to overfishing. Consequently, MPA management measures include closed seasons for key species such as lobster and conch, protection of spawning sites and aggregations, size limits and quotas, and bans on fisheries of threatened and endangered species such as sea turtles, sharks, etc. in addition to the use of no-entry and no-take zones to balance use with conservation.
<i>Evaluation of the impact of the management plan on the local communities</i>	
Local communities	

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	Decisions are guided by and consulted with the Stakeholder Advisory Committee (SAC) and Inter-Institutional Committee (IIC). There is a special advisory committee that is not involved in general management but meets annually and can be consulted at any time for scientific and technical advice – the International Advisory Board (IAB). Advice can be solicited from the IAB by CORALINA, MPA staff, or at the request of the SAC or IIC.		
Public	no			
Decision-makers	no			
Economic-sectors	no			
Local communities	no			
Others	no			

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	<p>The MPA provides ample opportunities for environmental education and to build awareness of the significance of marine ecosystems and conservation. One of the major successes of MPA management to date is the variety and extent of its on-going education, outreach, and public involvement programs. First, all management decisions integrate scientific knowledge with indigenous knowledge, which requires bringing scientists and community together on a regular basis. The MPA also employs community promoters, who are well-known to the community and bring together management, scientists, and stakeholders, facilitating grassroots interaction in any number of ways. Informal public meetings are a regular feature of MPA management, with open dialogue encouraged. There are many activities to share information, educate the wider community, and build stewardship and an environmental consciousness. These include the creation and management of public document centers to make information widely available to the community; information management systems; island-wide, diverse meetings and events targeting all stakeholders, ages, and levels of the wider community; media campaigns; local, national, and international presentations; introduction of formal school curricula on coastal and marine ecosystems; and the production of a variety of publications for children and adults, general outreach materials, and peer-reviewed articles. Collective learning initiatives are also developed with local people and scientists through partnership research, advisory groups, community-based monitoring, expert training, etc. For example, community-based monitoring programs in place include ReefCheck, RECON, COSALC, and REEF. Other examples of joint activities include hiring community and volunteers to support research expeditions, community clean-ups, volunteer inspectors, and an adopt-an-ecosystem program (beaches, mangroves, etc.).</p>	
Capacity building of staff and management	yes	<p>CORALINA has consistently invested significant budget and efforts in education about marine ecosystems and conservation, with the MPA being a priority. However, the lack of secure budget and staff (the MPA is not yet financially self-sustainable) can reduce effectiveness of the education process when education and outreach become project-driven. Programs need to be integrated into a comprehensive plan that progresses from theory to action to properly address the needs, levels, and responsibilities of diverse stakeholder groups. See prior answers for more detail on the many education, outreach, and training programs. Because outreach and community-wide education are among CORALINA's most developed programs, environmental awareness has steadily improved. However, awareness is not enough. Compliance is not as high as it should be, there are many violations in spite of the growing awareness, and the community needs to become more proactive in regard to conservation, instead of solely relying on CORALINA. Shared responsibility is challenging considering</p>	

		the pressure of daily needs exacerbated by the declining quality of life and growing poverty, but is still a major goal of MPA education.	
Research, data storage, and analysis	no		
Surveillance and enforcement	yes	Human and material resources need to be substantially strengthened to improve surveillance. As mentioned in earlier sections, this is a main focus of the new GEF MPA project. Legal procedures are well-defined with graduated penalty structures and an education-based approach. Lawyers and managers are very accessible to the public. However, legal procedures are too complicated and bureaucratic, needing to be simplified and streamlined to become more efficient and effective.	
Participation of exterior users	no		
Alternative and sustainable livelihoods	no		
Adaptative management	no		

Chapter 10. OTHER RELEVANT INFORMATION

Contact addresses

	Name	Position	Contact adress	Email adress
who is submitting the proposal (national focal point)	FRANKE ANTE Rebeca	Dirección Territorial Caribe. Parques Nacionales Naturales de Colombia		refranke@parquesnacionales.gov.co
who prepared the report (manager)	FRANKE ANTE Rebeca	Manager	Ministry of Environment, Housing and Territorial Development - Columbia	manager@seaflower.com

Date when making the proposal : 10/05/2010

List of annexed documents

Name	Description		