UNITED NATIONS

EP

United Nations Environment Program

UNEP

Original: ENGLISH

Proposed areas for inclusion in the SPAW list

ANNOTATED FORMAT FOR PRESENTATION REPORT FOR:

Port Honduras Marine Reserve

Belize

Date when making the proposal : *6/15/14*

CRITERIA SATISFIED :

Ecological criteria	*Cultural and socio-economic criterias*
Representativeness	Productivity
Conservation value	Cultural and traditional use
Rarity	Socio-economic benefits
Naturalness	
Critical habitats	
Diversity	
Connectivity/coherence	
Resilience	

Area name: Port Honduras Marine Reserve
Country: Belize

Contacts

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SUMMARY

ANNEXED DOCUMENTS

PHMR Map
PHMR Management Plan
Site characterisation study
PHMR Climate Change Adaptation Plan
PHMR Baseline Study

Chapter 1. IDENTIFICATION

a - Country:

Belize

b - Name of the area:

Port Honduras Marine Reserve

c - Administrative region:

Toledo

d - Date of establishment:

1/25/00

e - If different, date of legal declaration:

1/25/00

f - Geographic location

Longitude X: -88.573837
Latitude Y: 16.196872

g - Size:

405 sq. km

h - Contacts

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i - Marine ecoregion

68. Western 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 Port Honduras Marine Reserve (PHMR) is unique along the coast of Central America in lagoon system size and the number of in-shore mangrove islands. This ecological system is in relatively pristine condition and includes three related components: coastal and tidal wetlands, marine lagoons, and mangrove islands with associated shallow banks and fringing coral reefs. Almost all of the coastal and island vegetation, including mangroves, is intact.

The purpose of PHMR is the maintenance of coastal ecosystem functions and natural resource values, including water quality and nursery habitats of the area, in order to protect biodiversity and traditional fishers' livelihoods.

The ecological uniqueness of PHMR was first recognized in 1990 from a Critical Habitat Study. This study identified the area from the Bladen Nature Reserve to Port Honduras as a potential protected corridor from the Maya Mountains to the sea, preserving a wide range of biodiversity. Subsequently, PHMR was the subject of two rapid ecological assessments (REAs) funded under the PACA (Environmental Project for Central America) Project.

The REAs revealed that PHMR serves extremely important ecological functions of regional significance. Compared with the water quality beyond the Snake Cayes, the inshore area was found to be quite turbid. This indicates that much of the sediment from runoff is confined within the coastal basin, allowing for appropriate water quality for coral growth offshore. The area was found to be high in juvenile fish, including most of the commercial species.

PHMR has three adjacent and nearby human settlements: Monkey River, Punta Negra and Punta Gorda. The predominant use is fishing. Many of the Belizean fishers who work in the Port Honduras area complained of illegal fishing by foreign nationals, and attribute the apparent reduction in certain fish stocks to transboundary fishing. For this reason (and because of the availability of a relatively good dataset on commercial species going back 5-10 years), PHMR was chosen to be one of two pilot sites in Belize for Managed Access fisheries management. Managed

Access has reduced the number of commercial fishers using PHMR from over 300 to approximately 120.

While tourism impacts are currently low, the future is likely to bring an increased number of visitors. Recently, the Punta Ycacos Lagoon has been used as a tourist attraction primarily for fly-fishing. New Haven, a natural harbor, is witnessing increased use by sailboats.

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

Marine Reserves provide breeding and nursery areas for juveniles of many species. The "no-take" zones of PHMR serve as seeding ground for areas that have been depleted. PHMR is also an important nursery area for a variety of species, including the critically endangered goliath grouper. The coastal and estuarine mangroves within and adjacent to PHMR constitute what is thought to be one the world's last three major nurseries for the critically endangered goliath grouper (*Epinephelus itajara*). Juvenile *E. itajara* tagged in PHMR have been recaptured as far away as Mexico and Honduras.

In spite of recent signs of fisheries decline, intact habitats in PHMR can continue to support regionally important fisheries resources. Management is critical and Managed Access is an attempt to reduce overfishing, enable commercial species to recover, and foster stewardship by traditional users (fishers) of the MPA. PHMR represents the core of an intact corridor of terrestrial and marine habitats. Because of its role in linking uplands with the sea via rivers, estuaries and coastal lagoons, the area is critical for the reproduction of a great diversity and abundance of commercially important resources. The large mangrove area on the coast, significant seagrass beds, large areas of substrate and reef environments all contribute to the value of PHMR as critical habitat for fisheries productivity and biodiversity conservation.

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:

405 *sq. km*

b - Physical features

Brief description of the main physical characteristics in the area:

See descriptions below.

Geology:

The geological processes influencing southern Belize can be understood by breaking the continental margin and shelf into three components: the coastal margin, the near-coast shelf and channels, and the offshore reef tract (Sullivan et al., 1995). The continental margin of Belize forms one of the sides of a deep oceanic basin that makes up the northwest Caribbean region of the Tropical Western Atlantic. This basin is surrounded by the Cayman Ridge and Trough System to the east, the Nicaraguan Rise to the southeast, and by Cuba to the north.

The geology of coastal Belize is complex, and reveals a history of rock strata formed from terrestrial and marine sediments altered by tectonics. The basement structure of the continental margin of Belize is characterized by groups of aligned rift blocks that trend approximately parallel to the coast but that diverge north-eastward (Sullivan et al. 1995). Early in the Mesozoic (65-248 million years ago) the orogenic phase occurred, characterized by block faulting in northern Central America and accompanied by deposition of continental red beds. This faulting progressed into Guatemala, Belize and western Honduras and it is during this period that the development of the north-western Caribbean occurred, opening a rift between the Yucatan peninsula and Honduras, creating the Gulf of Honduras (Sullivan et al. 1995). During the late Cretaceous period, marine red beds, siltstone and shale, detrital limestone and some reef-like carbonate rocks were deposited over much of Guatemala, Belize and Yucatan (Sullivan et al. 1995).

In the Cenozoic era (65 million years ago to the present), deltaic detritus and carbonates accumulated in restricted marine embayments of eastern Guatemala and southern Belize. The streams of southern Belize drain the Maya Mountains, but they flow across a relatively flat and narrow coastal plain into swamps and small lagoons before entering the sea. The coastal and tidal wetlands serve as an efficient sediment trap, thus, large quantities of terrigenous material probably do not reach the Port Honduras Marine Reserve. The sedimentation regime may have changed little since the early Cretaceous times when development of the platform began (Dillon & Vedder 1973).

Soil:

N/A

Topography:

N/A

Bathymetry:

The Marine Reserve lies in a coastal basin with estuarine characteristics, into which six watersheds flow. Although much of the Reserve waters exceed 5m in depth, two shallow banks run parallel to the shore, providing a base for many of the cayes, and which act as sediment traps, preventing much of the riverine sediment from reaching the coral reefs (Sullivan et. al., 1995). Close inshore the water are generally quite turbid, beyond the shallow banks the water has far greater clarity.

Hydrodynamics:

Most of the area of Port Honduras is deeper than 5 meters. These deeper basins are somewhat protected from vertical mixing by shallow banks, and retain the inertia of the tropical surface water circulated in from the Gulf of Honduras. It is this volume of oceanic water that maintains oceanic salinities and the marine nature of the embayment.

The waters of the Marine Reserve exhibit pronounced haloclines – layering of waters with different concentrations of salinity. This vertical layering of the water column is particularly pronounced in areas where the rivers enter the bay, with the less dense surface waters from the rivers lying on top of the denser seawater. Mixing of these layers is limited by the shallow banks, protecting the inshore waters from significant offshore wave-action, and salinity can vary from freshwater to over 30 ppt. Most of Port Honduras is extremely turbid, and in general, turbidity was highest close to shore decreasing over deeper areas of the bay and in mangrove enclosed lagoons.

Volcanic formations:

N/A

Sand dunes:

N/A

Underwater formations:

Although much of the Reserve waters exceed 5m in depth, two shallow banks run parallel to the shore, providing a base for many of the cayes, and which act as sediment traps, preventing much of the riverine sediment from reaching the coral reefs (Sullivan et. al., 1995).

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):

Marine habitat types found in Port Honduras are sea grass communities, soft bottom communities, and hard bottom communities. Throughout Port Honduras, basins or areas adjacent to low-energy shorelines (often mangrove dominated) with high turbidity are bare clay bottom. Sea grass communities are found in areas where the water is not too turbid and photosynthesis is not impeded. Reef and hard bottom communities are found around the Snake Cayes area and outer banks associated with the cayes where the water quality - salinity, turbidity, and nutrient levels - is more conducive to coral reef development. The dominant terrestrial vegetation type in Port Honduras Marine Reserve is littoral forests and mangroves. The dominant species on the cayes and majority of the mainland is the red mangrove (*Rhizophora mangle*).

Detail for each habitat/ecosystem the area it covers:

Marine / coastal ecosystem categories ***Detail for each habitat / ecosystem the area covers***	Size (estimate)		Description and comments
	unit	Area covered	
Terrestrial ecosystems	Size (estimate)		
	unit	Area covered	

Flora

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

The dominant vegetation type in Port Honduras Marine Reserve is littoral forests, mangroves and seagrasses. The dominant species on the cayes and majority of the mainland is the Red Mangrove (*Rhizophora mangle*). The other species include Buttonwood (*Conocarpus erectus*), White Mangrove (*Laguncularia racemosa*) and Black Mangrove (*Avicennia germinans*). Seagrass beds are located in many of the shallow water areas close to the coastline and surrounding many of the cayes and are mainly of the species Turtle grass (*Thalassia testudinum*) and Manatee grass (*Syringodium filiforme*).

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

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	Neither population estimates nor are covered have been determined. Habitat mapping not yet completed.
Cymodoceaceae: Syringodium filiforme	not given	Neither population estimates nor are covered have been determined. Habitat mapping not yet completed.
Hydrocharitaceae: Thalassia testudinum	not given	Neither population estimates nor are covered have been determined. Habitat mapping not yet completed.
Rhizophoraceae: Rhizophora mangle	not given	Neither population estimates nor are covered have been determined. Habitat mapping not yet completed. Baseline mangrove coverage is due to be determined in 2014-15.
Verbenaceae: Avicennia germinans	not given	Neither population estimates nor are covered have been determined. Habitat mapping not yet completed.

List of plant species within the site that are in the IUCN Red List. UICN 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

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

Fauna

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

The Marine Reserve contains assemblages of regionally important ecosystems of importance for several species of global conservation concern, among them the critically endangered staghorn and elkhorn corals (*Acropora cervicornis* and *Acropora palmata*), hawksbill turtle (*Eretmochelys imbricata*) and goliath grouper (*Epinephelus itajara*). The area also protects the endangered green and loggerhead turtles (*Chelonia mydas* and *Caretta caretta*), and contributes towards the regional viability of important commercial species, including the queen conch (*Strombus gigas*) and spiny lobster (*Panulirus argus*). About seventy fish species were caught in the coastal zone of Port Honduras, almost fourty of which had commercial value. These fish belonged to mostly the snapper (*Lutjanidae*), grunt (*Haemulidae*), parrotfish (*Scaridae*), and mojarra (*Gerreidae*) families. The rest are small or non-palatable species that are usually common in seagrass habitats. These are anchovies (*Engraulidae*), pipefishes (*Synhnathidae*), filefishes (*Sciaenidae*), small wrasses (*Labridae*), gobies (*Gobiidae*), and puffers (*Tetraodontidae*).

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: Crocodylus acutus	not given	
Reptiles: Crocodylus moreletii	not given	
Reptiles: Caretta caretta	not given	
Reptiles: Chelonia mydas	not given	
Reptiles: Eretmochelys imbricata	not given	
Reptiles: Dermochelys coriacea	not given	
Mammals: Trichechus manatus	not given	

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

List of species in SPAW annex III	Estimate of population size	Comments if any
Molluscs: Strombus gigas	not given	Population density of S. gigas has been determined in some habitats but habitats have not been mapped in the MPA, making accurate population estimate impossible at this stage. Habitat mapping has commenced.
Crustaceans: Panulirus argus	not given	Population density of P. argus has been determined in some habitats but habitats have not been mapped in the MPA, making accurate population estimate impossible at this stage. Habitat mapping has commenced.
Mammals: Eira barbara	not given	

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
Male and female: Eretmochelys imbricata	CR - Critically endangered	not given	
Male and female: Dermochelys coriacea	VU - Vulnerable	not given	
Male and female: Caretta caretta	EN - Endangered	not given	
Male and female: Chelonia mydas	EN - Endangered	not given	
Male and female: Trichechus manatus	VU - Vulnerable	not given	
Male and female: Crocodylus acutus	VU - Vulnerable	not given	
Male and female: Epinephelus itajara	CR - Critically endangered	not given	Tagged E. itajara from Port Honduras Marine Reserve have been found as far away as Mexico and Honduras.
Male and female: Acropora cervicornis	CR - Critically endangered	not given	

Male and female: Acropora palmata	CR - Critically endangered	not given	
Male and female: Epinephelus striatus	EN - Endangered	not given	
Male and female: Montastraea annularis	EN - Endangered	not given	
Male and female: Montastraea faveolata	EN - Endangered	not given	
Male and female: Scarus guacamaia	VU - Vulnerable	not given	
Male and female: Balistes vetula	VU - Vulnerable	not given	
Male and female: Lachnolaimus maximus	VU - Vulnerable	not given	
Male and female: Lutjanus cyanopterus	VU - Vulnerable	not given	
Male and female: Lutjanus analis	VU - Vulnerable	not given	

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

List of species in the national list of protected species that are present in your site	Estimate of population size	Comments if any

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	5250	not given

Comments about the previous table:

Population numbers are estimates. The only two communities that directly border the reserve are Punta Negra with less than 20 inhabitants and Monkey River with roughly 200 inhabitants. The larger town of Punta Gorda is 4km away.

Description of population, current human uses and development:

Key stakeholders of the Port Honduras Marine Reserve include local fishers, tour guides, tour operators, hotel and restaurant owners, local residents, recreational users of the protected area, tourists, local and national politicians and large-scale investors. Three communities have been identified as major stakeholders in the protected area, through fishing or tourism.

Punta Gorda, the capital of the Toledo District, lies on the coast to the south of PHMR. It has over

5,000 residents of various ethnic groups, including Creole, Garifuna, Maya and Mestizo. Fishing, tourism and public sector employment are the primary economic activities.

Punta Negra lies on the coast of PHMR and is only accessible by sea. In 1990, there were around 200 people in 40 families. Currently, only 18 people in five families remain. Fishing remains the primary source of income, supplemented to a limited extent by coconut oil production and tour guiding. Punta Negra has great potential for eco-tourism, being in a beautiful beach location close to the cayes, but remoteness and lack of infrastructure are barriers to realizing this potential.

Monkey River Village lies at the north end of PHMR at the Monkey River estuary. It is accessible by land and sea. The population is around 180 people, mostly of Creole ethnicity. The economic activities are commercial fishing and tourism. There are two hotels, three restaurants and over thirty tour guides. The Monkey River Tour Guide Association fosters opportunities for its members but is in need of institutional support.

The predominant fishing methods are using hand lines for finfish, and free-diving for spiny lobster, queen conch, and sea cucumber. In 2011, a managed access fisheries program was implemented in PHMR to stop transboundary fishing and protect the livelihoods of local traditional fishers. Presently, around 120 fishers possess a special Managed Access license to conduct commercial fishing in PHMR. Approximately 200 subsistence fishers (who do not require a special license) also utilize the MPA.

Use of PHMR for tourism is relatively low compared with other Belizean MPA, with approximately 1,200 day visitors per year and almost no overnight stays. It is estimated that 28% of the population of the three buffer communities is employed directly or indirectly in the tourism industry.

The main form of tourism in PHMR is fly fishing. PHMR and adjacent Payne's Creek National Park are regarded as world class fly fishing sites where the ‘grand slam’ can be achieved. Approximately 10 local guides specialize in fly-fishing guiding. Other tourist activities include snorkeling, SCUBA, kayaking and sailing. The primary areas for snorkeling and SCUBA diving are the fringing reefs around the Snake Cayes (except for Middle Snake Caye, which is off limits to tourism).

Two small cruise ships carrying between 20 to 85 passengers visit the cayes within PHMR on a regular basis with landings off West Snake Caye and Punta Gorda Town. One company markets its cruise as an eco-tourism tour and offers natural history educational lectures on board.

In addition to the locals, a significant but so far unquantified number of tour guides and fishers from Guatemala and Honduras use the natural resources of PHMR.

Activities	Current human uses	Possible development	Description / comments, if any
Tourism	limited	increase	
Fishing	very important	increase	
Agriculture	significant	stable	
Industry	limited	stable	
Forestry	significant	stable	
Others	not specified	not specified	

e - Other relevant features

Educational feature:

TIDE has established a number of educational programs for both adults and children that have been very successful in raising awareness of marine conservation and getting community members involved in environmental projects, educating other stakeholders and the monitoring of the MPA. Programs include the Community Stewards program, the TIDE Freshwater Cup, TIDE Summer Camp and the Youth Conservation Competition. TIDE regularly conducts field trips into the reserve for local students from surrounding areas.

Research feature:

TIDE monitors water quality, commercial species (conch, lobster, sea cucumber, finfish), coral reef health, fishers' catches and other MPA parameters on an on-going basis. We also conduct one-off targeted research projects, such as a conch size-at-maturity study, often in partnership with visiting researchers.

Archaeological feature:

The Port Honduras Marine Reserve and surrounding area has been the subject of archaeological investigation for over 30 years by Dr. Heather Mckillop (Louisiana State University). Several archaeological sites have been identified and reported in her numerous publications (McKillop 1984, Jackson & McKillop 1987, McKillop 2005, Seidemann & McKillop 2007). These include a trading post at Wild Cane Caye, settlements at Frenchman's Caye, salt production ponds at Stingray Lagoon of Punta Ycacos, and underwater sites of Green Vine Snake Caye and Pork-and-Doughboy Point.

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 ressources: Fishing	very important	decrease	unknown	Groupers, snappers, sharks, lobster, conch, sea cucumber.	Coral reefs, mud flats, seagrass beds, estuaries.	The number of commercial fishers using PHMR has dropped from >300 in 2010 to <120 in 2014 due to the introduction of Managed Access. It is unclear to what extent this has reduced overall fishing effort. Illegal use of gill nets continues, with around 20 nets removed each year by rangers. The no-take/replenishment zones are presently small (3.2% of the MPA) but a proposal to expand these zones to 5.1% of the MPA is in process (2014). TIDE plans to proceed with further

						incremental, data-driven expansion of the replenishment zones.
Exploitation of natural ressources: Agriculture	significant	unknown	unknown		Coral reefs.	Land based sources of pollution are a significant threat. The catchments of the six local rivers draining directly into PHMR possess >90% forest cover. Hence, they contribute relatively little pollution, although banana plantations and shrimp farms in the Monkey River / Placencia area do have an impact. The main sources of sediment and nutrient to PHMR and the Mesoamerican Reef System in general are the Ulua, Patuca and Motagua river catchments in Honduras and Guatemala. A pilot seaweed farming project was recently initiated in PHMR. Progress and environmental impacts will be monitored.
Exploitation of natural ressources: Tourism	limited	increase	increase			Tourism is currently not a major industry but is projected to grow significantly.
Exploitation of natural ressources: Industry	significant	unknown	unknown			There is potential for oil exploration in the near future. A company owning an oil exploration concession covering part of the MPA has applied to conduct an EIA for seismic testing and exploratory drilling.
Exploitation of natural ressources: Forest products	limited	unknown	unknown			N/A
Increased population	significant	increase	increase			Population growth in the Toledo District between 2000 and 2010 was 2.8% per annum. This is likely to cause increases in land-based sources of pollution, demand for marine products and entry of additional people into the

						fishing industry.
Invasive alien species	significant	increase	increase			Invasive lionfish are increasing exponentially since first being reported. They could have a significant impact on native species.
Pollution	significant	increase	increase			See comments above regarding agriculture. Furthermore, marine plastic trash is a significant problem. Again, the majority of this pollution comes from rivers in Guatemala and Honduras.
Other	limited	not specified	not specified			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 ressources: Fishing	very important	unknown	unknown			Transboundary fishing occurs widely throughout the unpatroled marine areas around PHMR.
Exploitation of natural ressources: Agriculture	very important	increase	increase			There is a possibility that this threat will increase with the completion of a road to Guatemala in Toledo, opening up access to markets for agricultural products and potentially increasing immigration.
Exploitation of natural ressources: Tourism	significant	increase	increase			It is possible that large scale cruise ships may come to Toledo. In which case all tourism sectors would increase.
Exploitation of natural ressources: Industry	significant	unknown	unknown			Potential for oil exploration in the near future in and around PHMR.
Exploitation of natural ressources: Forest products	limited	unknown	unknown			Some logging occurs on private lands of the MMMC but a significant protion of the terrestrial area is protected.
Increased population	very important	increase	increase			Population growth in adjacent areas will increase

						fishing pressure and agricultural intensity in the watersheds.
Invasive alien species	significant	increase	unknown			Lionfish populations are greater on the barrier reef than in PHMR. The population is likely to increase in the near term.
Pollution	limited	increase	unknown			Toledo lacks a properly contained landfill. Leachate from a dump site near to Punta Gorda is likely impacting the Rio Grande, which drains into PHMR. The impact is likely to grow in the near-term until a proper land fill is created.
Other	limited	not specified	not specified			N/A

h - Information and knowledge

Information and knowledge available

Environmental monitoring by the Toledo Institute for Development and Environment (TIDE) informs an adaptive management approach within the Port Honduras Marine Reserve.

TIDE's monitoring program incorporates the following. Water quality (temperature, salinity, dissolved oxygen, conductivity and turbidity) is measured at 17 sites throughout PHMR (as well as additional sites in rivers upstream) on a monthly basis.

Strombus gigas and *Panulirus argus* populations are surveyed at 16 and 12 sites, respectively, at the start and end of the closed seasons.

Benthic cover, coral health and reef fish populations are assessed twice a year at eight sites. Seagrass beds (species percent cover, density, grass height, grazing evidence) are assessed at two sites on a quarterly basis and mangrove community structure and productivity are surveyed at one site on an annual basis.

Since January 2009, a fisheries stock assessment has been implemented for all finfish species, *S. gigas* and *P. argus* populations, utilizing catch landings at local markets in Punta Gorda and Monkey River and the Rio Grande Fisheries Cooperative in Punta Gorda.

Coral reef bleaching surveys are conducted when necessary in conjunction with the Belize Coral Reef Monitoring Network.

A comprehensive habitat mapping project using remote sensing and ground truthing is currently underway.

List of the main publications

Title	Author	Year	Editor / review

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)

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 area protected by the Port Honduras Marine Reserve provides one of the richest and most critically important habitats within Belize. It incorporates four distinct ecosystems: coastal and tidal wetlands, marine lagoonal habitats comprised of mangroves and seagrass beds, mangrove islands with associated shallow carbonate banks, and the Snake Cayes fringing reef system (Sullivan et al. 1995).
Important biological resources afforded protection by Port Honduras Marine Reserve include commercially important finfish such as snappers and groupers, in addition to the Caribbean spiny lobster (*Panulirus argus*), and the queen conch (*Strombus gigas*).

Port Honduras Marine Reserve is one of the largest protected areas in Belize, and encompasses more small coral cayes (approximately 138 cayes) than any other protected area in the country. It is of national importance for the services it provides, in particular as the key link between the coastal and marine ecosystems and the terrestrial protected areas and upland watersheds of the landscape / seascape of the Maya Mountain Marine Corridor (MMMC).

Conservation value:

The coastline of dense mangrove and 138 small offshore mangrove cayes, some surrounded by fringing reefs, serve as critical nursery and feeding areas for a variety of species, including the West Indian manatee (*Trichechus manatus*).

The MPA supports fifteen species of international concern, including four rated as critically endangered – staghorn and elkhorn corals (*Acropora cervicornis and A. palmata*), the goliath grouper (*Epinephelus itajara*), and the hawksbill turtle (*Eretmochelys imbricate*). Extensive surveys of these habitats have revealed a rich matrix of ecosystems, including the high biodiversity of the coral reef within the MPA. Over 118 finfish species have been recorded, six of which were observed only at sites around the Snake Cayes (Sullivan et al. 1995, Harborne 2000, Robinson et al. 2004).

Rarity:

PHMR and adjacent coastal and estuarine mangroves are thought to be one of the last three remaining nursery grounds in the world for the critically endangered goliath grouper (*Epinephelus itajara*).
A total of 61 stony coral species have been observed in the waters of Belize, with eight unusual coral sightings on the reefs of the Snake Cayes within PHMR (Fenner, 1999). The mid-lagoonal reefs in PHMR are unique in Belize.

Naturalness:

Coastal development around PHMR is extremely minimal - the coastal mangroves and littoral forest are still almost entirely intact.

The coral reef at East Snake Caye is one of the healthiest in the Mesoamerican Reef, scoring "very good" in the 2010 Report Card on the Health of the Mesoamerican Reef, and still possessing >20% live coral cover and <10% macroalgal cover.

Critical habitats:

PHMR and adjacent coastal and estuarine mangroves are thought to be one of the last three remaining nursery grounds in the world for the critically endangered goliath grouper (*Epinephelus itajara*).

Diversity:

The MPA supports fifteen species of international concern, including four rated as critically endangered – staghorn and elkhorn corals (*Acropora cervicornis and A. palmata*), the goliath grouper (*Epinephelus itajara*), and the hawksbill turtle (*Eretmochelys imbricate*). Extensive surveys of these habitats have revealed a rich matrix of ecosystems, including the high biodiversity of the coral reef within the MPA. Over 118 finfish species have been recorded, six of which were observed only at sites around the Snake Cayes (Sullivan et al. 1995, Harborne 2000, Robinson et al. 2004).

Connectivity/coherence:

The 100,000 sea acres of the Port Honduras Marine Reserve are part of the Maya Mountain Marine Corridor (MMMC), a significant part of Belize's component of the Mesoamerican Biological Corridor. The MMMC stretches from the Maya Mountains to the Snake Cayes. The corridor itself is a mosaic of landscapes and cultures, an interdependent and biologically significant area. PHMR serves as the vital link between terrestrial protected areas and upland watersheds, and downstream coastal and marine ecosystems, including the Belize Barrier Reef.

PHMR also provides connectivity for entirely marine species. Tagged goliath grouper from PHMR have been recaptured as far away as Mexico and Honduras. Coral, fish, conch and lobster all spawn in PHMR, providing larvae to other areas, particularly to the north on prevailing currents.

Resilience:

In the waters surrounding the Snake Cayes, near-shore fringing reefs provide habitat for reef organisms. These are unique in Belize as mid-lagoonal reefs, with characteristics of both inshore reef and offshore barrier reef environments. These reefs underwent extensive bleaching in 1998, losing up to 40% of coral cover, but have since partially recovered, suggesting some level of resilience to climate change.

Patch reefs in inshore areas of PHMR are subject to high variability in salinity, temperature and turbidity, which fluctuate naturally with seasonal variations in freshwater input. Thus, these coral communities are tolerant of these stresses.

Chapter 5. CULTURAL AND SOCIO-ECONOMIC CRITERIA

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

Productivity:

PHMR is a highly productive coastal environment that supports a number of commercial fisheries, including queen conch (*Strombus gigas*), spiny lobster (*Panulirus argus*), sea cucumber (*Holothuria mexicana*), lane snapper (*Lutjanus synagris*), white grunt (*Haemulon plumierii*), yellowtail snapper (*Ocyurus chrysurus*), snook (*Centropomus undecimalis*), and several other snappers and groupers.
In 2005, the total annual value of the PHMR fishery was estimated at US$445,000 (Coleman & Diamond 2005). The most productive fishery within PHMR in economic terms is for lobster, (caught with nets, traps and by diving) generating an estimated US$254,000 per year (57% of the total value of the PHMR fishery) (Coleman & Diamond 2005). Lobsters are caught mainly on the deep-water banks associated with the Snake Cayes.

Cultural and traditional use:

The main traditional livelihood system of all three communities adjacent to PHMR is fishing. The sustainability of this economic activity depends upon the management of the commercial species within. One of the main goals of the protected area is protect the ecosystems and increase/stabilize the populations of species upon which traditional fishing depends.

Socio-economic benefits:

In 2005, the total annual value of the PHMR fishery was estimated at US$445,000 (Coleman & Diamond 2005). The most productive fishery within PHMR in economic terms is for lobster, (caught with nets, traps

and by diving) generating an estimated US$254,000 per year (57% of the total value of the PHMR fishery) (Coleman & Diamond 2005). Lobsters are caught mainly on the deep-water banks associated with the Snake Cayes.

It was estimated that tour guides generated an annual profit of US$237,000 (Coleman & Diamond, 2005). Inclusion of the primary private fly fishing company, El Pescador, increases the total revenue generated using PHMR to over US$695,000 (Coleman & Diamond, 2005).

A 2009 study found that 59% of the local population consumes locally caught seafood at least twice per week, providing an important source of protein.

In addition to foreign tourists, hundreds of local people enjoy the MPA each year for recreation.

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:

There are 13 MPA within the Belizean PA system. Eight of these, including Port Honduras Marine Reserve, are designated as Marine Reserves and administered under the Fisheries Department.

Key legislation; _

1. The Fisheries Act (1948, revised 1983, and currently being revised (2011-14)), administered under the Fisheries Dept, is the principal governing legislation to regulate the fishing industry, and is directly concerned with maintaining sustainable fish stocks and protecting the marine and freshwater environments. The Fisheries Act also provides for the creation of MPA. Each MPA is legally established by a statutory instrument (SI) under the Act. PHMR was established in SI 9 while the regulations for the MPA are described in SI 18.

2. The Environmental Protection Act (1992) was developed under the Department of the Environment, under the Ministry of Natural Resources, with the aim of ensuring that development initiatives within Belize are planned for minimum environmental impact – important in the context of Port Honduras Marine Reserve, with privately owned / leased cayes located within the Marine Reserve. Also developed under the Ministry of Natural Resources are the Forest (Protection of Mangrove) Regulations (SI 52 of 1989), which provide for the protection of mangroves, with restrictions on mangrove alteration and / or clearance.

3. The Wildlife Protection Act (SI 12 of 1982, revised 2000) also falls under the Forest Department, and provides protection for a number of marine species (West Indian manatee and dolphins), with the prohibition of hunting and commercial extraction.

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

IV

b - Management structure, authority

PHMR is managed under a co-management agreement between the Belize Fisheries Department and the Toledo Institute for Development and Environment (TIDE), a non-profit NGO.

PHMR is zoned for multiple use. A general use zone comprises 97.8% of the MPA while 3.2% lies within five replenishment (no-take) zones. One of these zones is also off limits to all visitation except for research and emergency rescue. A proposal to expand the replenishment zones to 5.1% of the reserve is currently (2014) being considered by the Fisheries Dept. The zoning system is embedded within the Statutory Instruments for the MPA (SI 9 and 18 of 2000 under the Fisheries Act).

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

Description of the management authority

The Ecosystems Management Unit of the Belize Fisheries Department is one of four units under the Fisheries Administrato, and includes the Protected Area Management Programme. Under this mandate, the Fisheries Department is able to establish and manage the marine reserves in Belize (including Port Honduras Marine Reserve), through the Protected Area Management (Marine Reserve) Programme of the Ecosystems Management Unit, which is specifically in charge of the management of the Marine Reserves, under the Marine Protected Areas Coordinator.

The Fisheries Department has established a co-management partnership with the Toledo Institute of Development and Environment, which has taken on the lead management role, being responsible for all activities and associated costs for the marine protected area.

Management of Port Honduras Marine Reserve is led by the TIDE marine manager, who reports to the TIDE programme manager. The marine manager manages a team of four rangers, with the support of one head ranger. These personnel are responsible for the day-to-day management of the MPA, and the implementation of the management plan, supported by the other TIDE programme areas, namely research and monitoring, environmental education, and sustainable development.

Means to implement the framework

TIDE fundraises to support the management of PHMR and has garnered much of the resources required to do so, including a field station at Abalone Caye, two patrol vessels, one research vessel and one education vessel, as well as a team of trained fisheries officers, and a research team.

Financial sustainability was flagged as a weakness of PHMR in a 2009 capacity needs assessment conducted by CaMPAM. Financial sustainability is partially addressed at government level through the development of a funding mechanism to assist in management and development activities

within protected areas – the Protected Areas Conservation Trust (PACT Act, 1996), through a 'conservation tax' of US$3.75 levied on non-residents as they leave the country. TIDE, as the co-management partner, is eligible for funding from the Trust, and has received funding in the past.

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

Objective	Top priority	Comment
To preserve the value of the area for fisheries, through the protection and enhancement of habitats utilised by commercially important species.	No	Resource Protection Program
To reduce fishing pressure in the PHMR by 30% by eliminating illegal fishing and illegal fishing methods.	No	Resource Protection Program
To maintain diverse and healthy fish populations in the rivers of the MMMC.	No	Resource Protection Program
By 2018, increase commercial species (conch, lobster, snapper, grouper) and parrotfish to viable population levels	No	Resource Protection Program
By 2015, increase shark numbers by 15% based on 2006 levels, and the population of large (>110cm) Goliath Grouper by 15%, in PHMR based on 2006 levels.	No	Resource Protection Program
To monitor viability of conservation targets and water quality	No	Research and Monitoring Program
To provide information on the ridge to reef connectivity of the Maya Mountain marine Corridor	No	Research and Monitoring Program
To effectively assess success of no take areas, managed access and PHMR as a whole in maintaining viable populations of key conservation species	No	Research and Monitoring Program
To identify sites/coral species resilience and develop recommended adaptations for climate change	No	Research and Monitoring Program
To establish comprehensive datasets and effective data management and analysis for providing information for informing adaptive management strategies and assessing the management effectiveness of the marine protected area	No	Research and Monitoring Program
To improve engagement of stakeholders of PHMR through involvement in research and monitoring activities within the Marine Reserve, to build capacity improve support for conservation activities.	No	Research and Monitoring Program
To improve capacity and ability of staff, rangers and community researchers to conduct research and monitoring within PHMR	No	Research and Monitoring Program
To build the capacity of the Advisory Council and Board of Directors in NGO governance through training and exchange visits to	No	Education and Outreach Program

international NGO's		
To support supplemental livelihood identified by PHMR buffer communities	No	Sustainable development program
To implement an educational Program to promote conservation through sustainable resource use;	No	Education and Outreach Program
To implement a comprehensive interpretative Program	No	Education and Outreach Program

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

The management plan has been developed following national guidelines (National Protected Areas Policy and System Planning Plan, 2005), and the outputs from the Maya Mountain Marine Corridor Conservation Action Strategy (TIDE, 2009). There has been extensive stakeholder input, through meetings with staff at TIDE, the Port Honduras Marine Reserve Advisory Committee, representative stakeholders, members of the buffering communities and the Fisheries Department. It has also taken into account planning for the adjacent Southern Belize Reef Complex system, stretching north from the Sapodilla Cayes Marine Reserve to South Water Caye Marine Reserve.

The Plan is structured in three parts;

- The Current Status provides information on the national and regional context of the Marine Reserve, with information on the physical and biological aspects of the area, documents the current uses and highlights management problems.
- The Conservation Planning section summarises the conservation target and threats and details specific management strategies for the maintenance of biodiversity and ecosystem functions.
- The Management Planning section defines the goals and objectives of management for the Marine Reserve, the management programmes and strategies in place for the coming five years, and integrates a monitoring and evaluation format.

The Management Plan is considered a living document, to be reviewed, update and re-submitted annually by TIDE and the Fisheries Department, allowing information to be added and strategies amended as appropriate, reflecting changes in the socio-economic and biodiversity context of the marine protected area.

A climate change adaptation strategy for PHMR was completed in 2012 and added as an annex to the management plan.

Management plan - date of publication

: 1/1/12

Management plan duration

: 5

Date of Review planned

: 1/1/17

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	The most ecologically valuable coral reefs in PHMR are all contained within replenishment (no-take) zones. Coral reef health is monitored and data fed into the Healthy Reef Initiative. TIDE's watershed management upstream aims to protect coral reefs.
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	
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	Management measures	Protection measures	Recovery measures	Comments/description of measures

your area				
Reptiles: Crocodylus acutus	no	no	no	
Reptiles: Crocodylus moreletii	no	no	no	
Reptiles: Caretta caretta	yes	yes	yes	TIDE responds to all sea turtle strandings and reports the details to EcoMar as part of a national initiative. Injured turtles are cared for and, if necessary, transported to a rehab facility at Hol Chan Marine Reserve. Necropsies are performed on dead sea turtles to determine cause of death. TIDE has begun to monitor and protect sea turtle nest but required additional resources to operate a comprehensive program.
Reptiles: Chelonia mydas	yes	yes	yes	TIDE responds to all sea turtle strandings and reports the details to EcoMar as part of a national initiative. Injured turtles are cared for and, if necessary, transported to a rehab facility at Hol Chan Marine Reserve. Necropsies are performed on dead sea turtles to determine cause of death. TIDE has begun to monitor and protect sea turtle nest but required additional resources to operate a comprehensive program.
Reptiles: Eretmochelys imbricata	yes	yes	yes	TIDE responds to all sea turtle strandings and reports the details to EcoMar as part of a national initiative. Injured turtles are cared for and, if necessary, transported to a rehab facility at Hol Chan Marine Reserve. Necropsies are performed on dead sea turtles to determine cause of death. TIDE has begun to monitor and protect sea turtle nest but required additional resources to operate a comprehensive program.
Reptiles: Dermochelys coriacea	yes	yes	yes	TIDE responds to all sea turtle strandings and reports the details to EcoMar as part of a national initiative. Injured turtles are cared for and, if necessary, transported to a rehab facility at Hol Chan Marine Reserve. Necropsies are performed on dead sea turtles to determine cause of death.
Mammals: Trichechus manatus	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	yes	yes	yes	TIDE monitors conch and enforces closed seasons and size limits within PHMR.

Crustaceans: Panulirus argus	yes	yes	yes	TIDE monitors lobster and enforces closed seasons and size limits within PHMR.
Mammals: Eira barbara	no	no	no	

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

Belize has an impressive record of establishing protected areas, with a total of 94 marine and terrestrial reserves, spawning aggregation sites, crown reserve cayes supporting important bird colonies, archaeological reserves, and recognized private reserves (NPAPSP, 2005). Almost 2,000,000 acres are designated for conservation (including sustainable resource use) – either as national or private protected areas.

The national objectives for conservation revolve around the protection, conservation and rational use of Belize's natural resources within the context of sustainable human development. These objectives are supported by the National Protected Areas Policy and System Plan (NPAPSP, 2005), which was developed following a full review of the national protected areas system in 2005. The Policy was accepted by Cabinet in January 2006.

Port Honduras Marine Reserve is an important component of Belize's strategies for conservation of the marine environment. Whilst the entire Barrier Reef system and associated coral reef structures do not have full protected status within Belize, there are 13 marine protected areas within the system. Eight of these, including Port Honduras Marine Reserve, are designated as Marine Reserves and administered under the Fisheries Department, the remaining five are administered under the Forest Department, and include two Natural Monuments, two Wildlife Sanctuaries and a National Park (Table 2). A serial designation of specific conservation sites also protects identified spawning aggregation sites within Belize, important for maintaining the viability of many commercial species.

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
General Use Zone	The General Use Zone shall be restricted to those with the appropriate license for any of the following: commercial fishing (requiring a special Managed Access license), sport fishing, subsistence fishing or recreational fishing. Fishermen shall apply for a license to fish in accordance with these Regulations. Rules for General Use Zone. • Only residents of Port Honduras who have special licences to fish shall be allowed to fish in this zone solely for subsistence purposes, and such fishing shall be determined by the terms and conditions of each resident's license. • No person shall be permitted to use long lines or gill nets in the Port Honduras Marine Reserve. • No person shall be permitted to use or erect beach traps. • No person shall, within the Port Honduras Marine Reserve, cast or drag any anchor in any manner that may damage coral reef formation. • Fishermen catching lobster shall preserve such lobster

	while in the Marine Reserve within its carapace but not as fillet.
Conservation Zone	Rules for Conservation Zone. • There shall only be non-extractive recreational activities in the Conservation Zone. • No person shall engage in water-skiing and jet skiing within this zone. • Sport fishing in the Conservation II Zone shall only be carried out under a license issued in accordance with these Regulations and such fishing shall only be carried out on a catch-and-release basis. • No person shall engage in spear fishing with the Conservation II Zone. • No person shall engage in commercial, recreational and subsistence fishing within the Conservation II Zone. • No person shall engage in trawling, setting nets or traps within the Conservation II zone. • No person shall engage in water-skiing and jet skiing within the Conservation II zone. • No person shall secure a boat to the seabed of the Conservation I and II zones except by means of a mooring that is officially designated for this purpose, (save in the case of an emergency where life and property are endangered), or with the prior, written permission of the Reserve Manager. • All divers in the Conservation I and II zones shall adhere to the following rules: • divers shall register with the Reserve Manager prior to entering the Conservation zones • charter dives shall first obtain a licence in the form prescribed as Form VI of the Schedule before operating in the Conservation zones and all dive • boats shall fly the “divers down flag” when they have divers in the water; • Only certified scuba divers, or divers undergoing a training course conducted by a recognized instructor shall be allowed to use scuba equipment in areas of the Reserve where diving is permitted. • Dive guides shall be required to explain the rules of the Reserve to all divers within the Reserve. • All boats which need to operate in these zones shall first obtain registration from the Fisheries Administrator in accordance with these Regulations. • For the purpose of this Regulation “divers down flag” means a flag with a white diagonal stripe upon a red background. • All motor boats are to observe the low-wake-boat-way when approaching snorkelers or divers.
Preservation Zone	Regulations • No person shall engage in commercial fishing, sport fishing, diving or any other water activity within the Preservation zone. • No vessel shall be permitted within the Preservation zone except in cases of emergency or where written permission has first been obtained from the Fisheries Administrator.

i - Enforcement measures and policies

Enforcement in the Port Honduras Marine Reserve is focused on supporting and upholding the following Marine Reserve legislation, and ensuring fishing and tourism rules and regulations are enforced.

CORAL:

- It is Illegal for any person to take, buy, sell or have in his possession any type of coral.
- An exception is made in the case of Black Coral (Order ANTIPATHARIA) which may only be bought, sold or exported with a license from the Fisheries Administrator.

BONE FISH (*Albulba vulpes*) locally known as MACABI**:**

- No person should buy or sell, any Bone Fish.

CONCH (*Strombus gigas*)**:**

- Shell length should exceed 7 inches.
- Market clean and fillet weight should exceed 3 and 2.75 ounces respectively.
- Closed season is from 1st July to 30th September.
- No fisherman shall buy, sell or possess diced conch meat

LOBSTER (*Panulirus argus*):

- Minimum cape length is 3 inches.
- Minimum tail weight is 4 ounces.
- Closed season is from 15th February to 14th June.
- No fisherman shall buy, sell or possess fillet or diced lobster tail, soft shell berried lobster or lobster with tar spot

MARINE TURTLES:

- No person should interfere with any turtle nest
- No person should take any species of marine turtle
- No person shall buy, sell, or have in his possession any turtle or articles made of turtle parts.

NASSAU GROUPER:

- No person shall take in the waters of Belize, buy, sell, or have in his possession any Nassau Grouper (*Epinephelus striatus*) between 1st December and 31st March
- No person shall take, buy, sell, or have in his possession any Nassau Grouper which is less than 20 inches and greater than 30 inches
- All Nassau Grouper are to be landed whole

GRAZERS:

- No person shall take in the waters of Belize, buy, sell, or have in his possession any grazer (of the genera *Scarus* and *Sparisoma*, commonly known as parrotfish) and *Acathuridae* Family, commonly known as surgeonfish and tangs

FISH FILLET

- All fish fillet shall have a skin patch of at least 2 inches by 1 inch.

SEA CUCUMBER:

- No person shall fish for sea cucumber (donkey dung) without a special permit issued by the Fisheries Administrator and from July 1st to December 31st in any one year

GENERAL

- No person shall set traps outside the reef or within 300 feet of the Barrier Reef
- No spear fishing within marine reserves
- No fishing without a valid fisher folk or fishing vessel license

No one should fish with scuba gear

This is achieved through a number of Programme areas:

- **Patrols**
- **Zoning, boundaries and Regulations**
- **Staff**
- **Collaboration**
- **Reporting**

Specific activities identified to address limitations under this Programme include:

- Increased surveillance and enforcement presence in the area, with a second, larger boat, larger motors and establishment of a second base and surveillance team on West Snake Caye
- Improved demarcation of boundaries

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	

Comments

PHMR is outside of the Belize Barrier Reef Reserve System World Heritage Site but does play an important role in the health of the Belize Barrier Reef by providing a nursery for reef fish.

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

PHMR plays an important role in sustainable development by protecting marine resources on which livelihoods depend. The successful pilot of Managed Access in PHMR played a role in the Belize Fisheries Department's decision to replicate Managed Access throughout the entire national MPA network, a key step toward sustainable fisheries management in the region.

PHMR is also a tourist destination and plays a role in the Sustainable Tourism Strategy for Southern Belize.

l - Available management resources for the area

Ressources		How many/how much	Comments/description
Human ressources	Permanent staff	18	There are eight TIDE staff who work exclusively within PHMR (five rangers, a head ranger, a marine biologist, a Managed Access coordinator and a marine manager). A further 11 research, education, and administrative staff members are involved in managing PHMR and other PA. On average, approximately 4 volunteers are active at any one time.
	Volunteers	4	
	Partners		
Physical ressources	Equipments	Two patrol vessels, one research vessel and one education vessel.	
	Infrastructures	Field station	
Financial ressources	Present sources of funding	Grants make up 95% of the funding for PHMR. The other 5% comes from earned income, including TIDE Tours, TIDE's ecotourism subsidiary.	The annual budget figure ($506,000) is the three-year mean for the period 2011-2013.
	Sources expected in the future	TIDE plans to increase the proportion of non-grant funding for PHMR. Planned novel sources include an individual donors program and Ridge to Reef Expeditions paying volunteer program (http;//www.fromridgetoreef.com).	
	Annual budget (USD)	506000	

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 conservation strategies outlined for Port Honduras Marine Reserve in the conservation planning section of the management plan are integrated into the management Programmes, contributing towards the adaptive management process. In 2008, TIDE was one of six organisations that signed a charter to develop and implement a Conservation Action Strategy (CAS) for the Maya Mountain Marine Corridor (MMMC), spanning approximately one million acres of land and 1000 acres of seascape. The other organisations included the Government of Belize’s Forest and Fisheries Departments, Ya'axché Conservation Trust (a local non-governmental organisation), and two international organisations, Fauna & Flora International and The Nature Conservancy. Through extensive consultation with local communities and other stakeholders, this strategy identified the greatest threats to the biodiversity of the area and formulated a five year integrated plan for addressing these threats. The strategies of the Conservation Action Plan for the Maya Mountains Marine Corridor (of which PHMR is a component) are also integrated, to ensure that the PHMR fulfils its role in the seascape, assisting Fisheries Department and TIDE in ensuring the long-term conservation of the

MMMC.

Chapter 7. MONITORING AND EVALUATION

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

Implementation of management plan activities is monitored on an annual basis by the Toledo Institute of Development and Environment and the Fisheries Department.

Illegal activities and enforcement activities are monitored by the MPA ranger team.

Achievement of conservation objectives is monitored by an on-going research and monitoring program (see "Information and knowledge" section).

Management effectiveness is evaluated by an external party approximately every five years, according to the method of Young et al. (2005).

Young (2005) Monitoring package for assessing management effectiveness of protected areas. Report prepared for the National Protected Policy and System Plan Task Force. July 2005.

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
Evaluation of management effectiveness	
Management effectiveness	Sixty-four (64) indicators are used to assess management effectiveness, according to Young, Roy, Larry Wolfe, and Victoria Macfarlane. 2005. Monitoring Effectiveness in Belize's Protected Areas System. Report prepared for the National Protected Areas Policy & System Plan Task Force (NPAPSP).
Evaluation of conservation measures on the status of species populations within and around protected area	
Numbers of patrols where illegal fishing is reported in PHMR; number and size of fish species recorded during market and underwater surveys.	Goal: To return abundance of commercial and recreational species to optimum by reducing fishing pressure in PHMR
Numbers of patrols where illegal fishing is reported in PHMR; number of large marine vertebrates per species recorded during monitoring	Goal: To return numbers of large marine vertebrates to optimal levels by reducing fishing and hunting pressure, and habitat loss within PHMR.

surveys within PHMR.	
Evaluation of conservation measures on the status of habitats within and around the protected area	
% coral cover, % macroalgal cover; reef fish density;	Goal: To return coral reef ecosystems in PHMR to a healthy state providing a range of functions and services.
Extent of intact mangroves and littoral forests along coast and on cayes within PHMR; number of turtle nests on beaches within PHMR.	Goal: To maintain littoral forests and mangroves in a healthy state to ensure they perform critical functions by preventing illegal deforestation and clearing along the coastline and cayes within PHMR. To maintain healthy beaches, free of debris, for turtle nesting and tourists in PHMR.
Extent and health of seagrass beds within PHMR.	To maintain healthy seagrass beds throughout PHMR to ensure they perform critical functions, including as nursery areas and feeding grounds.
Evaluation of conservation measures on the status of ecological processes within and around the protected area	
Extent and health of seagrass beds within PHMR.	Goal: To maintain healthy seagrass beds throughout PHMR to ensure they perform critical functions, including as nursery areas and feeding grounds.
Evaluation of the impact of the management plan on the 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

Stackeholders involvement	Involvement	Description of involvement	Specific coordination measures	Comments (if any)
Institutions	yes	Fisheries Department and TIDE share co-management of PHMR. FD and TIDE both attend quarterly PHMR Advisory Council meetings.	Quarterly Advisory Council meetings. Monthly and annual reports by TIDE to the Fisheries Department.	
Public	no			
Decision-makers	yes	Government of Belize, through the Fisheries Department, sets the legislation governing PHMR and has the power to continue or terminate the co-management agreement with TIDE.	Quarterly Advisory Council meetings. Monthly and annual reports by TIDE to the Fisheries Department.	

Economic-sectors	yes	Representatives of the main fishers and tour guides associations and cooperatives sit on the PHMR Advisory Council and PHMR Community Managed Access Committee.	Quarterly meetings of the Advisory Council and Managed Access Committee.	
Local communities	yes	Representatives of PHMR's three main stakeholder communities (Punta Gorda, Punta Negra and Monkey River) sit on the Port Honduras Marine Reserve Advisory Committee, as well as the PHMR Community Managed Access Committee. Fishers are also kept informed and have the opportunity to provide input during "fishers forums" held two to three times per year.	Quarterly meetings of the Advisory Council and Managed Access Committee. Fishers forums every 4-6 months.	
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	Community Stewardship Program, Junior Stewardship Program, Community Researchers, TIDE Scholarship Program, Visitor education and interpretation, Tourism Best Practices, School field trips, TIDE Summer Camp and TIDE Freshwater Cup.	
Capacity building of staff and management	yes	Rangers receive on-going training in law enforcement, public relations, boat navigation, and other skills required, including training as Special Constables.	
Research, data storage, and analysis	yes	Research program, monitoring program, collaboration with other institutions and universities.	
Surveillance and enforcement	yes	Patrols, Zoning, boundaries and Regulations Inter-agency Collaboration, Reporting	
Participation of exterior users	yes	Managed access fisheries.	
Alternative and sustainable livelihoods	yes	Tourism development, seaweed farming, chicken-rearing as a supplemental livelihood, support of local fishing cooperative to add value to marine products.	

Adaptative management	yes	Incremental, data driven expansion of replenishment zones. Targeting of patrols according to location and timing of illegal activities. Policy recommendations based on research results (e.g. conch size limit should be based on shell lip thickness, rather than shell length).	

Chapter 10. OTHER RELEVANT INFORMATION

Contact addresses

	Name	Position	Contact adress	Email adress
who is submitting the proposal (national focal point)	AZUETA / MAJIL James / Isais	Ecosystems Management Unit Coordinator at the Belize Fisheries Department		jamesazueta_bz@yahoo.com
who prepared the report (manager)	CHAN Seleem	Marine manager	1 Mile San Antonio Rd. Box 150, Punta Gorda, Toledo, Belize	schan@tidebelize.org

Date when making the proposal

: 6/15/14

List of annexed documents

Name	Description	Category	
PHMR Map		Geographical map	View
PHMR Management Plan		Management plan	View
Site characterisation study		Publications	View
PHMR Climate Change Adaptation Plan		Others	View
PHMR Baseline Study		Ecological criterias	View