

## United Nations Development Programme

Country: Honduras

### PROJECT DOCUMENT



**Project Title:** Strengthening the sub-system of coastal and marine protected areas

**UNDAF Outcome(s):** Government, private sector and local communities adopt good practices for the management of ecosystems, mitigation of and adaptation to climate change for the preservation of natural capital, the reduction of economic losses and the generation of employment opportunities for the most vulnerable sectors of the population

**UNDP Strategic Plan Environment and Sustainable Development Primary Outcome:** Strengthened national capacities for sustainable management of the environment while ensuring adequate protection of the poor.

**Expected CP Outcome(s):** Effect 3.2: The Government of Honduras, the private sector and communities in the areas of intervention adopt good practices of ecosystem management, solid waste management and climate change mitigation and adaptation, which allow the preservation of natural capital, the reduction of economic losses and the generation of income opportunities for vulnerable sectors of society.

**Expected CPAP Output (s)** 3.2.1: Good practices implemented for natural resource management, and generation and use of renewable energy by local communities and local and regional authorities in the area of influence of the United Nations System, which generate benefits and empowerment for communities and increase their resilience to climatic phenomena.

**UNDAF Outcome(s):** Government, private sector and local communities adopt good practices for the management of ecosystems, mitigation of and adaptation to climate change for the preservation of natural capital, the reduction of economic losses and the generation of employment opportunities for the most vulnerable sectors of the population

**Implementing Entity/Responsible Partners:** SERNA, CATIE, CEM/Smithsonian Tropical Research Association

#### **Brief Description**

This project will apply a system-wide approach to increase the coverage, operational effectiveness and financial sustainability of marine and coastal protected areas in the north coast of Honduras, resulting in improved conservation of globally important marine and coastal biodiversity, improved productive sustainability of fisheries resources of national and regional importance and improved livelihood sustainability among fisher populations and others that depend directly and indirectly on coastal and marine resources. It will complement the conventional models of PAs within the National System of Protected Areas (SINAPH), with the establishment of alternative models of conservation and management including a connectivity zone subject to special management, and an indigenous-managed exclusive zone for artisan fisheries.

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Agreed by (Executing Entity/Implementing Partner):

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Agreed by (UNDP):

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## List of Abbreviations

Abbreviation	English meaning	Spanish meaning
APICAH	Association of Honduras Industrial Fishers	Asociación de Pescadores Industriales del Caribe Hondureño
APESCA	Caribbean Fishers' Association	Asociación de Pescadores del Caribe
APR/PIR	Annual Project Review/Project Implementation Reports	
BD	Biodiversity	
BICA	Bay Islands Conservation Association	
BR	Biological Reserve	
BRD	Bycatch Reduction Devices	
CBD	Convention on Biological Diversity	
CC	Climate Change	
CCAD	Central American Commission on Environment and Development	Comisión Centroamericana para Ambiente y Desarrollo
CEM	Centre for Marine Ecology	Centro para Ecología Marina
CITES	Convention on the International Trade in Endangered Species	
CO	Country Office	
CPAP	Country Programme Action Plan	
CR	Critically Threatened	
CSO	Civil Society Organization	
DAPVS	Department of Protected Areas and Wildlife	Departamento de Áreas Protegidas y Vida Silvestre
DD	Data Deficient	
DIBIO	Directorate of Biodiversity	Dirección de Biodiversidad
DIGEPESCA	General Directorate of Fisheries	Dirección General de Pesca
EEZ	Exclusive Economic Zone	
EN	Endangered	
EZAF	Exclusive Zone for Artisan Fishing	
FAO	Food and Agriculture Organization	
FUCSA	Cuero y Salado Foundation	Fundación Cuero y Salado
GPS	Geographical Positioning System	
HCRF	Honduras Coral Reef Fund	
HRI	Healthy Reef Index	
IADB	Interamerican Development Bank	
ICF	Institute for Forest Conservation and Development	Instituto para la Conservación y el Desarrollo Forestal
IHT	Honduran Tourism Institute	Instituto Hondureño de Turismo
IISA	Integrated Reef Health Index	Índice Integrado de Salud Arrecifal
IMCZ	Island-to-mainland connectivity/expanded buffer zone	
IUCN	International Union for the Conservation of Nature	
LC	Least Concern	
MAB	Man and the Biosphere	
MCPA	Marine and Coastal Protected Areas	
M&E	Monitoring and Evaluation	
METT	Management Effectiveness Tracking Tool	
MNM	Marine Natural Monument	

MNP	Marine National Park	
MPA	Marine Protected Area	
MRS	Mesoamerican Reef System	
mtDNA	Mitochondrial DNA	
NBSAP	National Biodiversity Strategy and Action Plan	
NGO	Non-Governmental Organization	
NP	National Park	
NPC	National Project Coordinator	
OSPESCA	Central American Fisheries and Aquaculture Organization	Organización del Sector Pesquero y Acuícola del Istmo Centroamericano
PA	Protected Area	
PAE	Programme of Strategic Actions	
PIU	Project Implementation Unit	
PPG	Project Preparation Grant	
PROMECOM	Improving Competitiveness of the Rural Economy in Yoro	Proyecto Mejoramiento de Competitividad Rural
QPR	Quarterly Project Review	
RECOTUR	Network for Community-Based Tourism	Red Comunitaria de Turismo
RCU	Regional Coordination Unit	
SAG	Ministry of Agriculture and Livestock	Secretaría de Agricultura y Ganadería
SBAA	Standard Basic Assistance Agreement	
SCUBA	Self-Contained Underwater Breathing Apparatus	
SECPLAN	Ministry of Planning	Secretaría de Planificación
SECTUR	Ministry of Tourism	Secretaría de Turismo
SENASA	National Service for Environmental Health	Servicio Nacional de Sanidad Ambiental
SERNA	Secretariat of Natural Resources and the Environment	Secretaría de Recursos Naturales y el Ambiente
SINAPH	National Protected Areas System of Honduras	Sistema Nacional de Áreas Protegidas de Honduras
SMPZ	Special Marine Protection Zone	
STAP	Scientific and Technical Advisory Panel	
Tbd	To be determined	
TED	Turtle Excluding Devices	
TNC	The Nature Conservancy	
VU	Vulnerable	
WR	Wildlife Refuge	

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## SECTION I: ELABORATION OF THE NARRATIVE

### PART I. SITUATION ANALYSIS

#### Geography, Demography and Economy

1. Honduras has a territorial area of 112,492km<sup>2</sup> and a marine Exclusive Economic Zone of 226,955km<sup>2</sup>. The Caribbean coast of Honduras, which forms part of the Caribbean Large Marine Ecosystem (CLME), is approximately 650km long, running from the mouth of the Río Motagua on the west (the frontier with Guatemala) to the mouth of the Río Coco on the east, at Cape Gracias a Dios (the frontier with Nicaragua). It includes the southern end of the world's second longest barrier reef system – the Mesoamerican Reef – that stretches from Mexico, to Belize, Guatemala and Honduras, as well as three groups of islands: the Islas de la Bahía (Bay Islands) and Cayos Cochinos archipelago; the Cayos Miskitos and banks; and the smaller Swan Islands. The latter two island groups and adjacent coasts are isolated and poorly studied. The Bay Islands group comprised of Roatán, Utila, Guanaja, and Cayos Cochinos has some of the best reefs and is central to the country's tourism development. These islands are surrounded by fringing reefs that support important fisheries. The north coast of Roatán enjoys a nearly continuous barrier and fringing reef. In addition to coral reefs, other features of the coastal/marine ecosystem are equally critical to its health and productivity. These include mangroves, wetlands, seagrass beds, and sandy beaches. Marine habitats and resources are linked from ridge-to-reef by freshwater flows to the sea, but also via ocean currents that transport larvae and pollutants.

#### Biodiversity

2. The Caribbean coastal waters of Honduras contain as many as 194 fish species (House et al., 2002) and 537 known species of invertebrates and urochordates. Endangered species in the area include the West Indies Manatee (*Trichechus manatus*) and green, leatherback and hawksbill turtles.

3. There is a wide diversity of coastal habitats in the area (Table 1)

**Table 1. Coastal habitats in the target area**

Habitat type	Representative examples in the Honduran Caribbean
Shallow marine waters	<ul style="list-style-type: none"><li>• <b>Punta Izopo NP</b>: bays formed by the hills of Izopo and Triunfo de la Cruz.</li><li>• <b>Blanca Jeannette Kawas Fernández NP</b>: Bays of Puerto Caribe, Puerto Escondido and La Bolsa.</li></ul>
Continental coral reefs	<ul style="list-style-type: none"><li>• <b>Barras de Cuero y Salado Wildlife Refuge</b>: off the Salado Barra sector.</li><li>• <b>Punta Izopo NP</b>: modified patches near to the hills of Izopo and Triunfo de la Cruz.</li><li>• <b>Blanca Jeannette Kawas Fernández NP</b>: coastal zone to the east of Punta Sal peninsula.</li></ul>
Rocky shores	<ul style="list-style-type: none"><li>• <b>Punta Izopo NP</b>: rocky islets to the northeast and offshore from Cerro Izopo.</li><li>• <b>Blanca Jeannette Kawas Fernández NP</b>: rocky islets to the northeast and offshore from Punta Sal peninsula, and 2km of cliffs located to the west on the peninsula of Punta Sal.</li></ul>
Sand or pebble beaches	<ul style="list-style-type: none"><li>• <b>Barras de Cuero y Salado Wildlife Refuge</b>: 24 km of medium to fine-grained sandy beaches with boulders near to the mouth of the Río Cuero estuary, from the mouth of Thompson Lagoon to the mouth of the Salado estuary.</li><li>• <b>Nombre de Dios NP</b>: 23km of medium to fine-grained sandy beaches, including the sand bar of the Cacao Lagoon.</li><li>• <b>Punta Izopo NP</b>: 28km of medium to fine-grained sandy beaches, from the mouth of Laguna Negra to the mouth of the Río Lean estuary.</li><li>• <b>Blanca Jeannette Kawas Fernández NP</b>: 19km of medium to fine-grained sandy beaches, from La Bolsa Bay to the community of San Juan and 9km from the delta of the Río Ulúa to the mouth of the Río Tinto estuary. Includes accumulated littoral sandbanks located where the</li></ul>

	Tela Bay project is being constructed.
<b>Estuaries</b>	<ul style="list-style-type: none"> <li>• <b>Barras de Cuero y Salado Wildlife Refuge:</b> estuary mouths of Thompson Lagoon, estuaries of Salado and Boca Cerrada rivers.</li> <li>• <b>Nombre de Dios NP:</b> Estuarine mouths of the Cacao Lagoon, permanent estuarine mouths of the Cangrejal, Palaloteca and Balfate rivers, other minor temporary estuary mouths of the Juana Leandra, Cuyamel, Sambo and Corozal rivers. There is also a series of channels and creeks running parallel to the seashore which form estuary mouths in the rainy season.</li> <li>• <b>Punta Izopo NP:</b> Estuarine mouth of the Laguna Negra, estuaries of the Plátano, Hicaque and Lean rivers and the Carvajales estuary.</li> <li>• <b>Blanca Jeannette Kawas Fernández NP:</b> Estuarines mouths of the Laguna de los Micos and the Tinto, Ulúa and Chamelecón rivers.</li> </ul>
<b>Mangroves</b>	<ul style="list-style-type: none"> <li>• <b>Bay Islands Marine National Park:</b> extensive forests between Roatán and Santa Elena islands.</li> <li>• <b>Barras de Cuero y Salado Wildlife Refuge.</b></li> <li>• <b>Nombre de Dios NP:</b> littoral mangroves of the lagoon systems of the Cacao Lagoon, Salado and Angostura estuaries, Laguna el Cuatro, the current and two former estuary mouths of the Papaloteca River. There are also mangroves behind the littoral strip between El Cacao and Nueva Armenia.</li> <li>• <b>Punta Izopo NP:</b> Littoral mangroves of the Plátano and Hicaque Rivers and the Carvajales estuary.</li> <li>• <b>Blanca Jeannette Kawas Fernández NP:</b> Littoral mangroves of the Micos/El Diamante lagoon system.</li> </ul>
<b>Brackish coastal lagoons</b>	<ul style="list-style-type: none"> <li>• <b>Barras de Cuero y Salado Wildlife Refuge:</b> Thompson Lagoon.</li> <li>• <b>Nombre de Dios NP:</b> Laguna el Cacao and Laguna el Cuatro.</li> <li>• <b>Punta Izopo NP:</b> Laguna Negra.</li> <li>• <b>Blanca Jeannette Kawas Fernández NP:</b> Lagoons of the Micos/El Diamante lagoon system.</li> </ul>
<b>Freshwater coastal lagoons</b>	<ul style="list-style-type: none"> <li>• <b>Barras de Cuero y Salado Wildlife Refuge:</b> Bocas del Toro Lagoon.</li> <li>• <b>Punta Izopo NP:</b> Hicaque Lagoon.</li> </ul>

4. The Caribbean coast is home to four of the country's designated Ramsar sites::

- i) Barras de Cuero y Salado **Wildlife Refuge** (Ramsar site no. 619, established in 1993)
- ii) Blanca Jeannette Kawas Fernández NP (Ramsar site no. 722, established in 1995)
- iii) Punta Izopo NP (Ramsar site no. 812, established in 1996)
- iv) Laguna de Bacalar (Ramsar site no. 1254, established in 2003)

5. In addition to those mentioned in Table 1, the Caribbean coast of Honduras is home to many other coral reefs which are yet to be characterized. For example, coral reef masses have been identified running parallel to the coastline approximately 3-9 km from Barras de Cuero y Salado Wildlife Refuge, including valuable sites such as the Salmedina banks, currently outside of the limits of the reserve<sup>1</sup>. In fact, it is probable that the wetland inventory that was carried out in 2010 may have missed important sites about which little information was available<sup>2</sup>. The following sites have been identified as of priority for conservation<sup>3</sup>:

- I. *Wetlands proposed for inclusion in the Ramsar Convention:*
  - a. Mosquitia Wetlands System.

<sup>1</sup> Rico and Medina (2010)

<sup>2</sup>SERNA y USAID/MIRA (2010)

<sup>3</sup>Ibid .

- b. Utila Island Wetlands.

*II. Wetlands to be integrated into a national conservation strategy:*

- a. Wetlands System of the Ulúa and Chamelecón Rivers (formed by the Wetland Sub-Systems of the Laguna de Alvarado and Blanca Jeannette Kawas Fernández NP).
- b. Barra del Río Motagua Wetlands System (formed by the Wetland Sub-Systems of the Barra del Río Motagua and Punta de Manabique Wildlife Refuge in Guatemala).
- c. Río Aguan Wetlands System (formed by the Wetland Sub-Systems of Guaimoreto and Río Aguan – Trujillo Bay).

*III. Priority wetlands for the establishment of biological corridors and landscape links.*

- a. Río Miel Wetlands.
- b. Coloradito and Bonito River Wetlands.
- c. Sambúco Wetlands.
- d. Roatán Island Wetlands.
- e. Guanaja Island Wetlands.
- f. Río Cangrejal delta Wetlands.
- g. Omoa or Centeno Lagoon Wetlands.
- h. Chachaula Lagoon Wetlands.

Priority ecosystems:

6. **Coral reefs:** the most significant áreas of coral reefs along the Atlantic coast of Honduras are located in the Bay Islands, the Cayos Cochinos, the Swan Islands, the Miskito Cays and the sites recently discovered in the area of Tela and Omoa: the best studied are those of the Bay Islands. Assessments of the coverage of hard (reef-forming) corals in Roatán<sup>4</sup> show a high concentration of these species distributed around the island, with particularly high densities on the north coast. There is even more singular coverage on the south side of the island, in Banco Cordelia, where marine currents appear to favor a constant flushing of excessive nutrients and other contaminants coming from built-up areas on the island. Another surprising site is located just offshore of the beach of Punta Sal, in Blanca Jeannette Kawas Fernández NP, named Cocalito, where AMATELA has identified at least 758 colonies of staghorn coral (*Acropora palmata*). This species is important for the creation of critical hábitats for juvenile fish, but is classified as Critically Threatened on the IUCN Red List.

7. Another coral reef of particular interest for conservation is located off the coast of Tela Bay, at a location known as Banco Capiro. This bank is characterized by an exceptionally high coverage of live coral, almost comparable to that of Banco Cordelia. In this case, the dominant species are lettuce coral (*Agaricia tenuifolia*) and mountain star coral (*Montastrea faveolata*)<sup>5</sup> (Table 2).

**Table 2. Reef conditions in Banco Capiro, compared to >300 sitios in the Mesoamerican Reef System (MRS).**

IISA Indicator	MRS Average	Capiro Alegría
Live coral cover (%)	19 = Regular	69 = Very good
Fleshy marcoalgae cover (%)	18 = Bad	2.5 = Very good
Density of urchins ( <i>Diadema antillarum</i> /m <sup>2</sup> )	>1 = Bad	15 = Very good
Biomass of key commercial fish (snappers and groupers g/100m <sup>2</sup> )	570 = Bad	270 = Critical
Biomass of key herbivorous fish (parrotfish and surgeon fish g/100m <sup>2</sup> )	1196 = Bad	681 = Critical

<sup>4</sup>Keck (2005), WWF *et al.* (2012)

<sup>5</sup>Drysdale 2011

8. **Mangroves** are of key importance to the species diversity and ecosystem health of the project area, by virtue of their roles in protecting the coastline against the impacts of storms, wind and waves; preventing erosion by stabilizing coastal sediments with their roots; maintaining water quality, filtering pollutants and stabilizing sediments; and providing sites for the development of post-larval and juvenile stages of many species of aquatic life. They are therefore of vital importance for the status of other ecosystems such as seagrasses and coral reefs. Mangroves are found principally in sheltered lagoons and in estuaries. Guaimoreto, Brus, Ivans and Caratasca lagoons all have significant areas of mangroves. The largest concentrations are found around Tela, Trujillo and the Mosquitia. In the Bay Islands, mangroves occupy 37% of the area of Utila island, 7.2% of Roatán and 6% of Guanaja<sup>6</sup>.

9. **Seagrasses** also play a vital role as a biological cover for the sea bed. They play an essential role in the protection of offshore coral reefs, as they fix sediments and consequently limit the sediment load in the water, which is damaging for benthic populations, leading to turbidity, asphyxia and smothering<sup>7</sup>. Seagrasses are subject to threats from activities such as dredging, the construction of shipping channels and sand mining, as well as eutrophication and sedimentation associated with terrestrial activities.

Charismatic species:

10. **Cetaceans**: the only study carried out to date of cetaceans in Honduras, carried out in Utila in 2007, by the Centre for Marine Ecology, found five species of cetaceans: the common bottle-nosed dolphin (*Tursiops truncatus*), the spinner dolphin (*Stenella longirostris*, DD), the rough-toothed dolphin (*Steno bredanensis*, LC), the long-finned pilot whale (*Globicephala melas*, DD) and killer whales (*Orcinus orca*, DD). There is no other information available on the distribution, abundance or behavior of cetaceans in the country.

11. **Whale shark (*Rhincodon typus*, VU)**: this species, which is the largest fish in the world, is considered the ambassador of the Mesoamerican Reef System. In Honduras, it is principally observed around Utila island. The first conservation initiative directed at this species in Honduras dates from 1999, when it was declared a species warranting special consideration due to its ecological importance<sup>8</sup>. The whale shark is a pelagic species which is widely distributed in tropical and subtropical waters, which uses the territorial waters and habitats of the Caribbean and Pacific oceans throughout the whole year. It reaches maturity at between 20 and 30 years, and generation lengths are in the order of 24-60 years. The species may live up to 100 years.

12. In the Caribbean, studies carried out between 1998 and 2010 by the University of York and the Wildlife Conservation Society have found populations dominated by young males showing fidelity to a number of feeding sites in Belize, Honduras, Mexico and Cuba. The same studies have shown that animals belonging to this metapopulation migrate between these feeding sites and beyond, to other countries in the Caribbean including Nicaragua and Colombia. Another study<sup>9</sup>, using satellite tracking, found a whale shark migrating from Utila, to the Swan Islands and thence to the coast of Belize, the Yucatán Peninsula and the middle of the Gulf of Mexico.

13. The status of this species in Honduras is uncertain. Up until the middle 1980s, the species was considered to be rare worldwide, with less than 350 individuals having been reported officially. Since then, there have been constant sightings in Australia, Belize, México, Honduras and other countries; however the total number of individuals observed worldwide is still estimated to be only around 1,500, hence its IUCN Vulnerable status.

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<sup>6</sup> Lebigre 2002

<sup>7</sup> Porcher *et al.* 2001

<sup>8</sup> Presidential Accord 1321-99, 24th November 1999

<sup>9</sup> Gifford *et al.* (2007)

14. **Caribbean manatee (*Trichechus manatus manatus*)**: this is one of two sub-species of the West Indian Manatee (*T. manatus* VU), which is found in marine, brackish and freshwater environments (including coastal bays, estuaries, lagoons and rivers), in tropical and subtropical waters, from North Carolina to central Brazil. Recent genetic (mtDNA) research suggests that the West Indian manatee actually consists of three groups, which are more or less geographically distributed as: (1) Florida and the Greater Antilles; (2) central and northern South America; and (3) northeastern South America. Manatees are aquatic herbivorous mammals, and are inoffensive, shy and moderately social. They often occur in groups of 2-4 animals, but lack permanent social organization, with the exception of that which exists between mother and dependent offspring. Females reach sexual maturity between 2.5 and 4 years of age, and males from 4 years on.

15. Data on the status of manatees in Honduras are scarce and sporadic. Although historical documents suggest large populations in the past, an aerial survey in 1979-80 covering the whole coast found only 11 individuals; two overflights in 2000 and 2005 between the Guatemalan border and Tela found four individuals, while the average number of sightings in each of six overflights carried out in 2006 between Trujillo and Tela was three. It is estimated that the national population may be in the order of 100-200 individuals. A number of sites have been identified as being important for manatees, namely the rivers to the east of Trujillo, the Cuero and Salado rivers, and the Karataska lagoon (particularly Tansin lagoon) in the Moskitia<sup>10</sup>. The population in the Cuero and Salado Wildlife Refuge is estimated at between 6 and 15 individuals.

16. **Marine turtles**: these are important for marine ecosystems as they maintain the health of seagrass beds and coral reefs, provide a food source for other predators and control populations of species such as jellyfish. In the north of Honduras, four of the seven global species of marine turtles occur: the loggerhead sea turtle (*Caretta caretta*, EN), the hawksbill sea turtle (*Eretmochelys imbricate*, CR), the green sea turtle (*Chelonia mydas*, EN), and the leatherback turtle (*Dermochelys coriacea*, CR). All of these species are endangered or critically endangered due to the demand for their eggs and meat, as well as accidental by-catch. The complex life-cycle of marine turtles, with various habitats required for development and migrations of hundreds or thousands of kilometres between feeding areas and besting sites, increases the difficulty of their management and exposes them to diverse threats over a wide geographical area. Limited information is available on the status of marine turtles in Honduras, beyond the identification of nesting sites (see Map Annex).

#### Commercially important species

17. **Caribbean spiny lobster (*Panulirus argus*)**: this species of great economic importance in Honduras, as a large proportion of the catch is destined for export to the USA. It provides a large amount of direct and indirect employment, for fishers in artisan and industrial fleets, boat operators, processing workers and marketers. Little information is available in the status of populations of this species in the country: a survey carried out by WWF found it to be scarce in Half Moon Reef, off the coast of the Moskitia, one of the areas which is most targeted for capture. The principal breeding and fishing areas of this species are located to the north-east of the Moskitia, spanning the maritime boundary between Honduras and Nicaragua.

18. **Shrimp**: shrimp fishing in the Honduran Caribbean is focused on three species, *Litopenaeus duorarum*, *L. shmitti* and *L. aztecus*. Industrial shrimp fishing is carried out along the coast between Camarón cape and Gracias a Dios cape (see Map Annex), using large boats with trawl nets, while artisan fishing is mostly carried out by Miskito fishers using small boats and throw nets in estuaries and river

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<sup>10</sup> Rathbun et al. 1983

mouths. Surveys carried out by OSPESCA/FAO FIINPESCA in 2009 found a reduction in resource abundance due to high levels of catch effort (shrimp production fell from 897.08 tons in 2002 to 605.37 tons in 2006-2007, a reduction of 33%).

19. **Giant conch (*Strombus gigas*):** this species has historically been of great importance as an element of the diet of human populations living along the Atlantic coast; commercial fishing commenced in the 1980s, aimed at export markets. The industrial fishing fleet concentrates its activities on the banks of Rosalinda, Thunder Knoll, Gorda, Media Luna and Arrecife Lagarto to the north of the 14°59'08" parallel, and the Misteriosa and El Rosario banks to the north of the Swan Islands (see Map Annex).

20. Population levels of giant conch on the continental shelf of Honduras are higher (at 192 individuals/ha) than in most other parts of the Caribbean, and considerable above the level considered by CITES as the critical minimum (50 individuals/ha) for reproduction.

21. **Yellowtail snapper (*Ocyurus chrysurus*):** this is one of the most important species for the artisan fisheries sector on the north coast, making up 36% of artisan scale fish catch and 25% of industrial scale fish catch. Its range extends from the north of, through southern Florida, Bermuda, the Bahamas, the Gulf of Mexico, the Antilles and the Caribbean, to the southeast of Brazil. Although other species have higher levels of demand (such as the king mackerel *Scomberomorus cavalla*, the red snapper *Lutjanus campechanus* and tuna *Thunnus* spp.), this species has been targeted by fishers due to the decreasing availability of species of higher trophic level<sup>11</sup>. Overexploitation of this species may lead in turn to fishers exerting pressure on parrot fish (*Sparisoma* spp.), which are on the next trophic level down; given that parrot fish play a vital role in grazing algae, any resulting reductions in their population levels would be likely to have negative impacts on the health of coral reefs due to increases in algal growth.

22. **Nassau grouper (*Epinephelus striatus*, EN):** This is a médium-sized to large fish which lives in tropical coastal waters of the western Atlantic and Caribbean. Its range extends from Bermuda, Florida and the Bahamas in the north to Brazil in the south, and to the west into the Gulf of Mexico. It has been an important element of local fisheries since prehistoric times, due to its large size, high quality meat, preference for shallow waters and relative ease of capture. Declines in its population levels are reported from the 1950s on. Its commercial extinction occurred in the mid 1980s in the US Caribbean and in the 1990s in Florida. In the insular Caribbean, fishing pressure has increased dramatically since the 1970s. Spawning areas have been identified and exploited until they have been eliminated, and it is estimated that only around 1% of the original resource remains in the region.

23. This species is solitary, remaining close to refuges in caves and rocks, and only aggregating during reproductive events, which take place annually in highly specific places and times. It is thought that fish migrate hundreds of kilometres, in groups, to participate in these aggregations. There is a great variation in conditions between the 60-80 known aggregation sites, including hard and soft corals, rocky outcrops and sandy bluffs and with depths ranging from 6 – 50m. The aggregation sites are typically small (a few hundred metres in diameter), and located close to the drop-off into deep waters. Individual aggregation sites are known to have existed for more than 50 years in some cases<sup>12</sup>. With the help of fishers, a number of spawning sites were identified near to Utila island; three of these sites were evaluated for a year in 2009, but no reproductive populations were found over this period and it is thought that these and neighbouring sites are now exhausted.

24. This species is considered as IUCN Endangered due to its high rates of global population decline, estimated at 60% over the last three generations. Information is limited on its status in Honduras. One

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<sup>11</sup> Box 2009

<sup>12</sup> Sadovy & Eklund 1999

study from 1988 reported a spawning aggregation site at the “Caldera del Diablo” off the northeast coast of Guanaja, with around 10,000 Nassau groupers; a subsequent study of the same site reported that by 1992 numbers at the site had fallen to around 500 as a result of two years of intensive fishing in which 30,000lbs of the species were removed each season.

25. **Sharks:** an estimated 19 species of sharks have been reported on the Atlantic coast of Honduras. Seven of these are IUCN Vulnerable (VU), five are Near Threatened (NT), four are Least Concern (LC), two are Endangered (EN) and one is Data Deficient (DD).

**Table 3. Shark species reported to date on the Atlantic coast of Honduras**

Species	Common name	Status (IUCN, OSPESCA)
<i>Carcharhinus falciformis</i>	Silky shark	NT
<i>Carcharhinus leucas</i>	Bull shark	NT
<i>Carcharhinus limbatus</i>	Blacktip shark	NY
<i>Carcharhinus longimanus</i>	Oceanic whitetip shark	VU
<i>Galeocerdo cuvier</i>	Tiger shark	NT
<i>Rhizoprionodon porosus</i>	Caribbean sharpnose shark	LC
<i>Sphyrna mokarran</i>	Great hammerhead shark	EN
<i>Sphyrna tiburo</i>	Bonnethead shark	LC
<i>Sphyrna lewini</i>	scalloped hammerhead	EN
<i>Alopias superciliosus</i>	Bigeye thresher	VU
<i>Alopias vulpinus</i>	Thresher shark	VU
<i>Carcharhinus plumbeus</i>	Sandbar shark	VU
<i>Isurus oxyrinchus</i>	Shortfin mako shark	VU
<i>Isurus paucus</i>	Longfin mako shark	VU
<i>Mustelus higmani</i>	Smalleye smooth-hound	LC
<i>Negaprion brevirostris</i>	Lemon shark	NT
<i>Odontaspis noronhai</i>	Bigeye sand tiger	DD
<i>Rhincodon typus</i>	Whale shark	VU
<i>Scyliorhinus boa</i>	Boa catshark	LC

Source: IUCN Red List and OSPESCA, modified by CEM 2012

26. Sharks are long-lived species, with slow growth rates and low fecundity. These characteristics are associated with low productivity, a close population-recruitment relationship and a slow capacity for recovery from overfishing. The lack of time-series data at species level in Honduras makes it impossible to draw firm conclusions on population levels.

**Table 4. Nationally and globally important species, by IUCN Red List category**

	VU	CR	NT	EN
Crabs	2			
Corals	6	2	1	2
Mammals	3		7	3
Reptiles	4	5	3	7
Birds	9		11	1
Fish	13	2	18	4

### **The fisheries sector**

27. In locations such as Omoa, Tela Bay and Cuero y Salado, fishing is mostly carried out by individual *ladino* artisan fishers with small boats, who operate principally in coastal lagoons and only venture offshore when weather conditions are particularly favourable. This contrasts with the shrimp and lobster trapping operators (members of the APESCA organization) that are based in the Bay Islands but mostly operate off the coast of the Moskitia region: there are around 120 lobster trapping boats and these, in common with the shrimp boats, take all of their catch back to the Bay Islands and provide no employment in the Moskitia. By contrast, the 46 lobster and conch boats that operate out of the north coast city of La Ceiba employ Miskito divers, picking them up from the Moskitia and generating an estimated \$12 million dollars of income for them per year (around 3,800 Miskito divers and 3,800 canoe operators are involved in this activity). This activity is a major health risk and has left large numbers of Miskito divers permanently disabled due to decompression injuries.

28. The management of fisheries in Honduras is subject to planning and regulation by the General Directorate of Fisheries (DIGEPESCA). This is aimed at achieving a development of the sector founded on sustainable exploitation and the promotion of income and employment generation opportunities. Measures applied to promote the sustainable management of lobster, shrimp and fish populations include the declaration of closed seasons, limits on the numbers of traps per boat, escape hatches for lobster traps to allow under-sized individuals to escape, the definition of minimum sizes for individuals caught, the use of Turtle Exclusion Devices in shrimp nets, satellite monitoring of fishing vessels, studies of population dynamics of marine fauns, and the delimitation of fish aggregation areas. DIGEPESCA is supported in its supervisory and regulatory role by the Honduran Navy.

29. Fisheries are of major socioeconomic importance along the whole north coast of Honduras and its offshore islands, and involve all of the four main ethnic groups of this area: Spanish-speaking ladinos, English-speaking Bay Islanders, Garifunas (of mixed African and indigenous Caribbean origin) and indigenous Miskitos, from the isolated Moskitia region. Fishing activities are dominated by men, but the marketing chains and processing activities are dominated by women.

### **Artisanal fisheries**

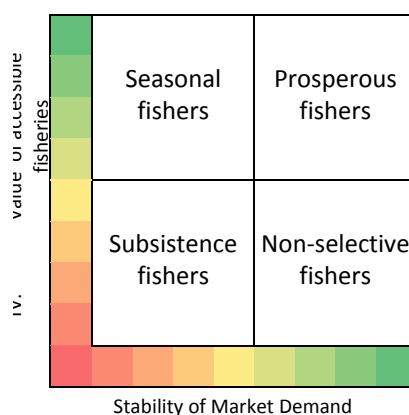
30. The artisanal fisheries of the Honduran Caribbean are socially, spatially and technologically diverse. Fishers are based from disparate fishing communities, which are socially and culturally distinct. Many artisanal fisheries target a wide selection of species, either directly or through incidental catches, and these fish species themselves add further spatiotemporal complexity to the situation. Fish often undergo migrations, moving between coastal habitats, crossing traditional fishing boundaries as they do so. The movement patterns of fish, which are tied to reproductive, nutritional or ontogenetic drivers, can result in fish being targeted by different groups of artisanal fishers at varying stages of their life cycle, in different habitat areas across the seascape.

**Table 5. Estimated numbers of artisan fishers in the project area**

Zone		Protected Areas included	Fishers
1	Border of Guatemala to Punta Sal	Barra Rio Motagua, Jeannette Kawas Cayos Sapodillas (Belize)	250
2	Tela Bay to Porvenir and Utila Cays	Jeanette Kawas Punto Izopo, Tela Bay Municipal protected area Cuero y Salado Wildlife Refuge Bay Islands National Park Utila – Turtle Harbour / Raggedy Cay)	350

	Zone	Protected Areas included	Fishers
3	Corozal to Rio Esteban and Cayos Cochinos	Cayos Cochinos National Marine Monument	200
4	West Roatán	Bay Islands National Park, Roatán – West End Sandy Bay Municipal Reserve Cordelia Bank National Marine Monument	110
5	Eastern Roatán	Bay Islands National Marine Park; Roatán	140
6	Guanaja	Bay Islands National Park; Guanaja	75
7	Bay of Trujillo	Laguna Guaimoreto	200
8	Laguna Karatasca and vivorillo cays	Karatasca lagoon Miskito cays	4000
		Total	5,325

**Figure 1. Schematic representation of the determinants of the main categories of artisan fishers**



31. In areas where there are a variety of distinct fisheries and a strong and consistent market demand for the products, prosperous fishers predominate. The Utila cays are a good example of this type of artisanal fishery. These fishers have historically had access to four distinct fisheries (shallow reef fish; deep water snappers; pelagic species; lobster and conch diving) and because of the proximity to La Ceiba and the connection to the export market, there is always strong market demand. This has made the artisanal fishers of the Utila cays amongst the most prosperous of all artisanal fishers on the north shore of Honduras.

32. When a community has access to a high value fishery but the market demand is weak for some of the year, the communities are seasonal fishers. In the Mosquitia, for example, seasonal fishers target lagoon snook to supply salt fish from October to March. During the remainder of the year when demand is weak and the value of the fish is low, the artisanal fishers here revert to being subsistence fishers. In even remoter areas where fishers cannot access seasonal markets the artisanal fishers remain subsistence fishers throughout the year.

33. Fishers who have access to a strong market demand, but the value of the target catch is low, are driven to catch in greater volume to generate sufficient income. These fishers tend to deploy non-selective fishing gears such as nets or traps. The beach seine fishers in Garifuna communities that target nearshore jacks and other small pelagic species for sale in the local community are the best example of this type of non-selective fisher. These fishers do not have access to higher value fisheries, but the local community's consumption maintains demand for any type of fish that is caught.

34. When the high value species become overfished, leaving the lower value smaller bodied species, prosperous fishers may gradually become non-selective fishers as they switch from selective gears to less selective ones. If overfishing of these resources continues and the total value of the catch decreases, non-selective fishers may leave the fishery entirely in search of alternative employment. Those fishers that remain are subsistence fishers, as there is not enough value in the resource to maintain commerce. Similarly if specific seasonal species are overfished or access to the resource is restricted, then seasonal fishers may no longer be able to generate sufficient income from the seasonal markets, at which point they will also revert to being subsistence fishers.

35. The location of a fishing community is the principal factor that affects both the variety of the accessible fisheries and the markets that community can supply. This directly controls how the artisanal fisheries develop and the prosperity of the fishers. The location influences:

- 1) The level of exposure of the coast adjacent to the community, determining the type of fishing boat and engine required to access marine resources (initial investment)
- 2) The proximity and size of lagoons, reef systems or deep water areas, which determines how many different fisheries the fishers can access (how resilient the fishers are to fluctuations in fish abundance)
- 3) Distance and accessibility to urban centers, which not only determines which markets fishers can access but also the availability of alternative employment opportunities (economic factors that influence entry and exit to and from a fishery)

36. There is anecdotal evidence that direct reliance on artisanal fishing has decreased in importance over the last decade across the north shore of Honduras. Rising fishing costs and declining relative value of the catch have reduced profit margins<sup>13</sup>. Many communities report that fishers have left their local fisheries in search of alternative employment. Across the north shore, between Omoa and Trujillo and including the Bay Islands it is estimated that there are currently around thirteen hundred (1,325) full or part time artisanal fishers dependent on coastal fisheries. In the Mosquitia, where alternatives to fishing are scarcer, artisanal fishing remains an essential livelihood in most communities. The artisanal fisheries are especially important when the main source of employment through the industrial fisheries is unavailable during the lobster closed season (March to July).

37. It is difficult to make a firm estimate of the number of artisanal fishers in the Mosquitia due to the migration between the artisanal fishery and the industrial fishery. However, based on population estimates for the 82 communities that fringe the Karatasca lagoon (25,000) and an average of six dependents per fisher, it is estimated that there are around 4,000 active fishers targeting marine species in this area. The employment capacity of the industrial fleet is around three thousand fishers. The surplus of one thousand available fishers who are not employed in the industrial fishery are likely to depend on the artisanal fishery. These thousand fishers will not be the same individuals each month, as local fishers will switch between working in the industrial fishery and the local artisanal fishery depending on the available opportunities. During the closed season it is believed that all four thousand fishers would be involved in artisanal fishing to some degree in addition to subsistence agriculture.

38. Despite the emergence of alternative livelihoods in some areas of the north shore, artisanal fishing provides an important insurance mechanism for local communities across the coastal zone of Honduras. People return to fishing when they cannot find employment elsewhere or when seasonal work is not available. Nearshore fisheries also provide an additional source of high quality protein to improve family nutrition or provide supplemental income to people who may be working a full time job, but in low wage

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<sup>13</sup> Box & Canty, 2010

employment. These occasional, or opportunistic, fishers make it more difficult to calculate the true number of households that depend on marine resources during some point of the year. It is likely that the dependence on local fish by the resident population of the north shore of Honduras is much greater than the estimated number of full or part time fishers in any given community. The effective management of these fisheries is therefore essential to guarantee they continue to provide the economic and nutritional safety net that coastal communities require.

### ***Commercial fisheries***

39. Industrial fishing in Honduras has its origin in the early 1970s when nationally registered boats started targeting shrimp, lobster and conch for export. The emergence of a national fleet coincides with major changes in international maritime law. The development of the United Nations Convention on the Law of the Sea (from 1971 to 1982) which eventually defined a nation's exclusive economic zone as a 200 nautical mile limit from their land territory, meant that foreign boats, principally from the United States, could no longer fish in the shallow reef areas of Honduran continental shelf.

40. As the U.S. fleet was gradually pushed out of Honduran waters, investors started registering boats in Honduras and the national industrial fisheries developed. The major market for the products remained the United States. Additional changes to fishing legislation in the United States continued to influence the growth of Honduran industrial fisheries. The conch fishery in the Florida Keys officially collapsed in 1975 due to over-fishing and commercial harvest was subsequently banned. In 1985, commercial and recreational fishing for conch was banned in all Florida State waters. Without domestic supply, the demand for conch in the United States had to be supplied by imports from the wider Caribbean. Honduras became one of the main suppliers and the conch fishery grew to become the second most important industrial fishery after lobster.

41. Whilst neighboring countries, such as Belize, prohibited SCUBA diving and large industrial boats, opting instead for intensive small scale fishing structured around national cooperatives, Honduras pursued the private enterprise route. The Honduran fisheries became dominated by a few, large, private companies based from the Bay Islands, which owned both boats and processing plants. Industrial boats quickly developed SCUBA diving fisheries to combine the diving for lobster with the collection of conch. Underpinning this growth were the abundant resources on the large, shallow continental shelf formed by the Nicaraguan Rise that provides ideal habitat for lobster and conch. Secondly, a cheap labor force to dive in the fishery was supplied by the poor indigenous communities in the Moskitia. Diving in the industrial fishery quickly became the main source of employment in this remote region of eastern Honduras. "Red Gold" (the spiny lobster) remains the principal source of cash for the rural economy<sup>14</sup>.

42. The industry continues to maintain its strong presence around the Bay Islands where the majority of the lobster and shrimp boats are registered and docked. However, as the sector continued to expand through the 1990s additional packing plants and port facilities were established in the coastal town of La Ceiba in the department of Atlántida on the Caribbean coast. An important divergence occurred between these two fishing hubs: Whilst the Bay Islands gradually shifted their fishing technique away from diving and focused instead on lobster traps, the boats based from La Ceiba continued with SCUBA diving boats. This divergence has led to two distinct industrial fishing associations being formed: the *Caribbean Fishers Association* (APESCA) which represents the interests of the Bay Islands' based industry and the *Association of Honduras Industrial Fishers* (APICAH) which represents those from La Ceiba.

43. Industrial fishing boats are those which are larger than 10 metric tons. These boats are classified as "*barcos mayores*" (larger boats) and are required to obtain an industrial fishing license from DIGEPESCA each year. This license is a pre-requisite for industrial boats to be allowed to leave port.

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<sup>14</sup> Excluding the illicit and un-quantified gains from the narcotics trade

This is enforced by the merchant marine port authority. Boats smaller than ten tons but larger than 5 tons are classified as “*barcos menores*” (smaller boats) and whilst requiring a license from the merchant marine, they are not registered as industrial fishing boats. It is uncertain how many of these smaller boats are currently fishing commercially in Honduras or their port of origin.

44. The main hub of the industrial fishing industry is on Roatán with nearly half the fishing fleet based at ports on this island. Roatán dominates the shrimp, fin fish and lobster trap fleets, whilst La Ceiba has the majority of the lobster dive boats. Guanaja is the third most important location for the industrial fishery. Despite its close proximity to the main fishing banks, just 4 boats are licensed in Puerto Lempira, the departmental capital of Gracias a Dios.

**Table 6. Number of licenses per port for season 2012-2013**

Fishery	Gear	Roatán	La Ceiba	Guanaja	Puerto Lempira
Lobster	Traps	37	19	30	-
Lobster	Divers	1	22	10	4
Conch	Divers	1	5	2	-
Shrimp	Net	44	11	1	-
Fin fish	Lines	17	6	5	-
Total		100	63	48	4

45. There are five types of industrial fishing license differentiated by target species and gear type. These are: *Lobster Trap*, *Lobster Diver*, *Conch Diver*, *Shrimp Trawl* and *Fin Fish Reels*. Each license type allows the boat to catch and land the specific species using the specified technique. No other species are allowed to be landed and a single boat is not permitted to have more than one license type. The existing fisheries license data stored by DIGEPESCA are held in Excel spreadsheets. Information is stored on the licensee and the boat including its size, engine and construction material amongst other information.

46. The total number of boats in the fleet for each fishery that will be licensed is set by DIGEPESCA. This maximum number of licenses has not been reached in recent years in either the lobster trap or the shrimp fleet. There is interest in these sectors to further reduce the number of licenses available to stop any new entry in to the fisheries.

47. It is estimated that there are around 5,200 people employed directly on the boats of the industrial fisheries (Table 7). The lobster fisheries are the largest employment sector, with the majority of the fishers working in the dive fishery. The dive boats hold around eighty people, which makes their employment capacity high, despite having less than half the boats of the lobster trap fishery. The lobster dive fishery is set to close in March 2013. Transitioning these dive boats to trap fishing, would only provide 15% (444) of the employment that the dive boats supported.

48. The conch, shrimp and fin fish fisheries employ 1,200 people between them. It is highly likely that the fishers migrate in and out of the all the industrial fisheries switching to artisanal fishing if they cannot find employment with the fleet. Therefore as the industrial fisheries decline or are closed these fishers will return to fishing in their near shore waters. It is therefore imperative that the management of industrial fisheries be coupled to local management initiatives to avoid serious issues with displacement as an unintended consequence of industrial fisheries regulations.

**Table 7. Estimated employment per sector of the industrial fisheries**

Fishery	Gear	Fleet in 2013	Estimated number on board	Total employed	% of total
Lobster	Traps	86	12	1,032	19.9
Lobster	Divers	37	80	2,960	57.0
Conch	Divers	8	80	640	12.3
Shrimp	Net	56	6	336	6.5
Fin fish	Lines	28	8	224	4.3
	<b>Total</b>	<b>215</b>	<b>-</b>	<b>5,192</b>	<b>19.9</b>

49. These employment data are estimated based on the official registry for industrial fishing boats and known employment levels per boat. However, just because a boat is licensed to fish it does not necessarily mean that it is actively fishing. For example there were 56 licensed shrimp boats for the 2012 to 2013 (Table 7), but it is believed that only 35 of them fished before the close of the season in 2012. The high cost of fuel, the low shrimp catch and low market price meant that owners were losing money sending their boats out, so kept them tied to the dock. These employment estimates therefore represent *potential* employment figures by the industrial fisheries, but are likely to be over estimating *actual* employment within the fisheries sectors.

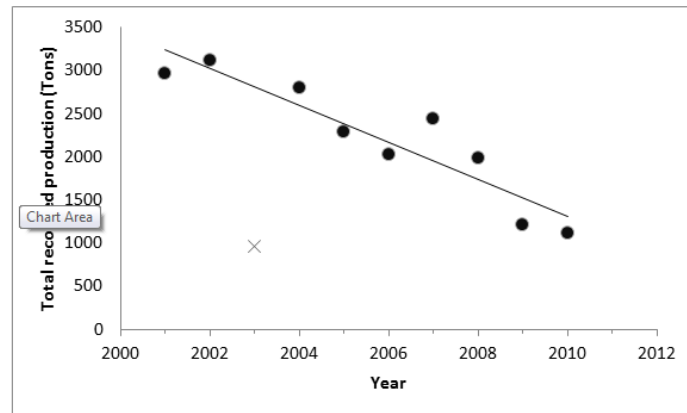
50. Since 2001, reported production from wild caught fisheries has fallen substantially from over 6.5 million pounds (nearly 3,000 tons) in 2001 to just 2.4 million (1,100 metric tons) in 2010 (Table 8, Figure 2). Some of this decrease in reported production can be attributed to the closure of the conch fishery following a CITES ban in 2003.

**Table 8. Total production per year for Honduran industrial fisheries in metric tons**

Year	Total	Lobster Tail	Lobster meat	Shrimp	Conch	Chopped conch	Fish	Crab	Shark fin	N/a
2001	2,958.4	768.0	58.8	899.5	766.6	10.4	455.0	-	-	-
2002	3,115.9	1,021.9	90.0	978.5	664.4	5.4	352.5	3.2	0.0	-
2003	956.5	96.9	43.7	26.7	353.3	4.0	427.6	4.4	-	-
2004	2,798.4	1,151.2	126.4	940.0	0.2	-	548.1	27.9	4.6	-
2005	2,283.0	1,035.9	128.3	830.1	-	-	288.4	0.3	-	-
2006	2,030.1	879.5	104.4	291.5	120.8	0.7	632.4	0.8	-	-
2007	2,446.2	860.6	114.1	294.1	95.7	18.5	1,063.2	0.0	-	-
2008	1,987.1	1,080.5	114.1	171.8	27.5	0.2	591.5	1.5	-	0.1
2009	1,204.4	541.7	57.9	38.2	87.3	-	479.3	0.1	-	-
2010	1,112.9	335.3	16.5	415.1	73.9	-	272.1	-	-	-

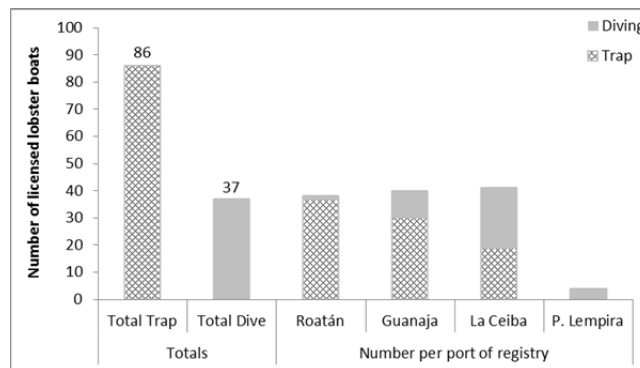
51. However, the reduction in reported conch landings does not explain the consistent decline in the total reported production year on year over the decade, with an average reduction of 215 tons per year (Figure 2). If this rate of decline continued the reported fisheries production would be zero in just three more years (2016). These production records should be a cause for serious concern. We do not believe these figures necessarily represent such a steep decline in landings. Rather they show the gradual decline in the reporting of landed catch to DIGEPESCA. Fisheries products are simply being landed and processed without any associated reporting. This impacts Honduras's ability to report wild caught fisheries production as part of its obligations to FAO.

**Figure 2. Total reported production per year for all industrial fisheries<sup>15</sup>**



52. The spiny lobster fishery is the biggest sector of the industrial fisheries in Honduras. It is comprised of two fishing mechanisms, the trap fishery, mainly based from Roatán and Guanaja, and the dive fishery mainly based from La Ceiba (Figure 3). Combined, the lobster industry has the most boats in the industrial fleet with 86 trap boats and 37 dive boats in 2012 – 2013 season.

**Figure 3. Comparison between the number of trap and dive boats licensed in the 2013 lobster fleet and their port of origin**



### Protected areas

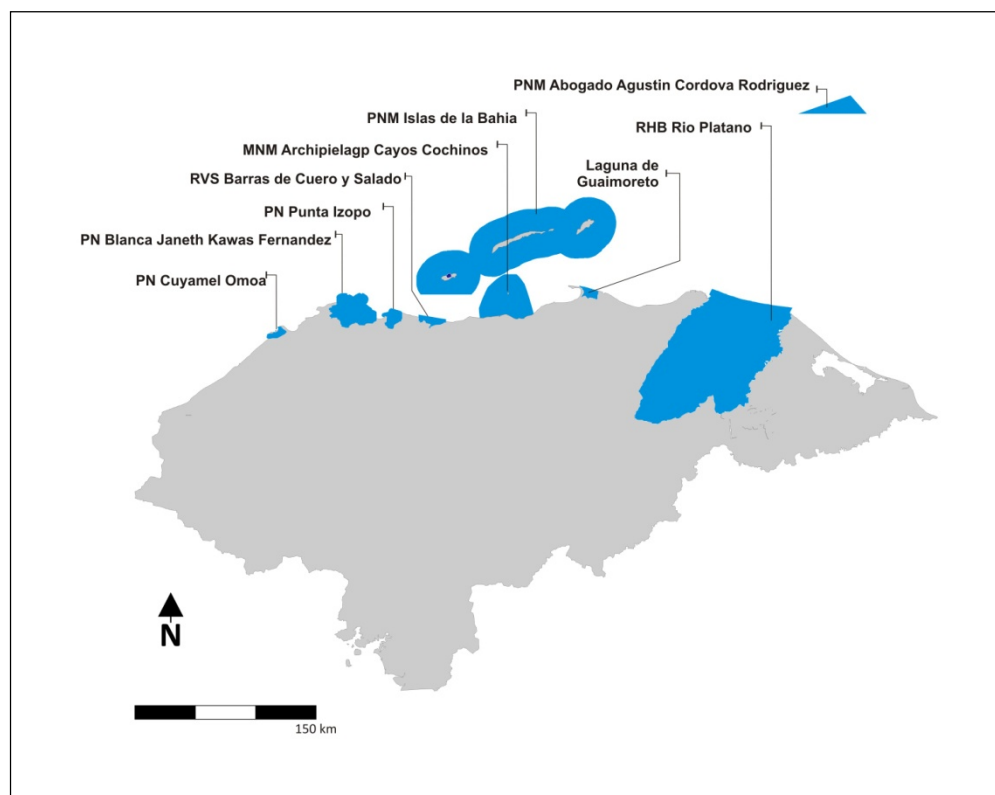
53. National Protected Areas System of Honduras (SINAPH) covers approximately 2.3 million ha. It includes 10 categories of protected areas, namely Marine National Parks (2), Biological Reserves (5), National Parks (14), Multiple Use Areas (2), Wildlife Refuges (5), Natural Monuments (1), Botanical Gardens (1), Municipal Reserves (1), Forestry and Anthropological Reserves (1) and Biosphere Reserves (2)<sup>16</sup>. Its current annual budget is approximately \$5.5 million; financial analyses carried out to date do not specify what proportion of this is dedicated to coastal and marine PAs. According to data from the Institute for Forest Conservation and Development (ICF), there are at present 8 coastal and marine PAs covering 1,722,279ha, of which 5, covering 1,066,192ha, have management plans. A gap analysis for marine and coastal PAs carried out by the Government in 2011, with support from The Nature

<sup>15</sup>Data for 2003 are excluded from the regression because of incomplete records from that year (shown as a cross)

<sup>16</sup> [http://www.birdlist.org/cam/honduras/hn\\_national\\_parks.htm](http://www.birdlist.org/cam/honduras/hn_national_parks.htm)

Conservancy, showed that marine and coastal ecosystems were seriously under-represented in the SINAPH, with less than 4% by area included in PAs. Many of the marine and coastal ecosystems that are included in PAs were selected on the basis of the value of the terrestrial ecosystems which they adjoin, rather than their own relative values and conservation needs. The study identified 54 priority sites, of which 19 are on the coast or continental shelf and 35 are in the deep sea.

**Map 1. Coastal and marine protected areas on the Caribbean coast of Honduras at present**



**Table 9. Coastal and marine PAs and their justifications**

Protected Area	Elements for which the PA was created (only those related to marine biodiversity)	Reference instrument
Abogado Agustín Córdova Rodríguez Marine Park (Isla del Cisne)	Marine heritage, resident and migratory fauna.	Presidential Accord 3056-91
Cayos Cochinos Archipelago Natural Marine Monument	Beaches, coral reefs, sea grass, commercial fish, marine turtles.	2008-2012 Management Plan
Barras de Cuero y Salado Wildlife Refuge	Antilles manatee, breeding areas for high value commercial fish.	Legislative Decree 99-87
Blanca Jeannette Kawas Fernández NP	Coral reefs; wetlands; seagrass; beaches; jaguars; manatees; monkeys; hydrobiological resources of importance for artisan fishing	Legislative Decree 154-94

Cuyamel Omoa NP	Coral reefs; mangroves; lagoon systems; Wetlands of the Cuyamel Valley; species of commercial importance; species in danger of extinction	Ministerial Accord 008-2011
Bay Islands MNP	Sea grass; coral reefs; mangroves; estuaries and coastal lagoos; migratory species; reproduction of marine organisms.	2013-2018 Management Plan
Punta Izópo NP	Maintenance of representative samples of ecosystems, associated biological communities and genetic resources; regulation of environmental context of the área; protection of scenic beauty and white sand beaches.	Legislative Decree 261-2000
Río Plátano MAB Reserve	Marine ecological zone, beaches, wetlands.	Ejecutive Decree 977-1980

**Table 10. Marine and Coastal Protected Areas in the SINAPH**

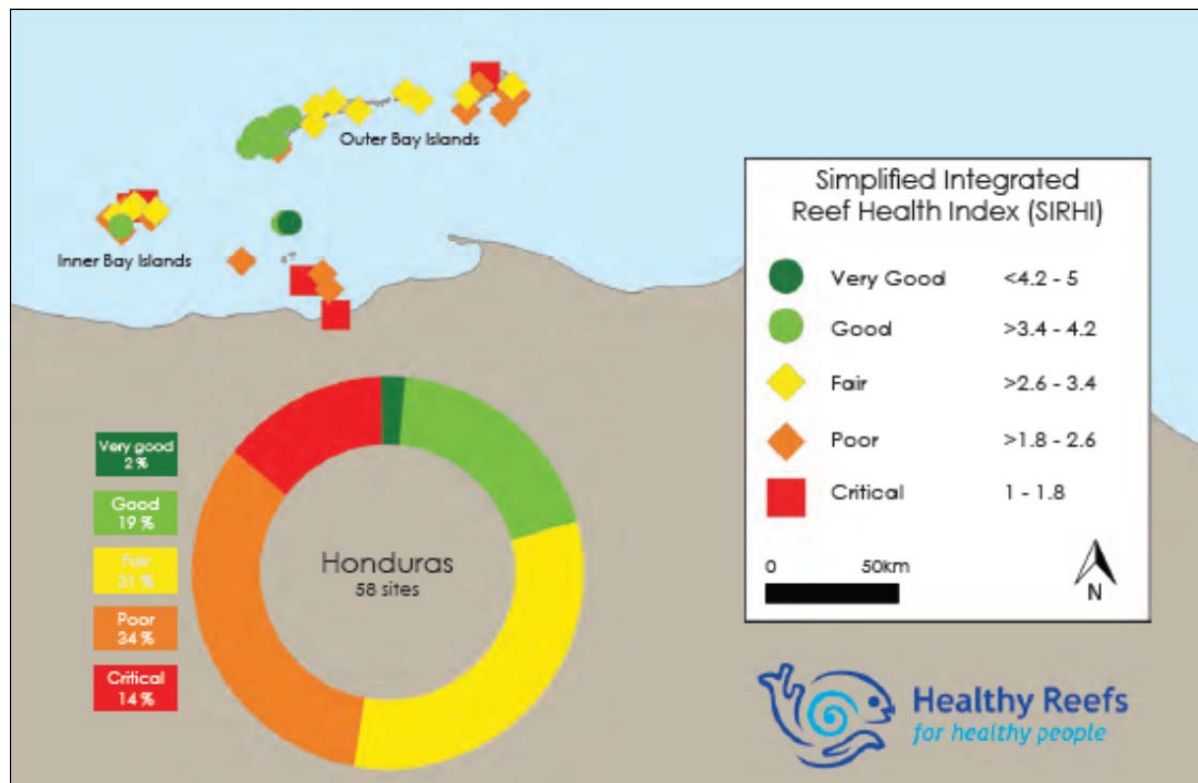
	Category*	Area (ha)				Year established	Co-manager
		Core	Buffer	Total	Marine		
Formally declared (with Legislative Decree)							
1. Cayos Cochinos	MNM	48,925	66,000	114,925	114,913	1993	Fundación Hondureña para la Protección y Conservación de Cayos Cochinos, Honduras Coral Reef Fund and Roatán Municipality.
2. Cuero y Salado	NP	3,300	5,129	13,027	5,037	1987	Fundación Cuero y Salado (FUCSA)
3. Blanca Jeannette Kawas Fernández (Punta Sal)	NP	44,097	34,048	78,146	28,400	1994	PROLASANTE, Municipalities of Puerto Cortés, Tela and Esparta.
Bay Islands MNP (as a whole)	MNP	52,409	594,400	647,152	647,152	2010	
4. Bay Islands MNP (unmanaged portion)	MNP			642,582	616,482	2010	To be defined
5. Sandy Bay-West End (Roatán)	SMPZ			941	941	2005	BICA Roatán/Roattán Marine Park
6. Turtle Harbor - Rock Harbour (Utila)	SMPZ			813	813	1991	BICA Utila
7. Half Moon Cay – South West Cay - Michael Rock (Guanaja)	SMPZ			5,394	5,394	1991	BICA Guanaja
8. Punta Izopo	WR	15,500	3,000	18,500	3,500	2001	PROLASANTE
9. Río Plátano	MAB	210,733	621,599	832,332	33,100	1980	-
With Presidential Accord (not formally declared)							
10. Abogado Agustín Córdoba Rodríguez (Islas del Cisne)	MNP			359	359	1991	Navy/DIGEPESCA
11. Guaimoreto Lagoon	WR			8,018	0	-	FUCAGUA
With Ministerial Decree							
12. Cuyamel Omoa	BR	5,663	24,368	30,031	8,145	2011	Omoa Conservation Corps

\* BR = Biological Reserve, MNP = Marine National Park, NMN = Natural Marine Monument, NP = National Park, RFZ = Restricted Fishing Zone, SMPZ = Special Marine Protection Zone, WR = Wildlife Refuge, MAB = Man and the Biosphere Reserve, SMPZ = Special Marine Protection Zone

## Threats

54. The 2004 Mesoamerican Reef Report card indicated that 34% of Honduran reefs are threatened by human activity. Of 16 coral reefs sampled in Honduras in 2010, the condition of 50% was classified as “Poor” and that of 25% as “Critical” by the Report Card for the Mesoamerican Reef<sup>17</sup>. In the sampled reefs, there was a reduction of 95% in the biomass of commercial fish between 2006 and 2009, from 1,579g to 73g/100m<sup>2</sup>, reflecting a major reduction in average fish size, which has major implications for population viability given that larger fish produce exponentially more young, thereby replenishing depleted populations. The biomass of herbivorous fish fell by 83% in the same period, from 4,791 to 831 g/100m<sup>2</sup> – this is particularly important for reef health, given the important role played by herbivorous fish in controlling the growth of algae on reefs and in this way making substrate available for colonization. Of 23 reefs sampled in 2006 and again in 2012, 70% (16 reefs) showed a worsening of their health status over the period<sup>18</sup>.

**Figure 4. Health status of 58 coral reef sites evaluated along the whole Caribbean coast of Honduras in 2012, using the AGRRA methodology<sup>19</sup>.**



<sup>17</sup>Reporte de la Salud Ecológica del Arrecife Mesoamericano. Una evaluación de la salud del ecosistema 2010. Arrecifes Saludables para Gente Saludable.

<sup>18</sup> <http://www.healthyreefs.org/cms/wp-content/uploads/2012/12/2012-Report-Card.pdf>

<sup>19</sup> <http://www.healthyreefs.org/cms/wp-content/uploads/2012/12/2012-Report-Card.pdf>

55. The principal threats include overfishing (affecting 30% of reefs), coastal development (25%), sediment laden runoff (10%) and marine pollution and physical impacts (6%).

56. **Over-fishing** has particularly significant impacts on species such as snappers (*Lutjanus* spp.), groupers (*Epinephelus* spp.) and conch (*Strombus gigas*). Fishing in the region is conducted both artisanally and commercially, but it is not governed by regional agreements and no national quotas have been established. Artisanal fish catch and effort are not routinely reported to the government.

57. The pressure on marine food webs caused by artisanal fisheries can affect the overall integrity and resilience of coastal ecosystems. Chronic fishing pressure not only decreases the diversity and abundance of fish populations but in addition, through negative feedback loops, declining fish populations can cause a decrease in habitat quality, limiting the extent of the goods and services the ecosystem can provide.

58. Fishers who have access to a strong market demand, but the value of the target catch is low, are driven to catch in greater volume to generate sufficient income. These fishers tend to deploy non-selective fishing gears such as nets or traps. The beach seine fishers in Garifuna communities that target near shore jacks and other small pelagic species for sale in the local community are the best example of this type of fisher. These fishers do not have access to higher value fisheries, but the local community's consumption maintains demand for any type of fish that is caught. When the high value species become overfished, leaving the lower value smaller bodied species, prosperous fishers may gradually become non-selective fishers as they switch from selective gears to less selective ones. If overfishing of these resources continues and the total value of the catch decreases, non-selective fishers may leave the fishery entirely in search of alternative employment. Those fishers that remain are subsistence fishers, as there is not enough value in the resource to maintain commerce. Similarly if specific seasonal species are overfished or access to the resource is restricted, then seasonal fishers may no longer be able to generate sufficient income from the seasonal markets, at which point fishers will also revert to being subsistence fishers.

59. New and emerging fisheries are becoming very important in the EEZ of Honduras, but have received no attention e.g.: a) Deepwater snappers are replacing shallow grouper and snappers as the targets of commercial fisheries, as the shallow species such as Nassau grouper stocks have collapsed, b) Sea cucumbers are promoted as a new alternative fishery for coastal communities, whilst the fishery is just opening up, sea cucumbers populations are very vulnerable to over exploitation over short time periods, c) Snook is the main fishery alternative to shark fishing in most rural communities. The ban on shark fishing is likely to put increasing pressure on snooks and so they should be a priority for management. Identifying important areas for these species throughout their life cycle and designing MPA placement around them is critical to their sustainability and the management of marine resources in the 21<sup>st</sup> century in Honduras. Land use change from mangroves to cattle ranching or African palm are likely to be two of the main threats to coastal PAs on the north shore of Honduras and both must be specifically evaluated and mitigated.

60. Despite the general low resolution of the fisheries data available, the licensing information shows that the industrial fleet has been shrinking since 2006 and it is clear that the industrial fisheries of Honduras are in decline as a result of over-fishing and poor management. In 2006 there were a total of 308 licensed fishing boats. In 2013 this had dropped by one third to 215. The fin fish sector halved the number of licenses during this period whilst all other sectors dropped by around 30%. There are no subsidies for the industrial fleet. This situation is evident from the continuing shrinkage in fleet size, reductions in reported catches and exports and the prevalence in illegal activity that includes fishing beyond territorial limits and infringing on protected areas. There is also growing evidence of extensive illegal landings composed of species for which the vessel is not licensed or which are below the legal size or out of season. Since the number of available licenses set by DIGEPESCA is higher than the number of registered boats, these declines are not due to management restrictions on the fleet size. Instead it is likely that the economic

constriction caused by increasing fuel costs and decreasing production has squeezed boats out of the fishery. The lack of effective strategies for the monitoring and control of the industrial fisheries and the absence of any specific management plans for the commercial species is now directly affecting the economic viability of these businesses. This not only threatens the ecological sustainability of the fisheries but also their important role underpinning employment and the rural cash economy for coastal communities.

**Table 11. Number of industrial fishing licenses granted by DIGEPESCA per year from 2006 to 2013**

<b>Fishery</b>	<b>Gear</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Lobster	Traps	131	127	131	116	97	103	104	86
Lobster	Divers	46	43	50	43	41	36	35	37
Conch	Divers	8	-	3	-	10	11	11	8
Shrimp	Net	71	67	55	42	48	50	56	56
Fin fish	Lines	50	39	45	32	23	23	23	28
	Total	306	276	284	233	219	223	229	215

#### *Potential ecological impacts of shrimp trawling*

61. The direct threats of shrimp trawling include the capture of juvenile and sub-adults of a wide variety of benthic species of fish and invertebrate. In addition trawling can have high capture rates of commercially and ecologically important fish species and the destruction of important habitats, such as soft bottom nursery grounds, as a consequence of the trawls raking the seafloor.

62. The shrimp fishery creates significant environmental impacts through habitat disturbance as it rakes the seafloor during its trawls. This has been likened to the clear cutting of forests (Watling and Norse 1998) and the associated disruption of ecological processes (Thrush and Dayton 2002). The trawling gear of the industrial shrimp fishery breaks, crushes, and buries benthic structures through which they are towed. The benthos is not normally provided with sufficient time to recover due to intensive trawling activity that repetitively trawl the same patches numerous times per year (Watling and Norse 1998). The destruction of the seafloor ecosystem significantly reduces the productivity of the area by disrupting marine food webs and can affect critical habitats for other commercially and ecologically important marine and coastal species such as groupers, snappers and turtles.

63. Globally shrimp trawling is one of the least selective methods of fishing with the weight of by-catch often far surpassing that of the targeted species (Andrew and Pepperell 1992). The term by-catch commonly means “catch that is either unused or unmanaged and is not the principal target of the fishery” (Davies, Cripps et al. 2009). Unused catch refers to catch that is discarded (alive or dead) and neither sold nor directly used after landing. Unmanaged catch can be individual species or groups of species that are of economic value that are landed by the fishery but do not have specific regulations within the fishery to ensure the take is sustainable. In Honduras this would include the fin fish that are sold illegally to the fin fishery for landing.

64. On average, shrimp fisheries across the world produce 84% by-catch and only 16% shrimp (Alverson, Freeberg et al. 1994). This means that for every 1.0 lb of shrimp caught there is an associated 5.25 lb of by-catch. There are a number of devices that have been integrated into the trawl fishing gear to reduce the level of associated bycatch. These include Turtle Excluding Devices (TED's), Fish Escape Devices (FED's) and Bycatch Reduction Devices (BRD's). Only turtle exclusion devices are mandatory in the Honduran shrimp fishery. Despite the introduction of these TEDs bycatch of other marine fauna remains an issue.

65. The impacts of shrimp by-catch on other commercial fisheries are significant and are an increasing point of conflict between industrial fishing sectors. Large numbers of finfish can be removed by the shrimp fishery sometimes surpassing the landing weight of the actual directed fin fish fishery. This is complicated further by the removal of juvenile and sub-adults by the shrimp trawls (Gallway, Longnecker et al. 1998, Herazo, Torres et al. 2006), which causes growth overfishing. For example, the shrimp fishery in the Gulf of Mexico removes more red snapper (*Lutjanus campechanus*) per year than the directed red snapper fishery. The size at capture of these red snapper by the shrimp fishery is below the minimum size for reproduction (65% are under one year old) (Workman and Foster 1994; Gallway, Longnecker et al. 1998). Other examples of the shrimp fishery impacting other commercial fisheries include in the Belizean (RDA 1991), Cuban (Valdés, Villafuerte et al. 2010), and the Colombian (Herazo, Torres et al. 2006) snapper fisheries, where the sub-adult lane snapper (*Lutjanus synagris*) comprise a significant percentage of the total bycatch.

66. A total of 41 families were identified as bycatch within the fishery. Four finfish families, Sciaenidae (seatrouts, weakfish, croakers, and drums), Gerridae (mojaras), Ariidae (catfish), and Lutjanidae (snappers), comprised approximately 60% of the total documented bycatch. The relative abundance of these four family groups implies a high capture vulnerability of individuals within these groups which could significantly affect the population structure of a number of ecologically and economically important species in Honduras. There are a number of species exploited by the Honduran finfish fisheries, both industrial and artisanal, that are currently associated with the bycatch of the industrial shrimp fishery. These fisheries include, the shallow water snappers (Lutjanidae) family including the lane snapper (*L. synagris*), and the deep water snapper species of the Caribbean Red snapper (*L. purpureus*) and vermillion snapper (*Rhomboplites aurorubens*). Other commercially important fisheries are represented in the families, Carangidae (jacks), Centropomidae (snooks), Scaenidae (seatrout and weakfish), Scombridae (mackerel and tuna), Serranidae (grouper) all of which are important in the artisanal fisheries (Box and Canty 2010; Carrasco and Colindres 2011). The lane snapper (*Lutjanus synagris*) is currently not of commercial value in the industrial fishery, however it is important within the artisanal fishery.

**Table 12. Estimated annual production of the industrial finfish fishery and bycatch of the industrial shrimp fishery for red snapper and all deepwater snapper species.**

Year	Red snapper			Deep water snapper		
	Directed fishery (Lbs per boat per season)	Estimated Shrimp fishery bycatch (lbs per boat per season)	Percentage bycatch to directed	Directed fishery (lbs per boat per season)	Estimated Shrimp fishery bycatch (lbs per boat per season)	Percentage bycatch to directed
2001	3,542	61.4	1.7%	20,546	4,518	22.5%
2002	3,780	66.8	1.8%	18,189	5,023	27.6%
2003	2,240	1.8	0.1%	11,417	137	1.2%
2004	1,087	64.2	5.9%	6,086	4,825	79.3%
2005	1,048	56.7	5.4%	13,338	4,261	32.0%
2006	2,609	19.9	0.8%	25,440	1,496	5.9%
2007	3,337	21.3	0.6%	25,496	1,600	6.3%
2008	418	15.1	3.6%	6,358	1,138	17.9%
2009	3,427	4.4	0.1%	21,153	331	1.6%
2010	7,301	41.9	0.6%	80,172	3,152	3.9%
		<b>Mean</b>	<b>2.1%</b>		<b>Mean</b>	<b>19.8%</b>

67. Red snapper bycatch in the shrimp fishery was equivalent to 3.0% in the years 2001 to 2005 and 1.1% in the years 2006 to 2010 of the total industrial finfish fishery production. Despite the relatively low bycatch rate of red snapper specifically, the impact to the deep water snapper stocks as a whole is likely to

be significant. The sustainability to stocks of other deepwater species such as the vermillion snapper (*Rhomboplites aurorubens*), queen snapper (*Etelis oculatus*) and blackfin snapper (*L. buccinella*) are likely to be affected due from shrimp trawling and growth overfishing.

68. The closure of the commercial dive lobster fishery in March 2013 has the potential to generate significant indirect impacts on coastal and marine biodiversity. On the one hand, if alternative sustainable livelihood support strategies are not identified for the approximately 1,500 people who currently work in this sector, it is highly likely that they will return to their communities of origin to carry out artisan fishing, which is likely as a consequence to reach unsustainable levels. Furthermore, it is likely that the fleet hitherto involved in dive fishing for lobsters will in the future turn to trap fishing for lobsters, placing unsustainable pressures on the resource (and consequent knock-on effects on overall ecosystem viability), in areas such as that proposed for the exclusive zone for artisan fisheries in the Moskitia (see Output 1.2). This area, typified by cays and shallow seas, is particularly important as a spawning and grow-on area for lobsters and a number of other species.

**Table 13. Matrix summarizing the important management challenges for artisanal fisheries in each of the eight zones of the north shore of Honduras**

Management Challenge	Zone							
	1	2	3	4	5	6	7	8
	West of Punta Sal	Tela, Porvenir, Utila	Cayos Cochinos	West Roatán	East Roatán	Guanaja	Bay of Trujillo	Karatasca & Vivorillos
Immigration to artisanal fisheries due to closure of industrial lobster diving		X			X	X	X	X
Integrating management of lagoon and marine fisheries		X					X	X
Controlling use of Beach Seines		X	X		X		X	
Controlling use of gill nets	X	X	X		X		X	X
Opportunities to diversify into new fisheries				X	X	X		X
Displacement of fisheries due to marine protected area designations		X	X	X	X			
Fishing of protected species	X	X	X		X	X	X	X
Illegal fishing in neighbouring countries	X							

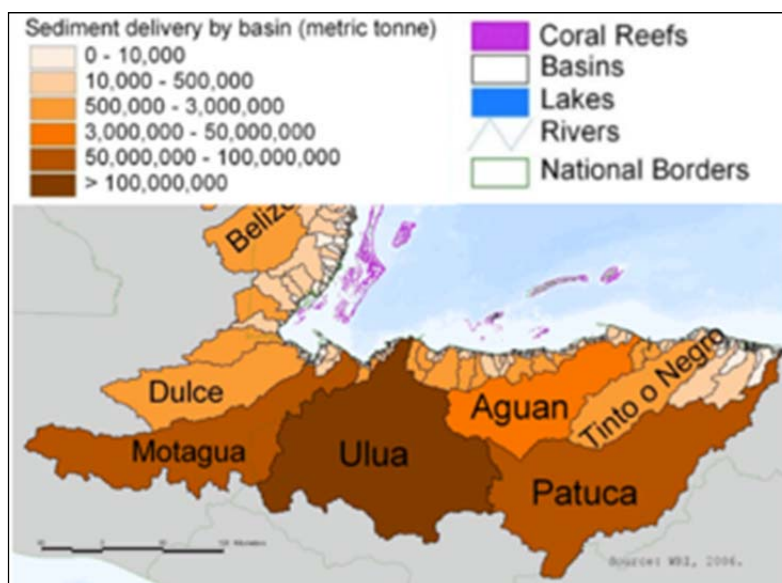
69. **Tourism and urban development** in the coastal zone generates sediment and liquid wastes that affect the health of coral reefs and coastal wetlands, as well as the direct elimination of coastal ecosystems such as mangroves, and leads to population influxes that in turn impose extractive pressures on the resources. In Utila, for example, mangroves are affected by the dumping of solid wastes in order to reclaim land for construction, and felling and the digging of channels in order to demarcate parcels of privately-owned land. In 2012, the Honduran Tourism Institute (IHT) categorized the health status of mangroves in the Bay Islands as “moderate”, due to the significant destruction and pollution that has occurred over recent decades. Those of Utila were characterized as having the best coverage and best conservation status, while those of the municipality of Roatan were the least extensive and least well conserved.

70. Similarly, seagrass cover has decreased as a result of anthropic pressures, at least in the Bay Island MNP. Although the IHT classified them in general as healthy there in 2012, it also highlighted their

vulnerability to threats such as dredging, the construction of shipping channels, and sand mining to construct beaches. Additional risks include eutrophication and sedimentation resulting from land-based activities. Damage from anchoring of fishing and tourism boats is considered to be minor at the moment.

71. **Agricultural development** in the coastal zone itself results in the direct elimination of coastal ecosystems, while similar activities in the interior of the country result in erosion, generating sediments which affect reef health. Of the 400 catchments in the Mesoamerican Reef region, the greatest quantity of sediment and nutrients are transported by those which drain into the Gulf of Honduras (principally the Ulua River catchment): it is estimated that more than 80% of the sediment, and more than half of the nutrients, originate from Honduras<sup>20</sup>.

**Figure 5. Sediment delivery by basin to the Gulf of Honduras**



72. Shipping activity to and from ports such as Puerto Cortés poses the threat of contamination from the **accidental spills of hazardous chemicals** (the volumes of hazardous chemicals imported and exported at Puerto Cortés increased by more than 75% between 1992 and 2001). While petrochemical development has not yet commenced on any scale in the area, it is possible that it will do so in the future, posing threats to coastal and marine ecosystems through possible **petroleum spills** and elimination for the **establishment of petrochemical and port installations**.

73. Coastal and marine ecosystems are also subject to threats from **climate change**: for example, increased seawater temperatures lead to increased frequencies of coral bleaching events, while rises in sea level affect coral photosynthesis by reducing the amount of light that reaches them, as well as causing swamping and regression of the seaward margin of mangroves (which can only be compensated by inland movement of their landward boundaries if land use and topographical conditions permit), and increased wave erosion. The period of the year when vulnerability to bleaching is highest is August-October, when sea temperatures reach almost 30°C, or 3-4°C above the mean temperature<sup>21</sup>.

<sup>20</sup> Burke et al. (2006)

<sup>21</sup> Box 2009

### **Climate change**

74. Fishing activity within the artisanal fishery of the north shore is significantly influenced by prevailing weather conditions. Fishing ground selection is primarily determined by economic considerations, i.e. the distance to port, however wave exposure and rainfall are important factors within the decision making process. Fishing activity in the coral reef associated snapper fishery is affected by wind speed, wind direction and rainfall, in that order of importance.

75. Recent research in the area has shown that positive electivity of fishers entering into the snapper fishery is associated with days with light westerly winds and no rainfall. In contrast fishers avoid fishing when prevailing weather conditions are associated with strong wind speeds, north winds and heavy rainfall.

76. The climate change scenarios suggest that decreases in mean daily winds speed and rainfall would potentially be beneficial to fishers in the artisanal fishery. Reduced wind speeds and declines in rainfall are associated with higher electivity indices, and consequently greater accessibility to the fishery. Declines in wind speed will be associated with declines in wave exposure, with increased fishing activity highly probable in the entire Utila Cays artisanal fishery.

77. The potential increase in fishing activity associated with climate change is of critical importance to fisheries managers. If fishers will have greater access to the fisheries in the future due to the predicted favourable weather conditions associated with climate change, these fisheries could come under even greater fishing pressure and spatial competition between adjacent communities could increase. It is important that management strategies are put in place that can promote the sustainable exploitation of these fisheries, reduce spatial conflict and maximise the resilience to exploitation from a functioning network of marine protected areas and no take reserves.

### **Institutional framework**

78. The lead Governmental institution in the environmental sector is the Ministry of Environment and Natural Resources (SERNA), which is also home to the GEF technical focal point and the CBD focal point. SERNA, through its **Directorate of Biodiversity (DIBIO)** is responsible for formulating and implementing environmental policy, for preparing the National Biodiversity Strategy and Action Plan DIBIO, and for defining priorities and needs for the establishment of protected areas. The **Directorate of Environmental Management (DGA)** of the SERNA is responsible for promoting territorial land use planning (a responsibility that is shared with the Ministry of Governance) and for supporting the environmental capacities of municipal governments, while the Directorate of Environmental Control is responsible for supervising environmental impact assessment procedures as provided for in the General Environment Law.

79. The **Institute of Forest Conservation and Development (ICF)**, an entity at the level of Secretariat which is a direct dependency of the Presidency of the Republic and which is technically, administratively and financially independent, is responsible for managing PAs within the National System of Protected Areas (SINAPH), and for overseeing the conservation and management of wildlife and forests.

80. The **Ministry of Agriculture and Livestock (SAG)** is the lead institution in the agriculture, fisheries and livestock sub-sectors. It is home to the **General Directorate of Fisheries and Aquaculture (DIGEPESCA)**, which is responsible for planning, promotion and control of the fisheries sub-sector, and the **National Directorate for Sustainable Rural Development (DINADERS)** (the Director of which has ministerial rank), which executes rural development projects nationwide. The **Ministry of Social Development** is responsible for matters related to the national Poverty Reduction Strategy.

### **Long-term solution**

81. The **long term solution** to the threats described above is to ensure that an operationally effective and financially sustainable network of protected areas exists that includes representative areas of key biota and ecosystems, and is tailored to the wide range of needs and conditions that exist across the area, taking into account priorities for conservation as well as for local, regional and national development. This vision is consistent with the mandate of the Seventh Conference of the Parties of the Convention on Biological Diversity, which promotes the establishment of effective marine conservation networks by 2012.

82. Despite their benefits, MPAs cannot resolve all coastal and marine management issues. The most successful MPAs are integrated into a wider framework of management measures such as establishing effective control and monitoring systems, assigning fishing rights through licenses and permits and a realization that management must extend beyond the boundaries of the MPA. As such, the best results from MPA placement will be achieved when an appropriate mix of fisheries management and ecosystem management tools are applied simultaneously.

### **Barriers to achieving the solution**

#### **Barrier 1: Inadequate planning, regulatory and institutional framework for ensuring adequate and effective PA coverage**

##### *Limited clarity of institutional and legal frameworks.*

83. According to the General Environment Law, the Directorate of Biodiversity (DIBIO) of the Environment Ministry (SERNA) is responsible for the definition of priorities and needs for the establishment of protected areas; while according to the Forestry, Protected Areas and Wildlife Law, the Institute of Forestry Conservation and Development (ICF), through its Department of Protected Areas and Wildlife (DAPVS) is responsible for their management, and for the conservation of wildlife. In practice, there is limited clarity regarding the delimitation of the respective roles of these two institutions, both within the institutions themselves and among local stakeholders.

84. A similar situation exists in the case of fisheries. Fisheries management and PA management are the responsibilities of two Government institutions with different roles, but with a coincidence of geographical and thematic interests. Fisheries is the responsibility of DIGEPESCA, a dependency of the SAG, while the management of marine (and other) protected areas is responsibility of ICF. This situation has led to incongruencies: in one case, DIGEPESCA developed a project to support artisan fishers through the provision of equipment, but without providing them with the necessary instruction regarding the prohibitions on fishing in the restricted zones of marine protected areas; when they fished in one of these zones, they were arrested by the Navy but were subsequently freed, in part due to the legal complexities resulting from the fact that the equipment involved still belonged to DIGEPESCA<sup>22</sup>.

85. Although almost all of the MPAs in the north coast have a basic legal status (see METT scores in Table 14), the legal bases of these vary widely, including presidential accords, resolution from the Director of ICF, and municipal accords. The result of this is that there are inconsistencies in regulation, generating confusion among local stakeholders regarding the legal provisions that apply in each case.

86. The majority of the protected zones in the area are based on the regulation of DIGEPESCA which reserves the first 6 miles from the shore for artisan fishing. This again generates confusion among local stakeholders, among whom there is a lack of clarity regarding the different concepts and objectives of

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<sup>22</sup> Jolón-Morales (2007)

protected areas and fisheries protection zones. In general the procedures and responsibilities associated with the Fisheries Law are inadequately defined and poorly understood by many stakeholders.

87. Within this framework, which features a poorly consolidated regulatory framework, State entities with inadequate staff and budgetary resources and protected areas lacking clear delimitation, demarcation and management, fishery activities come to represent a threat rather than an opportunity for integrating conservation and development.

*Inadequate coordination between institutional actors.*

88. Furthermore, the effective combat of sector-based threats currently or potentially affecting MCPAs is hindered by limited coordination between Government institutions with PA responsibilities (SERNA and ICF) and those with responsibility for promoting and regulating tourism and fisheries activities and infrastructural development (Secretariat of Tourism, DIGEPESCA and Secretariat of Industry and Commerce). A large number of national and international NGOs are involved in the conservation of marine and coastal biodiversity (including the management of PAs, under delegation by ICF); however there is little region-wide coordination and communication between them and with the Government, which means that opportunities for synergies are missed.

*Lack of clarity, consistency and consensus regarding local participation in PA management, and the relations between formal and traditional approaches to conservation*

89. PA management inevitably requires the direct or indirect involvement of a range of different sectors of society. However, the distribution of the costs and benefits of conservation is not adequately regulated, resulting in potential for major inequities. Although national PA legislation provides for the definition of Co-Management Agreements, there is inadequate clarity regarding this concept for it to be able to ensure effective and equitable stakeholder participation. In reality, co-management is normally applied in practice as the delegation of responsibilities for PA management from ICF to local NGOs, groupings of municipalities and other local entities, which do not necessarily represent the interests of local stakeholders and in some cases may enter into conflict with them.

90. The existence of diverse ethnic and cultural groups in the area (such as Bay Islanders, Garifunas and Miskitos) poses particular challenges for the declaration of MCPAs, as these groups do not necessarily identify with the concept of PAs that is managed by the Government and tend to consider externally-proposed PAs as a threat to their interests, and to their traditional tenure and management rights over lands and natural resources.

*Inadequate expression of policy commitments in resource assignation:*

91. Despite the existence of tools to define the policy and strategic directions of the SINAPH, including a Strategic Plan for the SINAPH for 2010-2020, financial resources from the State are not assured, as evidenced by the limited recurrent budget assigned to the system and the difficulties that have occurred over the last few years in putting the Protected Areas and Wildlife Fund into operation. Furthermore, although fiscal instruments do in theory exist as an alternative source of finance, their application is not actively promoted, which limits the participation of the private sector in conservation activities, or leads the private sector to operate autonomously through the establishment of private foundations. These financial limitations at systemic level largely explain why it has not been possible to achieve the transformations that are required in terms of research, in situ conservation, active management of ecosystems and species, and the effective participation of citizens in the development of programmes and projects of sustainable use.

#### Limited availability of information.

92. Although an overall ecosystem gap analysis has been carried out for the area, the limited availability of reliable data on the biophysical and social characteristics of candidate PAs is a hindrance to the assignation of conservation priorities and the definition of appropriate PA categories.

93. Currently no protected area management organizations are collecting sufficient information to be able to determine the role of the current MPA network in effectively sustaining either the marine biodiversity of the region or helping to sustain the local fisheries, which constitutes an impediment to the integration of PA management with that of local fishing activities. In the case of Cayos Cochinos, for example, despite receiving excellent ratings from ICF reviews for their ability to manage the protected area, the co-manager HCRF remains unable to demonstrate the efficacy of this management. The lack of any evidence of the benefits of the park is one of the key limitations that the managers have in justifying marine regulations to local fishing communities. Since there is no information to show that the existing regulations have made any impact, fishers are increasing resistant to adopt any further restrictions. Furthermore anecdotal evidence suggests that the carrying capacity of the fisheries in Cayos Cochinos is being exceeded with declining catch per unit effort of the fishers in the area. A capacity study of the fisheries in that area has not been conducted so the number of fishermen the area can actually support has not been effectively calculated.

#### Piecemeal approach to PA establishment.

94. This situation is further exacerbated by the piecemeal and opportunistic approach that is applied to the identification, prioritization and categorization of candidate MCPAs, which fails to take adequately into account the oceanographic, biological and social relations between different areas along the length of the coast (for example the movement of fish larvae and contaminants in ocean currents, and the seasonal movement of aquatic fauna between coastal and marine ecosystems, and the movement of fish populations in and out of MCPAs); PA and spatial planning legislation does not at present make provision for the establishment of the planning units necessary to address this situation, such as multiple- or regulated-use zones outside of the MCPAs themselves.

### **Barrier 2: Inadequate tools and capacities for managing PAs and addressing threats**

#### Weak PA management capacities

95. The current status of the management effectiveness of marine and coastal PAs in the north of Honduras, as assessed through the Management Effectiveness Tracking Tool, is shown in Table 14 below. The strongest aspect of management effectiveness, according to the METT assessment, is legal security (overall rating 2.73/3). A firm legal basis exists for the PA estate, as all but two of the PAs have formal legal status (in the case of Cuyamel Omoa, this is through a Ministerial Decree, which although valid lacks the permanence of a Legislative Decree and does not allow ICF to approve the PA management plan). Presidential Accords have been issued for the other two, Guaimoreto Lagoon and Islas del Cisne, however these only constitute the first stages in the processes leading to formal declaration. Despite this solid legal basis, management effectiveness is highly variable and a number of the PAs can only at this stage be considered as “paper parks”. The weakest aspects are as follows.

96. *Insecure and inadequate budgets.* This was considered the weakest areas aspect of all across the MCPA sub-system, with an overall rating of only 0.27/3: in 8 of the 11 PAs, the rating given was 0/3 (there is no secure budget for the protected area and management is wholly reliant on outside or highly variable funding) and for the other three it was 1/3 (there is very little secure budget and the protected area could not function adequately without outside funding). The available funds were also considered to be inadequate: in 4 of the PAs (Cuyamel Omoa NP, Sandy Bay-West End SMPZ, Guanaja and Guaimoreto Lagoon WR) reported having no budget and 5 more (Jeannette Kawas NP, Turtle Harbour-

Rock Harbour SPZ, Punta Izopo NP, Islas del Cisne MP and Río Plátano Biosphere Reserve) reported that the available budget is inadequate for basic management needs and presents a serious constraint to the capacity to manage the PA.

97. *Lack of up-to-date management plans.* Only 4 of the PAs have management plans that are under implementation and 4 have no management plans at all. Of the 4 management plans that do exist, those covering Cayos Cochinos and Cuero y Salado are up to date, and those of Jeannette Kawas and Punto Izopo both elapsed in 2009 but are in the process of being renewed.

98. *Inadequate staffing.* In 7 out of the 11 PAs, it was reported that there were either no staff or that staffing was inadequate for critical management activities. Staff capacities appear to be less of a problem: in 7 out of 11 PAs, staff training and skills were reported to be adequate, but could be further improved to fully achieve the objectives of management.

99. *Inadequate local participation.* According to the METT analysis, in 5 of the PAs indigenous and traditional peoples were reported to contribute directly to some relevant decisions relating to management, but their involvement could be improved; and in 3 others, they were reported to have some input into discussions relating to management but no direct role in management. The existence of “co-management” agreements in the PAs of the zone does not equate to genuine co-management of the PAs by community-based stakeholders: typically, these agreements function solely as mechanisms for the delegation of PA management responsibilities to NGOs or CSOs which often have limited or no validity as representatives of the communities living in or depend on PAs and their natural resources. The Consultative Councils provided for in PA legislation, meanwhile, have suffered from limited participation and sustainability. In general, there is little experience to date in the country with co-managing PAs with indigenous and autochthonous communities, with the result that ‘conventional’ approaches to PA management may be rejected by such groups. There are significant conflicts in a number of current and candidate MCPAs regarding issues such as claims over access to land and resources, and perceived incompatibilities between conservation objectives on the one hand and livelihood support and cultural values on the other.

100. *Inadequate provision in management instruments for regional considerations.* The existing PA management plans pay inadequate attention to incorporating regional considerations of ecosystem protection, biological connectivity and sustainable development, or to making provisions for responses to trends in social, economic and climatic conditions.

#### *Inadequate integration between PA management and fisheries management issues*

101. Honduras has been slow to develop management frameworks to improve the sustainable use of its marine resources. There are some fisheries regulations in place for the principal commercial fisheries, but to date, there are no actual management plans for any of these fish and crustacean species. As such there are no clear objectives or goals for what the regulations are trying to achieve or mechanisms in place for collecting and analyzing the relevant information to monitor their ecological and economic effectiveness. In addition, although Marine Protected Areas have become an increasingly utilized tool around the globe to rebuild the resilience in marine ecosystems to sustain commercially important fish stocks, MPA network design has not been integrated into the management of Honduran industrial fish stocks.

#### *Inadequate institutional capacities in support of governance in and around PAs.*

102. As described above, PAs in the target area are subject to a range of threats of both terrestrial and marine origin: the magnitude of these threats is in large part a reflection of poorly-developed governance conditions. In the case of fisheries, there is a generalised lack of governance, reflected in growing evidence of widespread illegal, unregulated and unreported fishing (IUU), and recurring cases of Honduran boats fishing in the territorial waters of neighboring countries such as Jamaica, Colombia and

Nicaragua. Given its extremely limited human and financial resources, DIGEPESCA has remained unable to counter this situation, as evidenced by the closure of the Honduran conch fishery under the Convention in International Trade in Endangered Species (CITES) in 2003 (a closure which remains in place to this date), the commercial extinction of Nassau grouper, the current confusion in the lobster fisheries sector and the near economic collapse of the shrimp fishery. Governance capacities in terrestrial areas are rather better developed, due on the one hand to the greater human and financial resources available to ICF than to DIGEPESCA, and on the other to the fact that terrestrial activities tend to be easier to supervise and control than marine activities, and also property rights tend to be more clearly defined. This being said, terrestrial governance is still far from adequate, due to scarce physical presence and capacities of ICF, poorly consolidated community governance, and unequal power relations (for example between local communities and large commercial actors in the tourism, agricultural and ranching sectors); in some areas governance is further undermined by the drugs trade.

*Inadequate or ineffective participation of local organizations in governance in and around PAs.*

103. There is a range of organizations of local stakeholders within the project area (see Section IV Part III). In general, however, the majority of stakeholders do not belong to organizations capable of representing their interests or promoting environmental governance; this is particularly the case with small farmers. This makes it difficult, on the one hand, for these actors to counter external threats that affect the natural resources on which they depend; and, on the other, for the Government to interact effectively with these stakeholders in order to bring about changes in their productive or extractive practices.

104. In the case of commercial fisheries, the two main associations APICAH and APESCA are sometimes fractured on important fisheries issues. This is due in part to their different ethnic and cultural constituents (native Bay Islanders in APESCA as opposed to mainland mestizos in APICAH) and competing fishing operations. For example, whilst the prohibition in July 2013 of the use of SCUBA to dive for lobster will negatively affect the APICAH members, it stands to benefit the APESCA members as their lobster trap boats could expand into the areas previously occupied by the APICAH dive fleet. Conversely, one of the strategies to address this closure; to convert dive boats to trap boats, is supported by APICAH (as they regain access to the fishery) but opposed by APESCA (as it will increase competition on their trapping grounds). As this situation exemplifies the fishing industry of Honduras has often failed to have a unified voice on management issues. Combined with a weak government fisheries department, this has led to a chronic lack of decision making and management to regulate the extraction of marine resources.

*Inadequate tools for monitoring, reporting and decision-making in relation to the integration of PA and fisheries management issues.*

105. The above deficiencies are further exacerbated by the absence of adequate tools for reliable and consistent reporting and monitoring on MPA management and ecological conditions, and the scarcity of reliable biophysical and social data to guide ongoing management (despite some research initiatives being carried out by DIGEPESCA, ICF and others).

106. The existing fisheries license data stored by DIGEPESCA are held in Excel spreadsheets. Information is stored on the licensee and the boat including its size, engine and construction material amongst other information. Not all information is complete for all boats. There are no images of the vessels stored with the written data. Data are only available since 2006. Data is not securely stored at DIGEPESCA and long term data sets are not available and it is assumed they have been lost through successive changes in administration and personnel. The excel files are not encrypted or protected and are open to intentional or inadvertent changes. Typographic errors are common in the data set.

107. The production data collected by the national government is submitted each month by the registered fish packing plants on printed forms to the regional offices of DIGEPESCA. Each regional office, in La Ceiba, Roatán and Guanaja, collects the paper information and sends it to Tegucigalpa where it is transferred manually to the government's Excel files. The DIGEPESCA system is highly vulnerable to data loss or alteration as there are no off site backups of the information. There is also no security to ensure data integrity during, or after, it is entered. An example of this is that all data collected prior to 2001 was lost when files were removed by a technician either accidentally or intentionally in 2000 when he left DIGEPESCA. With this single act, all official statistics for the production history for Honduras were erased.

108. With each change in administration at the fisheries department the way production data is collected and stored changes slightly. These changes are reflected in subtle alterations to the forms being used and the accompanying Excel spread sheets. These changes include altering the names of categories used for the same product and the specificity of the information recorded. These subtle differences make it more complicated to analyze all the data together across years. The existing Excel based system makes it very difficult to visualize data collated from the plants and to monitor production levels for the national fisheries.

109. It must also be noted that there is currently no mechanism in place to independently verifying the data that is sent to the fisheries department from the packing plants. Processing plants are not audited for their production records to demonstrate their accuracy and information stored by DIGEPESCA is not cross checked against other data sets such as the export records from SENASA or CITES.

110. In the lobster production data from DIGEPESCA it is not possible to determine if the lobster was trap caught or dive caught. This is an important oversight as in essence these are two separate fisheries, not only because of the way the lobster are caught, but because the fisheries are spatially separated, with dive boats using shallower banks whilst traps fish at greater depth. Being able to monitor each fishery separately is important to develop management strategies and marine spatial planning relevant for each sector

**Scores for the target PAs, in descending order of average score (PAs 1-6 are prioritized for strengthening due to inclusion in the island-to-coast connectivity zone)**

	1. Cayos Cochinos NM	2. Cuero y Salado WR	3. Jeannette Kawas NP	4. Cuyamel Omoa NP	5. Turtle Harbour-Rock Harbour (Utila) SPZ	6. Punta Izopo NP	7. Sandy Bay- West End SPZ	8. Guanaja	9. Guaimoreto Lagoon WR	10. Islas del Cisne MP	11. Río Plátano BR	Average score
Legal status (or in the case of private reserves is it public or similar)?	3	3	3	3	3	3	3	3	1	2	3	<b>2.73</b>
Size and shape to protect species, habitats, and water catchments of key conservation	3	3	1	3	3	1	3	2	0	1	2	<b>2.00</b>
Protection of the important values of the PA as was first designated?	2	2	2	2	2	2	2	2	2	1	2	<b>1.91</b>
Coordination with adjacent land and water users?	3	2	2	2	1	2	-	0	2	-	2	<b>1.78</b>
Enough information to manage the area?	3	3	1	3	2	1	1	2	1	0	2	<b>1.73</b>
Local communities resident or near the PA have input to management?	2	2	2	2	1	2	2	1	2	-	1	<b>1.70</b>
Are there any economic benefits to local communities, e.g. ecotourism, payment for environmental services?	2	2	2	0	0	2	3	1	3	-	2	
Is the PA clearly known and demarcated?	3	3	1	3	0	1	1	2	2	0	2	<b>1.64</b>
Do traditional peoples resident or regularly using the area have input to management decisions?	2	1	2	2	1	2	-	1	-	-	2	<b>1.63</b>
Are there any regulations in place to control land use and management (e.g. zoning)?	1	2	1	0	1	1	2	1	2	3	2	<b>1.45</b>
Are management activities undertaken according to agreed PA objectives?	2	3	2	1	2	2	2	0	0	0	2	
Is there a management work plan and is it being implemented?	3	2	2	0	2	2	2	0	0	0	3	
Are managers sufficiently trained to fulfill management objectives?	2	2	2	2	2	2	1	0	1	0	2	
Are management activities monitored against performance?	3	3	2	0	1	2	2	0	2	0	1	<b>1.36</b>
Is management being undertaken?	2	2	2	2	2	2	1	0	0	0	2	
Is management sufficient for management needs?	2	1	2	0	2	2	2	0	2	0	2	
Is there a management plan and is it being implemented?	3	3	3	0	1	3	0	1	0	0	0	<b>1.27</b>

	1. Cayos Cochinos NM	2. Cuero y Salado WR	3. Jeannette Kawas NP	4. Cuyamel Omoa NP	5. Turtle Harbour-Rock Harbour (Útila) SPZ	6. Punta Izopo NP	7. Sandy Bay-West End SPZ	8. Guanaja	9. Guaimoreto Lagoon WR	10. Islas del Cisne MP	11. Río Plátano BR	Average score
13. Are there enough people employed to manage the PA?	2	2	1	2	1	1	1	0	1	1	2	
20. Is there a planned education programme linked to the objectives and needs?	2	0	2	1	2	2	2	0	1	0	2	
21. Does land and water use planning recognise the PA and aid the achievement of objectives?	0	2	2	2	1	2	1	0	2	0	2	
17. Is the budget managed to meet critical management needs?	2	2	2	0	1	2	1	0	0	1	2	<b>1.18</b>
28. Do commercial tour operators contribute to PA management?	2	1	2	0	1	2	2	0	1	0	2	
29. If fees (i.e. entry fees or fines) are applied, do they help PA management?	2	2	2	0	1	2	2	0	-	0	0	<b>1.10</b>
19. Is equipment adequately maintained?	2	1	2	0	1	2	2	0	0	0	2	<b>1.09</b>
11. Is there a programme of management-orientated survey and research work?	3	1	1	0	2	1	1	0	0	0	2	<b>1.00</b>
3. Can staff (i.e. those with responsibility for managing the site) enforce PA rules well enough?	1	2	0	1	1	0	1	0	1	0	2	<b>0.82</b>
15. Is the current budget sufficient?	2	2	1	0	1	1	0	0	0	1	1	
27. Are visitor facilities adequate?	2	1	1	0	2	1	0	0	0	0	1	<b>0.73</b>
16. Is the budget secure?	0	0	1	0	0	1	0	0	0	1	0	<b>0.27</b>
<b>Overall score (% of possible total)</b>	<b>71</b>	<b>62</b>	<b>57</b>	<b>34</b>	<b>47</b>	<b>57</b>	<b>49</b>	<b>18</b>	<b>33</b>	<b>14</b>	<b>57</b>	<b>46</b>

### Barrier 3: Limited financial sustainability

111. Detailed balance sheets for 7 of the 11 PAs in the area are provided in 1.-PART I.PART VIII. Overall, the financial balance in 2011 over the 7 MCPAs that were surveyed was positive, in relation to assumed basic management needs (\$+377,764, or \$+432,398 if the ICF and DIBIO proportional contributions of recurrent budget are included). However, \$690,000 of the income during the period was from one unsustainable source, payments for the rights to film a reality show in Cayos Cochinos NP. Without this, the balance would have been significantly negative (\$-257,602), and even with this amount included, income was well short of that needed to meet optimum management needs (\$-645,107) (in both cases, without taking into account assumed in-kind ICF and SERNA funding).

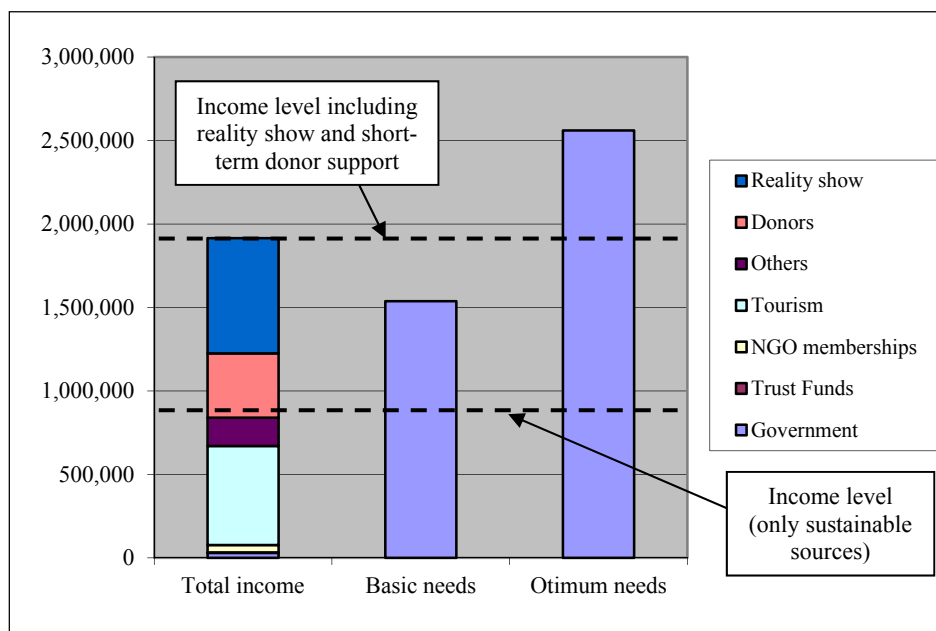
112. Furthermore, this overall balance masks considerable variations between the financial conditions in different PAs. These differences are important, given that most of the PAs are managed by local NGOs, under co-management agreements with the ICF: funds generated by the co-managers are retained within the PAs in question, and there is little or no scope for transfers of surpluses between PAs.

113. Only two of the PAs (Cayos Cochinos and Roatán Marine Park) had sufficient income to cover management costs under the basic scenario: without the reality show, Cayos Cochinos would also have had a shortfall (of almost \$77,000). Only Cayos Cochinos had income in 2011 that would have sufficient to meet the optimum management scenario, but this is only by virtue of the reality show income, without which it would have a shortfall of more than \$430,000.

**Table 15. Summary of financial balance for 7 surveyed marine and coastal PAs (2011)**

	<b>HCRF (Cayos Cochinos)</b>	<b>FUCSA (Cuero y Salado)</b>	<b>PROLAN SATE</b>	<b>BICA Útila</b>	<b>BICA Roatán</b>	<b>Roatan Marine Park</b>	<b>Totals</b>
<b>Funding needs</b>							
<b>Basic scenario</b>	<b>655,000</b>	<b>164,993</b>	<b>280,975</b>	<b>97,200</b>	<b>106,500</b>	<b>233,094</b>	<b>1,537,762</b>
<b>Optimum scenario</b>	<b>850,000</b>	<b>195,275</b>	<b>483,240</b>	<b>255,500</b>	<b>271,250</b>	<b>505,368</b>	<b>2,560,633</b>
<b>Income</b>							
Government recurrent budget	25,000		4,875				<b>29,875</b>
Trust Funds (through Government)		2,842					<b>2,842</b>
Donor funds (through Government)		123,676	165,273		45,000	11,450	<b>180,291</b>
Donor funds (other channels)		1,517	70,000	24,000	22,000	87,280	<b>204,797</b>
NGO memberships		526	1,500	900	20,000	21,948	<b>44,874</b>
Tourism income	553,023	23,947	15,872			163,616	<b>592,842</b>
Others	690,000		750	5,639			<b>860,005</b>
<b>Total income</b>	<b>1,268,023</b>	<b>152,508</b>	<b>93,162</b>	<b>30,539</b>	<b>87,000</b>	<b>284,294</b>	<b>1,915,526</b>
<b>Funding gap</b>							
<b>Basic scenario</b>	<b>613,023</b>	<b>-12,485</b>	<b>-187,813</b>	<b>-66,661</b>	<b>-19,500</b>	<b>51,200</b>	<b>377,764</b>
<b>Optimum scenario</b>	<b>418,023</b>	<b>-42,767</b>	<b>-390,078</b>	<b>-224,961</b>	<b>-184,250</b>	<b>-221,074</b>	<b>-645,107</b>

**Figure 6. 2011 income vs. financial needs in coastal/marine protected areas**



**Table 16. Summary of results of the Financial Sustainability Scorecard for the MCPA sub-system**

Component	Porcentaje de maximum attainable score (%)
I. Legal, regulatory and institutional framework	32.2
II. Business planning and tools for cost-effective management	13.6
III. Tools for income generation	22.5
Overall	<b>24.1</b>

*Poorly developed legal, regulatory and institutional frameworks for sustainable financing.*

114. The Government contributes very little to the finances of the 7 PAs surveyed (\$81,057, or 3.8% of the total, in 2011). Only Jeannette Kawas National Park (through PROLANSATE) receives a direct financial contribution from the Protected Areas Fund, however in 2011 this only amounted to \$4,875. The remainder of the Government contribution is in kind: an estimated \$25,000 from the Navy in the form of the costs of patrolling Cayos Cochinos, and \$46,182 and \$5,000 from ICF and SERNA respectively, in the form of the estimated recurrent expenditures of the Department of Protected Areas and Wildlife (DAPVS) of ICF<sup>23</sup>, and the Biodiversity Directorate of SERNA. This situation is largely explained by the severe funding limitations faced by ICF as a whole, which in both 2010 and 2011 received only 0.4% of the total Government budget: the DAPVS in turn received only 2.8% and 2.9% of the ICF budget, in 2010 and 2011 respectively.

115. Although the Financial Sustainability Scorecard gave it an overall rating of only 32.2%, this is the least deficient aspect of the sub-system in relation to financial sustainability. The greatest deficiencies in this regard (with a score of 0/3) are the following:

<sup>23</sup> The total budget of DAPVS divided by the 67 PAs that make up the SINAPH, multiplied by the 7 PAs under study.

- *Limited development of instruments:* lack of fiscal instruments such as taxes on tourism and water or tax breaks to promote PA financing, lack of endowment, sinking or revolving funds to finance specific PAs, and failure to integrate fund expenditures with national PA financial planning and accounting; administrative (eg procurement) procedures do not facilitate budget to be spent, reducing risk of future budget cuts due to low disbursement rates; budgetary incentives do not motivate PA managers to promote site level financial sustainability (eg sites generating revenues do not necessarily experience budget cuts); there is limited capacity within the system for auditing PA finances
- *Lack of policies and/or regulations* (as part of a National PA Finance Strategy) for i) generating and managing comprehensive financial data and plans for a standardized and coordinated cost accounting systems (both input and activity based accounting), ii) allocating PA budgets to PA sites (criteria based on size, threats, business plans, performance etc) or iii) safeguards to ensure that revenue generation does not adversely affect conservation objectives of PAs; failure to ensure that PA economic valuation influences government decision makers; Government policy does not promote budgeting for PAs based on financial need as determined by PA management plans; there are no Government plans to increase budget, over the long term, to reduce the PA financing gap
- *Poorly defined responsibilities for financial management:* PA site manager responsibilities do not typically include, financial management, cost-effectiveness and revenue generation, and PA managers do not typically have the possibility to budget and plan for the long-term (eg over 5 years).
- *Inadequate human resource capacities for financial management and planning:* lack of economists and economic planners at central level to improve the financial sustainability of the system, insufficient professional capacity at the regional and PA site level to promote financial sustainability at site level; performance assessments of PA site managers do not adequately take into account sound financial planning, revenue generation, fee collection and cost-effective management.

**Table 17. Results of Financial Scorecard: Component 1 - legal, regulatory and institutional frameworks**

<b>Element 1 - Legal, policy and regulatory support for revenue generation by PAs</b>	
(i) Laws or policies are in place that facilitate PA revenue mechanisms	3
(ii) Fiscal instruments such as taxes on tourism and water or tax breaks exist to promote PA financing	0
<b>Element 2 - Legal, policy and regulatory support for revenue retention and sharing within the PA system</b>	
(i) Laws or policies are in place for PA revenues to be retained by the PA system	3
(ii) Laws or policies are in place for PA revenues to be retained at the PA site level	3
(iii) Laws or policies are in place for revenue sharing at the PA site level with local stakeholders	2
<b>Element 3 - Legal and regulatory conditions for establishing Funds (endowment, sinking or revolving)[1]</b>	
(i) A Fund has been established and capitalized to finance the PA system	2
(ii) Funds have been created to finance specific PAs	0
(iii) Fund expenditures are integrated with national PA financial planning and accounting	0
<b>Element 4 - Legal, policy and regulatory support for alternative institutional arrangements for PA management to reduce cost burden to government</b>	
(i) There are laws or policies which allow and regulate concessions for PA services	1
(ii) There are laws or policies which allow and regulate co-management of PAs	2
(iii) There are laws or policies which allow and regulate local government management of PAs	3
(iv) There are laws which allow, promote and regulate private reserves	1

<b>Element 5 -National PA Financing Strategies</b>	
(i) There are policies and/or regulations that exist for the following which should be part of a National PA Finance Strategy:	
- Comprehensive financial data and plans for a standardized and coordinated cost accounting systems (both input and activity based accounting)	0
- Revenue generation and fee levels across PAs	2
- Allocation of PA budgets to PA sites (criteria based on size, threats, business plans, performance etc)	0
- Safeguards to ensure that revenue generation does not adversely affect conservation objectives of PAs	0
- PA management plans to include financial data or associated business plans	3
- Degree of formulation, adoption and implementation of a national financing strategy	1
<b>Element 6 - Economic valuation of protected area systems (ecosystem services, tourism based employment etc)</b>	
(i) Economic valuation studies on the contribution of protected areas to local and national development are available	1
(ii) PA economic valuation influences government decision makers	0
<b>Element 7 - Improved government budgeting for PA systems</b>	
(i) Government policy promotes budgeting for PAs based on financial need as determined by PA management plans	0
(ii) PA budgets includes funds to finance threat reduction strategies in buffer zones (eg livelihoods of communities living around the PA)[3]	1
(iii) Administrative (eg procurement) procedures facilitate budget to be spent, reducing risk of future budget cuts due to low disbursement rates	0
(iv) Government plans to increase budget, over the long term, to reduce the PA financing gap	0
<b>Element 8 - Clearly defined institutional responsibilities for financial management of PAs</b>	
(i) Mandates of public institutions regarding PA finances are clear and agreed	0
<b>Element 9 - Well-defined staffing requirements, profiles and incentives at site and system level</b>	
(i) Central level has sufficient economists and economic planners to improve financial sustainability of the system	0
(ii) There is an organizational structure (eg a dedicated unit) with sufficient authority and coordination to properly manage the finances of the PA system	1
(iii) At the regional and PA site level there is sufficient professional capacity to promote financial sustainability at site level	0
(iv) PA site manager responsibilities include, financial management, cost-effectiveness and revenue generation [4]	0
(v) Budgetary incentives motivate PA managers to promote site level financial sustainability (eg sites generating revenues do not necessarily experience budget cuts)	0
(vi) Performance assessment of PA site managers includes assessment of sound financial planning, revenue generation, fee collection and cost-effective management	0
(vii) There is capacity within the system for auditing PA finances	0
(viii) PA managers have the possibility to budget and plan for the long-term (eg over 5 years)	0
<b>Total Score for Component 1</b>	
29	

**Table 18. Results of Financial Scorecard: Component 2 - Business planning and tools for cost-effective management**

<b>Element 1 - PA site-level management and business planning</b>	
(i) Quality of PA management plans used, (based on conservation objectives, management needs and costs based on cost-effective analysis)	1

(ii) PA management plans are used at PA sites across the PA system	1
(iii) Business plans, based on standard formats and linked to PA management plans and conservation objectives, are developed across the PA system[5]	1
(iv) Business plans are implemented across the PA system (degree of implementation measured by achievement of objectives)	1
(v) Business plans for PAs contribute to system level planning and budgeting	1
(vi) Costs of implementing management and business plans are monitored and contributes to cost-effective guidance and financial performance reporting	0
<b>Element 2 - Operational, transparent and useful accounting and auditing systems</b>	
(i) There is a transparent and coordinated cost (operational and investment) accounting system functioning for the PA system	0
(ii) Revenue tracking systems for each PA in place and operational	0
(iii) There is a system so that the accounting data contributes to system level planning and budgeting	0
<b>Element 3 - Systems for monitoring and reporting on financial management performance</b>	
(i) All PA revenues and expenditures are fully and accurately reported by PA authorities to stakeholders	0
(ii) Financial returns on tourism related investments are measured and reported, where possible (eg track increase in visitor revenues before and after establishment of a visitor centre)	1
(iii) A monitoring and reporting system in place to show how and why funds are allocated across PA sites and the central PA authority	1
(iv) A reporting and evaluation system is in place to show how effectively PAs use their available finances (ie disbursement rate and cost-effectiveness) to achieve management objectives	1
<b>Element 4 - Methods for allocating funds across individual PA sites</b>	
(i) National PA budget is allocated to sites based on agreed and appropriate criteria (eg size, threats, needs, performance)	0
(ii) Funds raised by co-managed PAs do not reduce government budget allocations where funding gaps still exist	0
<b>Element 5 - Training and support networks to enable PA managers to operate more cost-effectively[6]</b>	
(i) Guidance on cost-effective management developed and being used by PA managers	0
(ii) Inter-PA site level network exist for PA managers to share information with each other on their costs, practices and impacts	0
(iii) Operational and investment cost comparisons between PA sites complete, available and being used to track PA manager performance	0
(iv) Monitoring and learning systems of cost-effectiveness are in place and feed into system management policy and planning	0
(v) PA site managers are trained in financial management and cost-effective management	0
(vi) PA financing system facilitates PAs to share costs of common practices with each other and with PA headquarters[7]	0
<b>Total Score for Component 2</b>	
	8

116. *Inadequate tools for revenue generation by PAs.* Although, overall, short term external funding accounts for only 28% of the total funding for the surveyed PAs, this figure is highly skewed by the situation of Cayos Cochinos which generates 98% of its own funding and receives no external support. Four of the co-managers (covering Cuero y Salado, Punta Sal, Utila and Roatán) reported that external funding accounts for more than 80% of their income.

117. Capacities for the sustainable generation of income by PAs are still limited. BICA Roatan generates none of its own income, and FUCSA, PROLANSATE and BICA Utila generate only between 6 and 18% of their own income respectively. The exceptions are BICA Roatán Marine Park and Cayos Cochinos, which generate, respectively, 57% and 98% of their income themselves (in the case of Cayos Cochinos, 55% of this income in 2011 came from payments for the reality show). Only 3 of the 7 PAs surveyed (Cayo Cochinos, Janett Kawas y Punta Izopo) have a system of entry fees established, which generated a total of \$ 592,842 in 2011 (28% of the total income for the 7 PAs).

**Table 19. Results of Financial Scorecard: Component 3 - Tools for revenue generation by PAs**

<b>Element 1 - Number and variety of revenue sources used across the PA system</b>	
(i) An up-to-date analysis of revenue options for the country complete and available including feasibility studies;	0
(ii) There is a diverse set of sources and mechanisms, generating funds for the PA system	1
(iii) PAs are operating revenue mechanisms that generate positive net revenues (greater than annual operating costs and over long-term payback initial investment cost)	0
(iv) PAs enable local communities to generate revenues, resulting in reduced threats to the PAs	1
<b>Element 2 - Setting and establishment of user fees across the PA system</b>	
(i) A system wide strategy and action plan for user fees is complete and adopted by government	1
(ii) The national tourism industry and Ministry are supportive and are partners in the PA user fee system and programmes	1
(iii) Tourism related infrastructure investment is proposed and developed for PA sites across the network based on analysis of revenue potential and return on investment [8]	0
(iv) Where tourism is promoted PA managers can demonstrate maximum revenue whilst not threatening PA conservation objectives	0
(v) Non tourism user fees are applied and generate additional revenue	1
<b>Element 3 - Effective fee collection systems</b>	
(i) System wide guidelines for fee collection are complete and approved by PA authorities	1
(ii) Fee collection systems are being implemented at PA sites in a cost-effective manner	1
(iii) Fee collection systems are monitored, evaluated and acted upon	0
(iv) PA visitors are satisfied with the professionalism of fee collection and the services provided	1
<b>Element 4 - Communication strategies to increase public awareness about the rationale for revenue generation mechanisms</b>	
(i) Communication campaigns for the public about tourism fees, conservation taxes etc are widespread and high profile at national level	0
(i) Communication campaigns for the public about PA fees are in place at PA site level	1
<b>Element 5 - Operational PES schemes for PAs[9]</b>	
(i) A system wide strategy and action plan for PES is complete and adopted by government	0
(ii) Pilot PES schemes at select PA sites developed	1
(iii) Operational performance of pilots is monitored, evaluated and reported	1
(iv) Scale up of PES across the PA system is underway	0
<b>Element 6 - Concessions operating within PAs[10]</b>	
(i) A system wide strategy and implementation action plan is complete and adopted by government for concessions	2
(ii) Concession opportunities are operational at pilot PA sites	1
(iii) Operational performance (environmental and financial) of pilots is monitored, evaluated, reported and acted upon	1
(iv) Scale up of concessions across the PA system is underway	1

<b>Element 7 - PA training programmes on revenue generation mechanisms</b>	
(1) Training courses run by the government and other competent organizations for PA managers on revenue mechanisms and financial administration	0
<b>Total Score for Component 2</b>	16

**Summary of relevant institutional stakeholders:**

<b>Stakeholders</b>	<b>Functions</b>	<b>Relevance to project</b>
Biodiversity Directorate (DIBIO) of the Secretariat of Natural Resources and the Environment (SERNA)	GEF focal point; responsible for defining biodiversity conservation policies and priorities;	Implementing Partner: will be formally responsible for developing and approving formal proposals for the establishment of the PAs proposed by the project
Institute of Forest Conservation and Development (ICF)	Responsible for managing PAs (often delegated to NGOs) and for regulating the management, use and consumption of forest resources and wildlife.	Will play a key role in defining and implementing management strategies for the proposed PAs.
General Directorate of Fisheries (DIGEPESCA)	Lead entity with responsibility for hydrobiological resources, including the development and application of regulations on fishing practices.	Will play a key role in identifying and applying strategies for harmonizing fisheries practices and zoning with conservation objectives.
Secretariats of Industry and Commerce, and Tourism	Responsible for supporting industrial, commercial and tourism developments.	Target institutions for messages regarding the possible conservation implications of proposed developments and possible strategies for avoiding or mitigating them, and identifying sustainable alternatives
Directorate of Environmental Control (DECA) of the Secretariat of Natural Resources and the Environment (SERNA)	Responsible for overseeing processes of environmental impact assessment.	The project will help to ensure that the provisions of management plans at the levels of the MCPA sub-system and individual MCPAs are taken into account in determinations by DGA regarding environmental impact statements.
Regional Centre for Environmental Documentation and Information (CREDIA)	Non-governmental centre in La Ceiba supported by ProCorredor project.	clearing-house for information on the status of MCPAs and their resources.
Municipal governments	Under the Municipalities Law, have responsibilities for protecting and managing natural resources within their territories. Under the Forestry Law, responsible for participating in Consultative Committees. In the Bay Islands, responsible for executing funds collected through the Tourism Free Zone (ZOLITUR) initiative:	Support to PA governance, spatial planning and local representation. Joint definition of schemes for channelling financial resources to PA management and conservation.
National NGOs	Work on community-based rural development initiatives, and are also responsible for managing many PAs, under delegation from ICF.	Collaboration in improvement and harmonization of PA management, and targets for strengthening in relation to management capacities and

Stakeholders	Functions	Relevance to project
		relations with local stakeholders
International conservation NGOs (e.g. WWF, The Nature Conservancy)	Carry out research and provide financial support to conservation initiatives.	Collaborators in provision of information and generation of financial, logistical and technical support.

## Baseline analysis

118. **Protected areas:** the National Protected Areas System of Honduras (SINAPH) covers approximately 2.3 million ha. It includes 10 categories of protected areas, namely Marine National Parks (2), Biological Reserves (5), National Parks (14), Multiple Use Areas (2), Wildlife Refuges (5), Natural Monuments (1), Botanical Gardens (1), Municipal Reserves (1), Forestry and Anthropological Reserves (1) and Biosphere Reserves (2)<sup>24</sup>. Its current annual budget is approximately \$5.5 million; financial analyses carried out to date do not specify what proportion of this is dedicated to coastal and marine PAs. According to data from ICF, there are at present 8 coastal and marine PAs covering 1,722,279ha, of which 5, covering 1,066,192ha, have management plans. A gap analysis for marine and coastal PAs carried out by the Government in 2011, with support from The Nature Conservancy, showed that marine and coastal ecosystems were seriously under-represented in the SINAPH, with less than 4% by area included in PAs. Many of the marine and coastal ecosystems that are included in PAs were selected on the basis of the value of the terrestrial ecosystems which they adjoin, rather than their own relative values and conservation needs. The study identified 54 priority sites, of which 19 are on the coast or continental shelf and 35 are in the deep sea.

119. The SINAPH is receiving significant support from USAID through the ProParque (Protected Areas, Tourism and Climate Change) Programme, which focuses on ten protected areas, of which four (Río Plátano, Sandy Bay, Jeannette Kawas, Cuero y Salado) coincide with those of the present project. ProParque is focused on biodiversity and natural resource management, growth of rural businesses, and reduction of risks associated with natural disasters and climate change, and aims to reorient the social and economic trajectory with the sound management of its natural resources. The total budget of ProParques over its five year duration September 2011 – September 2016 is US\$29,515,590: proportionally, this equates to a baseline of around US\$6 million for the four target PAs in the coastal marine zone and the approximately 3 years of overlap between ProParques and the present project.

120. Under the baseline scenario, there would therefore be significant investment in strengthening the management of protected areas and in integrating conservation goals with socioeconomic development. Missing from this baseline, however, is a regional focus which takes into account the biological and social interactions between the different PAs spread across the target area.

121. **Coral reef conservation.** In early 2004, recognizing the need for a regional funding and coordination institution, representatives from conservation funds in each country of the MAR region (Belize, Guatemala, Honduras, and Mexico) initiated the Mesoamerican Reef Fund (MAR Fund): this is a participatory, privately managed fund with a Board of Directors comprised of regional funders, experts, the Central American Commission on Environment and Development (CCAD), and the in-country funds from each of the Mesoamerican Reef countries - PACT (Belize), Fundación para la Conservación de los Recursos Naturales y Ambiente en Guatemala (FCG), Fundación Biósfera (Honduras), and Fondo Mexicano para la Conservación de la Naturaleza (Mexico). The mission of the MAR Fund is to inspire

<sup>24</sup> [http://www.birdlist.org/cam/honduras/hn\\_national\\_parks.htm](http://www.birdlist.org/cam/honduras/hn_national_parks.htm)

innovative, transnational solutions to critical Mesoamerican reef issues through providing meaningful, long-term financial support and trustworthy reef management advice so that future generations can enjoy and benefit from a thriving reef system. The MAR Fund will raise funds for following the initial program areas:

- **Saving our Sanctuaries: A Legacy of Caring.** This program will support the establishment and protection of an interconnected network of the coastal and marine protected areas in the region.
- **Fishing for the Future: Sustainable Fisheries for a Thriving Reef.** Community participation in co-management of their fisheries will be supported through this initiative.

122. The German Government has assigned US\$5 million to support the operation of the MAR Fund over the 2011-2016 period, and a further contribution of \$10 million to capitalize the Fund over the same period, through CCAD. The proportional contribution of this to the baseline of the present project, in Honduras, is estimated at approximately \$2 million.

123. ***Fisheries management:*** the management of fisheries in Honduras is subject to planning and regulation by the General Directorate of Fisheries (DIGEPESCA). This is aimed at achieving a development of the sector founded on sustainable exploitation and the promotion of income and employment generation opportunities. Measures applied to promote the sustainable management of lobster, shrimp and fish populations include the declaration of closed seasons, limits on the numbers of traps per boat, escape hatches for lobster traps to allow under-sized individuals to escape, the definition of minimum sizes for individuals caught, the use of Turtle Exclusion Devices in shrimp nets, satellite monitoring of fishing vessels, studies of population dynamics of marine fauns, and the delimitation of fish aggregation areas. DIGEPESCA is supported in its supervisory and regulatory role by the Honduran Navy. DIGEPESCA currently invests an estimated \$270,000 per year on monitoring, planning and control of fisheries.

124. ***Coastal zone planning and management:*** in accordance with the 2003 Territorial Land Use Planning Law, activities that potentially constitute sources of land-based threats to marine and coastal protected areas, such as water pollution and sedimentation as a result of watershed management activities, are subject to Territorial Land Use plans developed by municipal governments in coastal municipalities. These processes are guided by consultation mechanisms in the form of municipal, regional and national territorial land use planning councils. In practice, progress with these processes varies widely between municipalities; in general, they are most advanced in those municipalities containing larger urban centres, where municipal governments have the greatest levels of financial and technical capacities and where the threat levels are greatest. The EU-funded Procorredor project has invested around €5,300,000 (USD7,250,000) in actions directly related to territorial land use planning in this area.

125. ***Natural resource management in watersheds:*** among the areas of action of the PROMECOM (Improving Competitiveness of the Rural Economy in Yoro) project of the Ministry of Agriculture and Livestock is the strengthening of the capacities of municipal environment units in the Department of Yoro, which drains into the project area. This will have benefits in mitigating the impacts of watershed management practices on the coastal and marine ecosystems. The USAID ProParque programme described above also includes a strong element of sustainable natural resource management in the drainage basins affecting the project area.

## **PART II. STRATEGY**

### **Project rationale**

126. The project will build upon a solid and diverse baseline of investment in natural resource management and PA strengthening. The effectiveness of PAs in the marine and coastal zone, as instruments for the conservation of globally important species and ecosystems, is however limited by the narrow approach to PA design and management that is currently applied. Due to the high mobility of coastal and marine species, the limits of coastal and marine PAs are highly porous: there are high levels of regional-level connectivity, between different PAs and between the PAs and their surrounding seascapes and landscapes; furthermore, the threats affecting BD, especially those related to fisheries, tend to respect PA boundaries even less than in terrestrial environments. Another obstacle faced by site-specific conservation initiatives is the rejection of ‘conventional’ approaches to PAs by indigenous groups in certain parts of the area, due to their perceptions that PA initiatives to date have failed adequately to take them or their interests into account. PA effectiveness is also limited by deficiencies in their “core functions”, such as staff technical capacity, financial sustainability and provisions for effective involvement of stakeholders, particularly indigenous people and fishers, with whose extractive activities biological sustainability is so closely interrelated.

127. In reflection of this situation, GEF incremental funds will be used to support the introduction of an innovative, broadened approach to PA management, that will harmonize PA management at a regional level, promote integration between PA management and production sectors (notably fisheries), and complement ‘conventional’ PAs with models that feature are led by local stakeholders, particularly indigenous people. This will deliver major global benefits in terms of the status, at regional level, of populations of species that are of conservation priority and/or of commercial importance; the intactness of coastal and marine ecosystems, particularly coral reefs and mangroves; and ecosystem functioning, particularly balance between trophic levels, which is vital for both species and ecosystem health. It will also deliver major local benefits in terms of increased sustainability of fisheries resources and increased opportunities for synergies between conservation and livelihood support.

### **Policy conformity**

128. This project will apply a system-wide approach to increase the coverage, operational effectiveness and financial sustainability of marine and coastal protected areas in the north coast of Honduras, resulting in improved conservation of globally important marine and coastal biodiversity, improved productive sustainability of natural resources of national and regional importance and improved livelihood sustainability among local populations (fishers and others) that depend directly and indirectly on coastal and marine resources.

129. The emphases of the project on environmental protection, sustainable development and livelihood sustainability, within the context of protected areas, corresponds closely with the principal elements emphasized in the vision of the Environment Ministry (SERNA), namely sustainable development, protection and conservation, environmental culture, citizen participation and an environmentally balanced economy. These elements are also reflected in the National Vision (2010-2038) and National Plan (2010-2022) developed by the current Government. This emphasis on ensuring the environmental sustainability of productive activities is also reflected in the mission of General Directorate of Fisheries (DIGEPESCA), which is to promote the sustainable development of marine, coastal and inland aquatic resources, and the promotion of multidisciplinary research; and the National Strategy for Sustainable Tourism (2005-2021, updated in 2010), which aims to strengthen the position of Honduras as a regional tourism destination and to develop and diversify its tourism products. This latter emphasis coincides well with the proposal by

this project to use tourism incomes as part of the financial sustainability strategy of the network of coastal and marine PAs.

130. Honduras published its National Biodiversity Strategy and Action Plan (NBSAP) in February 2004 and presented its Fourth National Report to the Convention in July 2005. The vision of the NBSAP is that Honduras carries out conservation and sustainable use of the different components of its biological diversity by means of an effective inter-institutional coordination and citizen participation, allowing a fair and equitable distribution of the resulting benefits. The NBSAP prioritizes the *in situ* conservation of biodiversity in protected areas, with emphasis on aspects such as local participation, inter-institutional coordination, generation of funds for PA management based on the environmental goods and services they provide and through private-public alliances, elaboration and execution of management plans, review and adjustment of PA categories, co-management of PAs and the generation and management of information on PA conditions and management effectiveness. These priorities are further emphasized in the updated Strategic Plan for the National System of Protected Areas (SINAPH) 2006-2015, produced in 2005, which defined the following strategic guidelines for the Caribbean Coast and Bay Islands regions: contribution of environmental goods and services to the development of the region, integrated management of marine and coastal resources, sustainable, balanced and responsible tourism development, increased institutional presence and coordination, awareness raising regarding tourism/environment relations, identification and consolidation of protected areas and the development of a long term financial strategy.

131. As such, the project will contribute to Outcome 1.1 under the GEF5 Biodiversity Focal Area, which aims to improve the management effectiveness of new and existing protected areas and deliver increased PA coverage of currently unprotected ecosystems. It will also thereby contribute to Goal 1.1 of the Programme of Work on Protected Areas of the CBD, “To establish and strengthen national and regional systems of protected areas integrated into a global network as a contribution to globally agreed goals”, Goal 1.2 “To integrate protected areas into broader land- and seascapes and sectors so as to maintain ecological structure and function”, Goal 1.4 “To substantially improve site-based protected area planning and management” and Goal 1.5 “To prevent and mitigate the negative impacts of key threats to protected areas”.

132. It will contribute to Aichi Strategic Goal B “Reduce the direct pressures on biodiversity and promote sustainable use”, and specifically the following targets:

- 5: by 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced;
- 6: by 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits;
- 9: by 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment;
- 10: by 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

133. It will also contribute to the following targets under Aichi Strategic Goal C “To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity”:

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

#### **Coordination with related initiatives**

134. GEF project 1032 “Sustainable Management of the Shared Marine Resources of the Caribbean Large Marine Ecosystem (CLME) and Adjacent Regions” will come to completion around the time that the implementation phase of this project is due to start. The design of the current project will pay close attention to the results of project 1032, in particular, i) the information generated on transboundary issues in the Caribbean Sea LME will serve to guide the location of the MCPAs to be established through this project, ii) this project will take advantage of the shared knowledge base established through project 1032, and iii) this project will incorporate as far as possible the institutional and procedural approach to LME level monitoring, evaluation and reporting for management decision making that will have been developed through project 1032.

135. The project will complement the actions of GEF project 2885 “Meso-American Barrier Reef System II”, with which it will coincide. Project 2885 has more of a focus on ecosystem management and environmental mainstreaming into productive sectors, which will be complemented by the focus of this project on protected areas. This project will take advantage, where possible, of the policy and governance frameworks to be strengthened by project 2885, such as the barrier reef committees and stakeholder participation structures. Of particular value will be the major proposed investment of project 2885 in monitoring and evaluation, which will be of direct utility to the present project. Coordination mechanisms will be finalized during the PPG phase of this project, and will take advantage of the large number of institutional actors that the two projects will have in common, including environmental and fisheries sector ministries and national and international conservation NGOs.

#### **Country ownership: country eligibility and country drivenness**

136. Honduras ratified the Convention on Biological Diversity on the 21<sup>st</sup> February of 1995 (Decree number 30-95, published in the official publication La Gaceta on 10<sup>th</sup> June 1995); the UN Framework Convention on Climate Change on 19<sup>th</sup> October 1995 and the UN Convention to Combat Desertification on 25<sup>th</sup> June 1997.

#### **Design principles and strategic considerations**

137. The priorities of the project in each of the target PAs are shown in Table 20.

**Table 20. Priority management strategies per site**

<b>Object</b>	<b>Priority management strategies</b>
<b>Cayos Cochinos</b>	
Coral reefs	<ul style="list-style-type: none"> <li>- Establishment of new fishing sites, and installation of DCPs in the SE and SW limits of the PA to reduce fishing pressures on natural fishing banks</li> <li>- Installation and maintenance of field markings of the limits of the PA</li> </ul>
Marine turtles	<ul style="list-style-type: none"> <li>- Development and/or strengthening of a financially sustainable programme based on external or local volunteers for monitoring of marine turtles in nesting and hatching periods</li> </ul>

<b>Object</b>	<b>Priority management strategies</b>
Fisheries	<ul style="list-style-type: none"> <li>- Support to a system for licensing of fishers</li> <li>- Reduction of the capture of under-sized fish and recovery of fish banks, through the promotion of good fishing practices (net size &gt;3.5") in the fishing buffer zone</li> <li>- Support to an effective protection and control programme</li> </ul>
Lobster fisheries	<ul style="list-style-type: none"> <li>- Organization of a group of artisan fishers adopting responsible fishing practices for lobsters</li> <li>- Installation of "Cuban shelters" in areas of snorkel fishing in the south of the marco-zone and the southern fisheries buffer zone.</li> </ul>
<b>Cuero y Salado</b>	
Mangroves	<ul style="list-style-type: none"> <li>- Reforestation of degraded mangrove sites</li> <li>- Removal of houses from mangrove areas</li> </ul>
Manatees, crocodiles, marine birds, fisheries, blue crabs	<ul style="list-style-type: none"> <li>- Establish sites for fauna viewing, with emphasis on manatees, for public use and biological monitoring.</li> <li>- Design a system to incorporate information on sightings by tourists, as part of a monitoring programme.</li> <li>- Support the consolidation of associations of fishers applying the concept of "rights-based fisheries"</li> <li>- Installation and maintenance of field demarcations of the limits of the PA</li> <li>- Production and distribution of educational materials on fishing regulations, directed at sport and artisan fishers</li> </ul>
<b>Jeannette Kawas</b>	
Coral reefs and seagrass beds	<ul style="list-style-type: none"> <li>- Installation and maintenance of field demarcations of the limits of the PA</li> <li>- Promotion of improved agricultural practices among agroindustrial companies operating in the zone, to reduce the application of agricultural chemicals</li> <li>- Participatory/technical formulation of special regulations to control liquid waste discharges into the Los Micos and Quemada Lagoons</li> </ul>
Mangroves	<ul style="list-style-type: none"> <li>- Reforestation of degraded mangrove sites</li> </ul>
Manatees, marine birds, fisheries, crabs	<ul style="list-style-type: none"> <li>- Establish sites for fauna viewing, with emphasis on manatees, for public use and biological monitoring.</li> <li>- Design a system to incorporate information on sightings by tourists, as part of a monitoring programme.</li> <li>- Participatory/technical formulation of special regulations for the restricted fishing area of Diamante Lagoon, to control fishing levels in Los Micos and Quemada Lagoons, and a public use plan for recreational tourism on the Los Micos and Quemada Lagoons</li> <li>- Production and distribution of educational materials on fishing regulations, directed at sport and artisan fishers</li> </ul>
<b>Cuyamel Omoa</b>	
Coral reefs	<ul style="list-style-type: none"> <li>- Installation and maintenance of field demarcations of the limits of the PA</li> </ul>
Manatees, fisheries	<ul style="list-style-type: none"> <li>- Establish sites for fauna viewing, with emphasis on manatees, for public use and biological monitoring.</li> <li>- Design a system to incorporate information on sightings by tourists, as part of a monitoring programme.</li> <li>- Production and distribution of educational materials on fishing regulations, directed at sport and artisan fishers</li> </ul>
Mangroves	<ul style="list-style-type: none"> <li>- Reforestation of degraded mangrove sites</li> </ul>
<b>Bay Islands</b>	
Coral reefs and seagrass beds	<ul style="list-style-type: none"> <li>- Installation and maintenance of field demarcations of limits of Special Marine Protection Zones (SMPZ)</li> <li>- Establish regulations for the issuing of licences for guiding tourist groups within the MNP</li> <li>- Establish a plan for rotation of autonomous diving and snorkeling stations in all of the SMPZs.</li> </ul>

Object	Priority management strategies
	<ul style="list-style-type: none"> <li>- Strengthen systems for control and oversight of the park and its zones of influence, with the support of local governments, NGOs and other institutions</li> <li>- Develop a system for dissemination of information on water quality in the MNP, including information on practices for mitigating and reducing pollution</li> <li>- Development of an information campaign on norms and zoning of marine traffic in the MNP, for local people and visitors</li> <li>- Provision of information to the local population on governance responsibilities</li> <li>- Training of members of local organizations on legislation and regulations related to the MNP</li> <li>- Promotion and implementation of a plan for responsible consumption of sea products.</li> <li>- Development and application of a system for monitoring the status of ecosystems in the MNP.</li> <li>- Development of a plan for monitoring water quality</li> <li>- Design of an electronic system for entering and accessing results of monitoring and research</li> <li>- Installation and maintenance of sediment monitoring stations in rivers and in the Economic Development and Multiple Use Zones.</li> <li>- Monitoring of operation of sewage treatment plants and septic tanks.</li> </ul>
Whale sharks, crocodiles, marine turtles, fisheries, marine birds	<ul style="list-style-type: none"> <li>- Delimitation of key habitats for the reproduction of commercial, migratory and threatened species.</li> <li>- Reduction of human presence in key habitats</li> <li>- Participatory/technical formulation of special regulations on lighting on turtle nesting beaches</li> <li>- Development and/or strengthening of a financially sustainable programme based on external or local volunteers for monitoring of marine turtles in nesting and hatching periods</li> <li>- Establishment of regulations for the issuing of fishing licences, in association with DIGEPESCA.</li> <li>- Production and distribution of educational materials on fishing regulations, directed at sport and artisan fishers</li> </ul>
Punto Izopo	
Coral reefs	- Installation and maintenance of field demarcations of marine limits of the PA

138. These priorities will be implemented within the context of a number of key principles and strategic approaches:

*Respect of resource use rights and cultural standpoints of local people*

139. Project design recognizes that the ecological sustainability of globally-important species and ecosystems, the productive sustainability of natural resources (fisheries and others) in the coastal and marine zone, and the livelihood sustainability of local resource-dependent people, are strongly and inextricably interrelated. In particular, it is recognised that it would be unjust, as well as socially unsustainable, to base the management of PAs and the conservation of biodiversity and natural resources in the coastal and marine zone on strict exclusion of resource users and/or strict prohibition of productive and extractive activities. It is also recognised that there is considerable opposition among indigenous stakeholders, particularly Miskitos in the eastern part of the zone, to conventional models of protected areas. Key strategies of the project in response to these considerations are as follows:

- Strengthening of resource users (fishers and others) and other local stakeholders as active custodians of natural resources and biodiversity
- Establishment of alternative models of conservation and management areas outside of the framework of the SINAPH, through participatory processes led by local people but facilitated and advised by the project.

*Integrating PA management and resource management.*

140. Marine and coastal Protected Areas (MCPAs) can be tools for both conservation and natural resource management tool, with the potential (in the case of fisheries, for example), to specific life history

stages of target species, reduce total fishing mortality, and have the potential to “seed” or “spillover” in to neighbouring fishing sites. As a conservation tool they can protect habitat and help to ensure the functional integrity of the ecosystem as a whole. In this way MCPAs provide a type of ecological insurance, with the potential to enhance the resilience of areas as a potential hedge against uncertainty. As a tool to resolve social conflicts MPAs can also be used strategically to reduce competition between user groups and be linked to rights based access systems which can provide preferential fishing opportunities for local fishers.

141. Despite their benefits, MPAs cannot resolve all coastal and marine management issues. The most successful MPAs are integrated into a wider framework of management measures such as establishing effective control and monitoring systems, assigning fishing and other use rights through licenses and permits and a realization that management must extend beyond the boundaries of the MCPA. As such, the best results from MCPA placement will be achieved when an appropriate mix of resource management and ecosystem management tools are applied simultaneously.

142. It is important to improve the control and monitoring of productive and extractive activities, in particular those with major potential for impacts on BD such as industrial fisheries, to ensure that they become sustainable. This in turn will safeguard continued, reliable employment for people from coastal communities and reduce spatial conflicts that could impact the MCPA network of the north shore. If however the industrial fisheries continue to decline, there will be increasing pressure placed on local resources as fishers leave the industrial fisheries and return to fishing locally. There is a strong interdependence of local fishers on the industrial fisheries and the artisanal fisheries. Fishers who are not employed in the industrial fleet return to their home communities and fish locally. The contraction or closure of the industrial fisheries will lead to more fishers returning to their local communities. This will place increased pressure on near shore resources and on local marine protected areas which are often adjacent to fishing communities.

#### Capacity development

143. A number of different institutions of central Government have roles and responsibilities of relevance to the sustainability and effectiveness of MCPAs (see paragraph 78). These institutions suffer from significant weaknesses (see Barrier 2, paragraph 95), including limited budgetary assignments (Barrier 3, paragraph 111).

144. It cannot safely be assumed that current budgetary assignments to these institutions will be increased, as a result of the awareness raising that the project will promote regarding the interrelations between sustainable economic and livelihood development and the sound management of fisheries resources, to a level which will allow them effectively to fulfill their statutory responsibilities. Furthermore, there are limited numbers of technicians in these institutions (this is especially the case with DIGEPESCA) that could be the target of capacity development, a situation which is likely to persist as long as its assignment of financial resources remains thus limited.

145. In view of the above, the project will adopt a diversified approach to capacity development, complementing its support to ICF, SERNA and DIGEPESCA with support aimed at promoting the role of other actors, such as PA managers and the fishers themselves in the management and oversight of fisheries and other natural resources, thereby optimizing the use of the available human and technical resources and reducing the burden on these institutions. To this end, the training provided to PA managers will also include aspects of fisheries management, connectivity and other aspects of marine and coastal conservation biology, enabling them to contribute effectively to the management, monitoring and regulation of the natural resources in the PAs for which they are responsible.

146. The project will in addition involve cooperatives and other local organizations representing resource users, in oversight and monitoring roles. In the case of fisheries, this will involve the development of systems and capacities that will allow these actors to collect data on catch effort and sizes in a methodical manner, feeding these into an integrated system for fisheries monitoring and regulation which will also include PA managers and DIGEPESCA. This will constitute a paradigm shift from the present situation where DIGEPESCA takes unilateral decisions on fisheries management, based on inadequate information and analyses due to the institution's limited logistical and technical capacities, and communicates them vertically to fishers; to one in which fishers function as additional pairs of eyes capable of reporting incursions and infractions by other actors, of perceiving and understanding first hand the impacts of fisheries and conservation activities, and of participating actively in decision-making.

#### Climate change adaptation

147. The PAs selected for priority attention by the project include significant areas of mangroves, which have major potential for contributing to climate change adaptation (through buffering sea level incursion and wave impact) but which also require specific management attention to be able to provide these functions, for example by reforestation on their seaward edge, and zoning on their landward side to permit them to migrate inland in pace with sea level rise.

148. Furthermore, the decision to apply an integrated regional approach to the planning and management of the MCPA sub-system will allow regional level CC implications to be monitored and addressed in an adaptive manner (e.g. changes in currents and migration patterns, or the risk of displacement of impacts if CC-related ecosystem/productive decline in one PA pushes resource users into neighbouring areas)

#### **Project objective, outcomes and outputs/activities**

149. The **objective** of the project is to promote the conservation of biodiversity through the expansion of the effective coverage of marine and coastal protected areas in Honduras. The project will focus on the north (Caribbean) coast of the country, which accounts for more than 80% of the total length of the country's coastline.

#### Component 1: Increased coverage and management of marine and coastal PAs

150. Under this component, the project will invest in increasing the area of globally important coastal and marine ecosystems that are under forms of protection and management that contribute to the generation of global environmental benefits. The existing and proposed new PAs will be planned and managed as an interrelated system, which will in practice constitute a coastal and marine "sub-system" within the existing overall National Protected Areas System (SINAPH); it will also, however, include new area which (in accordance with the wishes of the indigenous peoples of the area) will not formally form part of the SINAPH or be governed by national protected areas legislation.

151. The project will ensure that the definition of new areas for protection and management is carried out in an objective manner, based on reliable information regarding the relative conservation priorities of the ecosystems and taxa in question, the nature and magnitude of the threats affecting them and their social, economic and cultural dynamics. It will promote the adoption of a regional approach to the planning and prioritization of investments in conservation and management, which will take into account biophysical, social and economic interrelations between different PAs, and between PAs and the productive landscapes and seascapes that surround them, resulting in a coherent and representative network of coastal and marine PAs. This approach will involve the definition of alternative zoning categories that will complement conventional PAs, destined for planned and regulated use rather than strict protection.

152. The project itself will focus on the establishment of two new contrasting areas of protection and management, covering an estimated total area of 1.75 million ha: an Exclusive Zone for Artisan Fishers, managed by inhabitants of the indigenous Moskitia region, covering 1.45 million ha (Output 1.2); and a connectivity zone linking the the Bay Islands to the coast, covering 300,000ha. It became clear during the PPG phase that the incorporation of new PAs into the SINAPH, proposed in the PIF, is no longer appropriate: this is due in large part to the greater than foreseen progress that has been achieved by local actors with the establishment of the 110,000ha Tela Bay Site of Importance for Wildlife: it is expected that this will be declared between the end of the PPG phase and the commencement of the implementation phase of this project, and the project will therefore focus on its strengthening and consolidation (under Component 2), rather than its declaration *per se*.

153. Another key element of the approach will be the promotion of inter-institutional and inter-sector coordination, which will facilitate the combating of threats to MCPAs which arise from productive sectors such as fishing and tourism (for which non-conservation institutions such as DIGEPESCA and the Secretariat of Tourism are responsible), and the generation of PA income from these sectors in recognition of the environmental and productive services that PAs provide them. The location and design of existing and new PAs will ensure that they are ‘climate-proofed’ as far as possible, for example by designating areas contiguous with the landward margins of mangroves into which this ecosystem can migrate as seawater levels rise.

#### **Output 1.1: Regional plan for the spatial configuration of the sub-system of Marine Protected Areas**

154. This initiative will enable conservation initiatives in the zone to move away from the *ad hoc*, site-specific approach applied in the past to one which takes into account the regional natural and spatial configurations of the biological processes operating across the zone (both its marine and terrestrial elements), and of the threats that affect its environmental values. Studies carried out during the PPG phase constitute important bases for the formulation of this regional plan, inasmuch as they have identified spatial priorities for action, for example in regulating threats for commercial fisheries (through the artisan fisheries reserve proposed under Output 1.2) and in promoting connectivity (through the island-to-coast connectivity zone proposed under Output 1.3). During the implementation phase of this project, further analyses and negotiations will be carried out, leading to the generation of additional, complementary proposals. These may include the preliminary identification of additional connectivity zones linking existing MCPAs; additional managed use areas similar to that proposed in the Moskitia; and possible modifications to the categories and/or spatial configurations of individual PAs (see Output 1.2). Initial indications generated during the PPG phase suggest that there are limited opportunities to establish further PAs *per se*; however this will remain as one of the options to be analysed further during the process of formulating the plan.

#### **Output 1.2: Reviewed and modified categories for MCPAs**

155. At present, the SINAPH provides for 16 different PA categories, without there being a clear definition of their respective conservation and management objectives. This affects the abilities of PA managers to develop and apply management strategies in a consistent and objective manner, and limits local stakeholders’ buy-in and identification with the PAs. In order to resolve this situation, the project will support a review of the current system of management categories used in the context of the coastal and marine zone, in the light of current and projected social, environmental, economic and productive conditions, and the development of legislative proposals that will allow their modification as necessary.

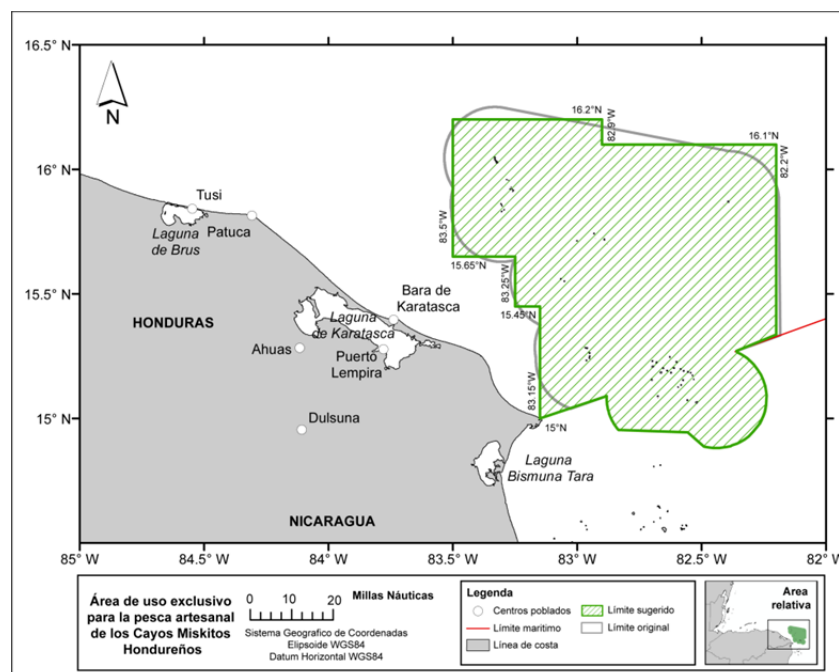
156. For each management category, the project will define and establish common objective of conservation and sustainable use, as well as related standards for the establishment and functioning of the MCPAs. These will include the formulation and adoption of procedures for management of each category, directives for the development of management plans and annual work plans, accounting

systems, monitoring and evaluation mechanisms, and procedures for the involvement of local communities and production sectors.

### Output 1.3: Establishment of Exclusive Zone for Artisan Fishing (EZAF) in the Moskitia

157. The project will support the establishment of this area (denominated “Exclusive Zone for Artisan Fishing by the Peoples of the Moskitia”), and the development of corresponding management instruments (see below), thereby continuing advances made to date by CEM, The Nature Conservancy (TNC), ICF and other institutions, in collaboration with local stakeholders. Letters of support for this initiative, from a wide range of local stakeholders (Departmental and Municipal governments, indigenous organizations, fishers’ and divers’ organizations and others) are presented in the “Stakeholder Support Annex” which accompanies this Project Document (as a separate file, due to its size).

**Figure 7. Proposed artisanal fishing reserve in the Moskitia**



158. It is proposed that this area will be declared through Congressional and/or Legislative Decrees (it has already been presented to Congress for consideration). The existing Fisheries Law of 1959 also provides for the declaration of areas such as this as subject to specific management regimes, in which certain types of extractive activity (in this case, industrial fishing) can be restricted; and it would also qualify for declaration as a “Responsible Fisheries Area” under the proposed provisions of the new Fisheries Law, that is currently under preparation.

159. The closure of the lobster dive fishery in March 2013 under a regional agreement presents a complex management challenge for the Moskitia region. Whilst fishers will be leaving the dangerous employment of the industrial lobster fishery (which causes around 120 dive accidents and 17 fatalities a year), it threatens to put around 3,500 people out of work in an area of Honduras that has few legal alternatives for generating income. The challenge is therefore to find a viable alternative that provides equivalent revenue and employment opportunities but without the social cost.

160. As a solution to this problem, CEM has been working with indigenous groups and local political leaders to designate a portion of the existing industrial fishing grounds as an area for the exclusive use of

artisanal fishers. The proposed area will encompass 54 cays in the Honduran Moskitia and will cover approximately 1.45 million ha of shallow sea (94% of which is less than 50m deep), including 750 km<sup>2</sup> of coral reef and associated hard bottom habitats. The proposed borders of the area were developed from a 12 mile buffer around the cays (grey line in Figure 7) connected together and straightened to facilitate easier navigation (green line in Figure 7). This reserve will constitute a crucial component of the regional strategy for marine and coastal conservation to be promoted by the project across the whole length of the north coast and islands. However, although in practice this area constitutes a “managed resource” protected area (the largest reserve in Central America and the third largest in the Caribbean), it will not form part of the National Protected Areas System and will not fall under the responsibility of ICF, as conventional PAs within the NPAS do. This model respects the stance of indigenous organizations in the area, which is to reject conventional PAs as incompatible with their sociocultural traditions and natural resource governance norms.

*a) Formal declaration of the area*

161. Key advances to date with the creation of the reserve include the following:

- The perimeter for the exclusive fishing area is already in the final stages of ratification by the Government of Honduras. Initial maps for the justification document have been produced to identify and incorporate all cays as well as the major reef systems and shallow water habitats in the area.
- The governor of the Moskitia and representatives from the dive fishers association have participated in an exchange to Belize for them to learn about lobster shades and involvement of cooperatives and fishers in fisheries management.
- CEM has completed a census of over 3000 households in La Moskitia to build a socioeconomic baseline for the dive fishers of the region from which to design the economic requirements of the project.
- A commission has been formed from representatives from all indigenous groups in the region, to lobby for the declaration of the area by the central Government, with support from the Minister of Environment, the Minister of Indigenous affairs, the Minister of Labour, the Commander of the Honduran navy, the Director of the Merchant Marine, the congressman and Governor for the Department of Gracias a Dios, and all six municipal mayors from the region. The President of the Republic was briefed directly on the project by the commission in September 2012 and voiced his direct support for the initiative.
- Presentation of the proposal to National Congress, for the preparation of a Congressional Decree formally establishing the area.

162. Project resources will be used to give continuity to these advances, resulting in the formal legal recognition of the area.

*b) Technical capacities and community-based governance conditions for management by artisan fishers*

163. A parallel part of this program is to then assist local fishers form fishing groups and support the development of artisanal fishing methods within this area, principally the use of lobster aggregating devices called “lobster shades”, which can be installed and harvested by skin diving, without incurring the risk of dangerous decompression. This work allows Miskito fishers to leave the dangerous industrial lobster fishing sector, yet to continue to generate economic benefit from their fisheries whilst at the same time encouraging them to become custodians of their marine resources. With co-financing from the Summit Foundation and Oak Foundation, the project will provide technical support in the development of an effective management framework for the fishery as well as in the design and implementation of a code

of conduct for responsible fisheries for the area. It will work directly with fisher groups and support them with independent technical capacity to collate, analyze and disseminate relevant information, thereby empowering them to build and refine their own strategies to improve their fisheries and the ecosystem which supports it.

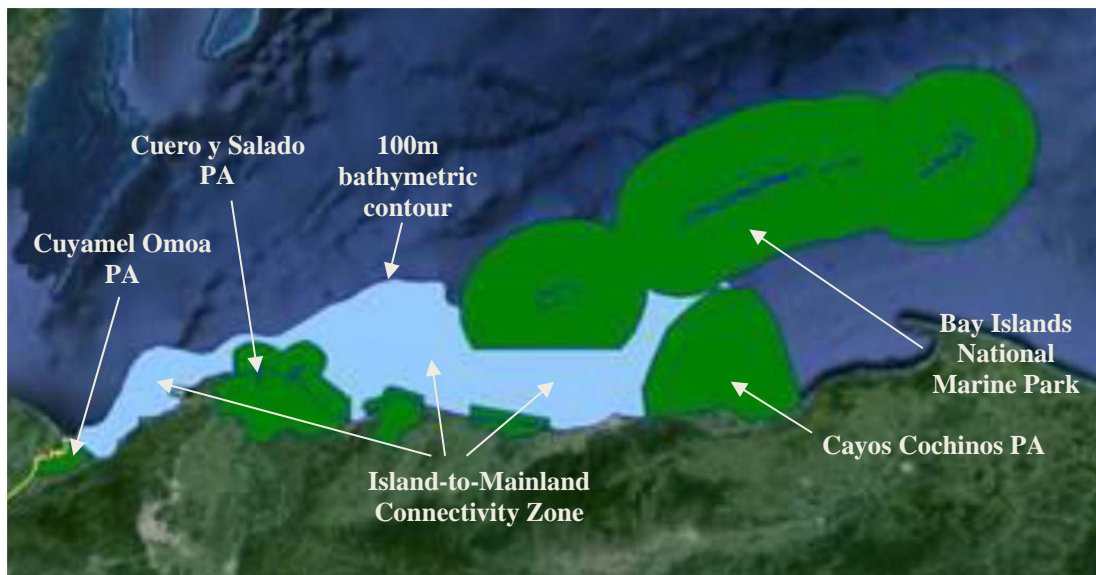
*c) Monitoring and enforcement mechanisms for illegal commercial fishing in the area*

164. Enforcement in the EZAP of prohibitions on fishing by industrial operators will be supported by the monitoring systems described under Output 2.3b. This features a GPS satellite monitoring system managed by DIGEPESCA (this already exists but will be strengthened as a tool for monitoring and management under Output 2.3b) to ensure that the industrial fleet does not fish within the perimeter of the reserve (they will be able to transit and use the area for refuge they will not be able to fish). The specific contribution of the project in relation to this reserve will be to link the GPS system to the management of the reserve, through the development of plans and decision-making mechanisms that specify what actions to take in the case of incursions, together with corresponding responsibilities. Once the reserve is officially designated, the Navy will be the main actor responsible for taking action against boats involved in incursions; it is also foreseen that the artisanal fishers themselves will be part of the enforcement process, through the establishment of mechanisms to connect them to the naval base to report incursions by the industrial boats.

**Output 1.4: Establishment of island-to-mainland connectivity/expanded buffer zone (IMCZ)**

165. The project will support the establishment of a connectivity zone between the western end of the Bay Islands (Roatan and Utila) and the westernmost segment of the north coast of Honduras, that will function in practice as an expanded regional-level buffer zone for a number of high-priority PAs: it will help to buffer them against threats from the seascapes that surround them, and also improve their biological functionality by helping to maintain regional genetic connectivity. This zone is of particular importance for artisan fisheries: it is also characterized by high levels of internal genetic connectivity of species such as the yellow-tailed snapper and is the location of a number of known spawning aggregation sites for the endangered Nassau Grouper.

**Figure 8. Approximate limits of the proposed Island-to-Mainland Connectivity Zone (IMCZ) and its constituent PAs**



166. The area covers approximately 3,000km<sup>2</sup>, excluding the area of its individual constituent PAs. The northern (seaward) border is provisionally defined by the 100m bathymetric line (see Figure 8). This will allow it to include some important deep water snapper fisheries for artisanal fishers, located between around 60 and 100m. This definition also has the logistical benefit that the 100m bathymetric contour is shown up on standard nautical charts. The exact limits of the zone will be decided during the project, in consultation with local stakeholders.

167. This zone will include a new PA, the 110,000ha existing Tela Bay Municipal PA, covering Banco Capiro between the existing Jeanette Kawas and Punto Izopo PAs. It is expected that this area will be formally incorporated into the SINAPH prior to project start-up, which will provide it with a much greater degree of protection than would be afforded by its current status.

*a) Formal declaration of the area*

168. As with the EZAF in the Moskitia, various options exist for declaring this area, including Ministerial or Congressional Decrees, recognition under the existing Fisheries Law (1959) of a zone where specific restrictions on fisheries practices can be imposed by DIGEPESCA, or declaration as a Responsible Fisheries Area under the forthcoming Fisheries Law.

*b) Harmonization of planning and management*

169. Within this area, the project will facilitate the harmonization of the planning and management of the 6 protected areas included, in order to ensure that these take into account the biological and social connectivity between them, for example by coordinating the timing of closed seasons and rationalizing restrictions in order to avoid the risk of actions in one protected areas simply displacing pressures towards another PA. It will also support the introduction of specific regulations on fishing methods and quantities in the non-PA area within its boundaries, in order to further the sustainability of the fisheries resources and biodiversity found there. These regulations will be developed on the basis of information on regional-level biological, productive and social considerations.

**Output 1.5 Tela Reef System PA declared by Congressional Decree**

170. This area currently only exists as a municipal PA. It is expected that by project start it will have been recognised as a Site of Wildlife Importance under Ministerial decree, but until it is elevated to a Congressional Decree the risk still exists that this status could be overturned or revoked. In addition to this declaration, GEF funds will be used to support the formalization of arrangements for an entity, or group of entities, to manage the area under co-management arrangements signed with ICF. In parallel, capacities and instruments for the effective management of the area will be strengthened (under Component 2), including the development of management, financial sustainability and monitoring plans.

**Output 1.6 Clarified arrangements and capacities among institutional and local actors for resource conservation in PAs and sustainable use areas**

*a) Clarified institutional roles*

171. In order to overcome the confusion and apparent overlap between the roles of the key institutional actors (SERNA, ICF, SECTUR, DIGEPESCA and municipal governments) regarding resource conservation and PA management in the coastal/marine zone, the project will facilitate legal and institutional studies, participatory analyses and negotiations, resulting in memoranda of understanding between these institutions, guidance documents for their staff members, and the definition of personnel requirements and possible corresponding needs for reassignment of personnel.

172. These will not supercede the provisions of the relevant legal instruments, but rather will facilitate the interpretation of the law, permit negotiated solutions in cases where the law is unclear or contradictory, and may also serve to guide possible future modifications to the legal instruments

themselves. In practical terms, the project will also facilitate the joint planning, between these institutions, of activities and investments in relation to resource conservation in PAs and sustainable use areas.

*b) Framework policy instrument for the marine/coastal zone*

173. The Project will provide technical inputs and facilitation support to DIBIO, for the formulation of the Coastal Zone Policy that is currently under preparation. This instrument, which will be generated on the basis of multi-institutional, multi-sector and multi-stakeholder processes of consultation and analysis, will provide consistent policy direction to Government initiatives in the zone.

**Component 2: Improved management effectiveness of Marine and Coastal PAs in protecting BD against threats**

174. This component will focus on ensuring that the existing PAs are appropriately managed, in accordance with their objectives, biophysical characteristics and social and economic contexts, and the biological requirements of the ecosystems and species that they seek to protect. Activities under this component will again be addressed from a strategic regional perspective (under Output 2.1) as well as at the level of individual PAs (Outputs 2.2 and 2.3). Activities in support of these two outputs will focus specifically on 7 PAs selected as being of strategic importance in relation to the connectivity zone proposed under Output 1.3 (see Table 21)<sup>25</sup>:

**Table 21. Target PAs for strengthening of management effectiveness**

Protected Area	Category	Area (ha)	METT rating (% of total possible)	
			Current	Target
1. Cayos Cochinos	NM	114,925	73	80
2. Cuero y Salado	WR	13,027	66	73
3. Jeannette Kawas	NP	78,146	59	64
4. Cuyamel Omoa	NP	30,031	37	41
5. Punta Izopo	NP	18,500	62	68
6. Turtle Harbour-Rock Harbour (Utila)*	SPZ	813	51	56
7. Tela Bay**	SIWL	110,000	TBD	TBD

\*Turtle Harbour-Rock Harbour SMPZ (Utila) forms part of the Bay Island National Marine Park

\*\*Tela Bay Municipal Reserve is expected to be declared as a Site of Importance for Wildlife (SIWL) between the conclusion of the PPG phase and the start of the implementation phase of this project.

175. A key strategy for promoting the management effectiveness of MCPAs, the importance of which became clear as a result of PPG studies, is the incorporation of local communities, particularly those principally dedicated to fishing, into the management of PAs and fisheries resources in the surrounding areas. In the absence of strong external assistance and governance frameworks, fishing communities are more likely to preserve resources through self-management which promotes a sense of ownership but also provides economic self-improvement, rather than stakeholder exclusion and resource use prevention by a third party. The first step in addressing fisheries management within these communities is to develop a cohesive and representative voice through the formation of functioning fisheries groups. Marine protected area management must move beyond simply enforcing fishing restriction over a given area and instead seek to develop the information required to make decisions and monitor the efficacy of the management activities with the aim of improving the status of the marine resources and the benefits they provide.

<sup>25</sup> Of these, Jeannette Kawas and Cuyamel Omoa were categorized as first priority for the Mesoamerican Reef System in 2007, and Punta Izopo and Cuero y Salado as second priority.

## **Output 2.1: Overall strategic management plan for the sub-system of Coastal and Marine PAs.**

176. This instrument will include strategic and operational provisions which will complement the spatial plan to be developed as Output 1.1, and will incorporate regional considerations of ecosystem protection, biological connectivity and sustainable development, as well as provisions for response to trends in social, economic and climatic conditions. It will principally focus on the PAs (both marine and terrestrial portions), the seascapes that separate them and the terrestrial landscapes immediately surrounding them; it will also, secondarily, address the management of the watersheds that drain into the project area, and include provisions for planning and regulation of terrestrial productive activities in these areas, in collaboration with municipal governments and the Ministry of Agriculture and Livestock (SAG).

177. This document will constitute a key reference point for the planning of conservation and management initiatives across the whole of the target area, including PA-specific management plans, productive sector development plans, environmental impact assessments of development activities, and territorial land use plans; in turn, the formulation of the strategy itself will take into account existing instruments of these kinds, and will be subject to periodic updating in order to reflect emerging initiatives and evolving circumstances throughout the region. This strategic regional plan will be taken into account in other regional planning instruments and sector development plans (including agricultural development initiatives promoted by the SAG, with implications for land-based impacts on the project area), and in strategic environmental impact assessments of proposed developments in sectors such as tourism and petrochemicals.

178. Thematic management plans will also be developed, as required, for specific issues of particular concern. These will include a strategic plan for addressing the threats posed to reefs by lionfish, which is an invasive alien species. A management plan for lionfish has already been prepared for the Bay Islands, as part of the overall management plan for the marine park: the project will support the expansion of that plan from the Bay Islands to other parts of the north shore and responsible fishing zone, and the harmonization, coordination and scaling up of the approach across the project area. This approach will build on ongoing experience and proven successes generated with artisan fishers in Punta Gorda, Roatán in targeting, processing and sell lionfish to help train other fishing communities and expand the market for lionfish in local restaurants in other areas – especially Tela and La Ceiba. As explained in Section III (collaboration with related initiatives), project actions in this regard will take into account STAP advice on lionfish control options in the Caribbean in relation to GEF projects 3729 (Building a Sustainable National Marine Protected Area Network in the Bahamas), and 3813 (Mitigating the Threats of Invasive Alien Species in the Insular Caribbean (Bahamas, Dominican Republic, Jamaica, Saint Lucia, Trinidad and Tobago)).

## **Output 2.2: Management instruments and capacities for priority PAs**

179. Priority management strategies for each of the target PAs are summarised in Table 20. The project will invest in ensuring that adequate management instruments and capacities are emplaced in each of the target PAs to enable these strategies to be implemented in an effective and sustainable manner.

### **a) Comprehensive management plans created/revised and implemented for individual PAs and management areas**

180. The project will support the negotiated and participatory development of an overall management plan for the island-to-mainland connectivity zone (Output 2.2) as a whole. This will provide an overall reference point for the content of the management plans of the individual PAs included in the area, and for the management of the area as a whole (including the part not included in SINAPH PAs). The plan will include:

- The internal spatial configuration of the zone, including the location of existing PAs (and possibly sites where additional PAs may be established in the future), and possible locations of sub-divisions of the remainder of the (non-PA) area, according to differences in management regimes.
- Overall principles and strategic guidance for the management regimes to be applied across the zone, highlighting spatial variations in management approach between different parts of the area.
- Proposals for regulations to be established in different parts of the area (subject to negotiation and eventual formalization by the corresponding authorities), based on those proposed under Output 2.3.
- Mechanisms for zone-wide coordination and planning, which will involve the managers and co-managers of each the 7 PAs in the zone, as well as local social and institutional stakeholders.
- Mechanisms for monitoring and information flow to guide management, harmonized and shared between the different institutional stakeholders covering the zone (including PA co-managers).
- Proposals for the sharing of human and logistical resources between the different PAs within the zone, resulting in increased cost-effectiveness.
- A strategic plan for financial sustainability, which will provide an overall framework for the individual PA-specific financial sustainability plans. The existence of this overall plan will facilitate income generation (through the generation of zone-wide proposals and the joint lobbying of central Government for recurrent funding).

181. The project will ensure that all 6 priority PAs in the island-to-mainland connectivity zone (Output 1.2) have management plans which not only conform with the best practice guidelines currently being generated by ICF, but also reflect the conceptual and strategic models which are central to the logic of the project (including the consideration of biological, productive and social interconnections at a regional level, and the integrated consideration of biodiversity conservation, fisheries management and livelihood support) and are therefore compatible with the strategic directions and principles of the region-wide Strategic Management Plan (Output 2.1). To this end, it will support the formulation and implementation of PA-specific management plans in Cuyemal Omoa NP and Turtle Harbour SPZ, which are the only two of the 7 priority PAs which do not currently have management plans being actively implemented (see Table 14); and the review of existing management plans in the other 5 priority PAs. Both the formulation and review of management plans will be highly participatory processes, involving PA managers, local institutions and local stakeholders (resource users and others), allowing these all to have a say in the definition of management objectives and control mechanisms. These processes will also build upon experiences generated to date throughout the region in participatory planning, such as the support provided by CATIE to Procorredor in the development and consolidation of the platform for the Caribbean Biological Corridor.

182. The PA management plans will incorporate, as appropriate, proposals for lionfish control within the context of the strategic lionfish control plan proposed under Output 2.1, and taking into the account the results of GEF projects 3729 and 3813, based on STAP recommendations (see Part III on collaborative arrangements with related projects).

183. A management plan will also be developed for the exclusive area for artisanal fishing which is proposed for the Moskitia Cays area. Given the nature of this area, the plan and its development process are likely to differ from the models normally applied for SINAPH PAs: it will be developed through a highly participatory process in which indigenous stakeholders in the Moskitia will play a leading role, with facilitation support provided by CEM (operating on the mainland of the Moskitia where the artisan fishers are based) with co-funding from the Summit Foundation and Oak Foundation. All this process will be Miskito-led, the existence of the area will have implications for, and require the cooperation of, a

number of other stakeholders whose participation in its development and implementation will be key to its success: these include DIGEPESCA, local Governments, the Navy and associations of industrial fishers (APICA and APESCA).

184. All of these management plans, and the management strategies for which they provide, will be 'climate-proofed' by making provision for the implications of a range of different climate change scenarios, such as changes in the reproductive and migratory biology of fish due to changes water temperatures and ocean currents, and the spatial migration of ecosystem boundaries due to factors such as sea-level rise and changes in hydrological regimes.

185. In addition, all of these proposed management plans will make clear the specific roles and responsibilities of each of the institutions involved. This is particularly important with DIGEPESCA, ICF, SERNA and local governments, regarding the respective roles of each there is currently significant confusion (see Barrier 1).

*b) Improved guidelines for management plan formulation*

186. Most of the current MCPA management plans, rather than being practical instruments for guiding management, are simply bibliographic reference documents which do not take adequately into account regional issues related to ecosystem protection, biological connectivity and sustainable development. The project will therefore support a review and updating of the 2009 Manual of Procedures for the Production of Protected Area Management Plans in order to ensure that these elements, together with those elements mentioned under Output 2.2(a) above, are incorporated. The MCPAs included in this project will be used as pilots for the application of the modified guidelines nationwide.

*c) Stakeholder participation plans and mechanisms for PAs*

187. The active involvement of local communities in PA planning and management is an essential requirement for management effectiveness, social sustainability and the ecological sustainability of resource use. As explained in above, the co-management agreements provided for in protected areas legislation in practice function solely for the delegation of PA management responsibilities to NGOs and CSOs, which in most cases do not feature effective representation or participation of the communities resident in and/or dependent on the PA and its natural resources. The Consultation Committees provided for in protected area legislation (the Forestry Law) have in most cases also failed to function effectively as channels for local participation in PA management.

188. In recognition of these shortcomings, the project will facilitate the negotiated development of complementary provisions for ensuring effective stakeholder participation: these will take advantage wherever possible of existing social institutions such as village committees (*patronatos*), water user committees (*juntas de agua*), producer and fisher organizations or cooperatives, community-based NGOs and indigenous organizations. Care will be taken to use a wide portfolio of participation mechanisms, in recognition of the fact that no one existing organization is capable of effectively representing the interests of all stakeholders, with a focus in particular on facilitating communication, negotiation and collaboration between these different entities.

*d) Monitoring and information management systems for PAs*

189. The project will also support the development of monitoring systems, databases and information management systems to guide management planning and decision making in PAs, in accordance with principles of adaptive management. Effective monitoring will be essential in order to ensure the sustainability of natural resource use in the PAs given that most of the areas in question will be subject to continued, controlled use by local communities.

190. The monitoring will focus principally on status indicators, in terms of the biology and ecological condition of the marine and terrestrial ecosystems in and around each PA. The variables monitored will

include, for example, coverage and conditions of mangroves and other terrestrial/coastal vegetation, fish abundance, conditions of coral reefs and coverage of seagrass beds, megafauna and birds, water quality, and social parameters such as population and poverty levels and the status of local institutions as appropriate in each case.

191. Monitoring *per se* will be complemented by the development of information management procedures and systems for the collation, analysis and presentation of the resulting data in user-friendly and user-useful ways to help inform management and provide relevant information to stakeholders about the condition of the marine ecosystem and the PA. These systems will complement and incorporate the information generated through fisheries monitoring proposed under Output 2.3.

192. The monitoring system to be applied by the project is described in Section IV Part IX. The indicators to be used in the project will also be used, with adjustment as necessary, in the permanent monitoring systems to be established in the target PAs.

*e) Capacity development programmes in support of PA and natural resource management*

193. The introduction of the concepts proposed by the project (such as the regional approach to conservation and management, the integration of PA and fisheries management, and the broadening of conservation models to reflect the needs and concerns of local stakeholders) will require a significant change of mindset among the members of institutions involved in conservation and management of PAs and fisheries, as well as the development of additional technical capacities. The project will invest in developing these required levels of awareness and capacities, through training courses, workshops, forums and interchanges of experiences between different parts of the zone, aimed at members of Government institutions (including ICF, SERNA, DIGEPESCA and the Navy), NGOs and CSOs (PA co-managers and others) and community-based organizations. These investments will focus in particular on the following issues:

- The interrelations between BD, fisheries and livelihoods; status and trends in each, and corresponding management options
- The nature and importance of regional connectivity in biological, social and productive terms, and strategies for its promotion
- Strategies and mechanisms for monitoring and information management in relation BD and fisheries.
- The legal and institutional frameworks related to BD conservation and fisheries management.
- The incorporation of the key project concepts into PA planning and management
- Alternative models for PAs/reserves, with potential to complement the conventional SINAPH model.
- Specific technical solutions for BD/fisheries management and for making this compatible with livelihood support goals.

194. This will be complemented by capacity development programmes for Regional Consultative Committees, enabling them to support planning and enforcement & monitoring, including climate change adaptation measures and buffer zone management.

*f) Integration of monitoring and management of artisan fisheries into PA management and efficacy assessment*

195. Complementing the measurement of status indicators proposed under 2.2c, this output will focus on monitoring the magnitude, nature, timing and location of the pressures generated by artisan fisheries, and their resulting impacts on the marine and coastal ecosystems. This will permit the estimation of maximum sustainable yield levels; the results will be integrally linked to PA management so that offtake limits can be set for different areas.

### **Output 2.3: Governance instruments and systems for addressing threats to PAs**

196. An essential requirement for the sustainability of marine and coastal PAs, the BD which they contain, and the fishery and other natural resources of the area as a whole, is the implementation of an effective management and governance framework for the different productive sector activities operating in the area, in conjunction with systems to monitor the effectiveness of this framework

#### *a) Community-based governance structures*

197. Building on relations established to date by co-managers, the project will work with communities resident in or around the target PAs to develop their capacities to participate in the monitoring and fiscalization of productive and extractive activities with potential to generate negative impacts on their environmental values. The aim will be to strengthen overall governance conditions in relation to both land-based and water-based threats, although specific aspects of the governance of artisan fisheries (registry and licensing systems) will be addressed more specifically under Output 2.3c. Particular attention will be paid to land-based threats such as the expansion of oil palm plantations, forest clearance for pasture establishment, and the inappropriate use of agricultural chemicals. Community members will receive organizational strengthening and environmental education in order to increase their motivations and capacities for monitoring compliance with environmental norms, reporting infractions and providing follow-up directly (in the form of peer pressure) or indirectly (through Government institutions).

#### *b) Mechanisms and capacities for monitoring industrial fisheries*

198. Participative fisheries monitoring enables fishers to be involved in the management of their resource and see how their actions change the status of the fisheries. Accurate fishing data can also help determine sustainable catch levels and provide important information on the trends in the different fisheries over time. These data can measure the efficacy of different management actions in and around PAs. Recording species and volume data of the landed catch and the location of the fishing trip is actually an existing legal requirement for the captain of each fishing boat each time they return from a fishing excursion, as defined in the fisheries law of 1959.

199. A particularly innovative aspect of this project is the proposed involvement of commercial fishers in ‘self-regulation’, an approach to which they declared concrete commitment during the PPG phase by virtue of their recognition of the current or imminent collapse of the fisheries on which they depend.

200. The mechanisms proposed here will enabling the real-time tracking of all boats in the industrial fleet, as an essential tool for the enforcement of restrictions on industrial fishing in the Exclusive Zone for Artisan Fishing in the Moskitia, the three-mile industrial exclusion zone (which runs along the whole coast) and the Island-to-Mainland Connectivity Zone.

201. Fishing data are currently inadequate for most of the north shore and islands of Honduras, including within marine PAs. Fishing information is a fundamental pre-requisite for the management of marine resources. It is essential that the total level of harvest is monitored and that this can be linked to the total level of fishing effort directed at each target species in each area. One aspect of the monitoring and control of fishing efforts is the licensing of fishing boats. There is a need however to move beyond simply registering the number of boats. It is important to calculate the sustainable capacity both economically and ecologically of the fisheries in terms of total fishing effort. Linking the license information to activity logs and landing figures is an important goal to be able to achieve this. Recording the time spent fishing by the different boats in the fleet could determine the actual fishing effort of the industrial fleet not just the potential fishing effort as inferred by the number of licenses. The next logical extension would be to link effort data with landing data to measure catch per unit effort for each boat in the fleet. This is a crucial management metric for monitoring fisheries.

202. The development of an integrated system for fisheries monitoring and regulation will be a particularly innovative aspect of this project: this will involve a range of actors in addition to DIGEPESCA, taking advantage of the human, technical and logistical resources of each and linking them together in a flow of information that will permit well-informed decision-making, based wherever possible on consensus. The key actors in this system will include:

- i) Fishers and their organizations, who will be trained and equipped to monitor trends in the status of the resources on which they depend;
- ii) PA managers and co-managers (CSOs) who will also monitor trends in resource status and define PA management norms in negotiation with fishers and other local stakeholders, DIGEPESCA and SERNA;
- iii) DIGEPESCA, which will carry out monitoring and oversight to the extent that its capacities allow, define fisheries norms and quotas in discussion with PA managers (based on improved flows of data from PA managers and fishers) and will act as a centralized repository for data on fisheries resources and activities, and
- iv) Municipal governments, through Municipal Environment Units

203. Incorporating marine reserve design as a cornerstone of these new management frameworks would actually be simpler than many imagine. The position of the entire Honduran industrial fleet is currently monitored in real time by the Fisheries Department and the Merchant Marine through a centralized global positioning system (GPS), using transmitters (*balizas*) that are installed on all industrial boats. As such the mechanisms to enforce marine protected area designation for the industrial fleet already exist and could be accomplished by simply enforcing fines or other penalties to boats that are logged entering restricted areas. It is possible to differentiate the activity of a fishing boat by its motion patterns. For example, a shrimp boat that is trawling must travel at between two and three nautical miles per hour (knots) in a straight line before making a U-turn to traverse the fishing area; whereas if the same boat is simply transiting it travels at closer to 10 knots and will make less dramatic turns. Similar patterns can be determined for the boats in the other fisheries. Regulating the spatial and temporal activities of the fishing fleet across the fishing grounds would not necessarily mean changes to transit lanes and other navigation routes and through the GPS system already in place would be very cost effective.

204. The information required for monitoring and controlling the fishing fleets is therefore available, through the GPS logging system, the boat logs maintained by boat captains, and the landing records stored by packing plants. Despite the existence of all this information however, these data are not currently collated or used by the fisheries department (DIGEPESCA). The value added of the project in relation to these existing systems will therefore be to ‘close the loop’ of information management, ensuring that the data currently gathered are not simply filed in DIGEPESCA (where they are at risk of accidental or intentional erasure) but are fed to decision-makers. These decision-makers will include DIGEPESCA itself, which has formal legal responsibility for determining permissible levels and locations of fishing effort; PA managers and co-managers, feeding into the PA planning and decision-making systems proposed under Output 2.2; and the fishing fleet itself, especially the associations of commercial fishing operators (such as APICA and APESCA), to help them to ‘self-regulate’, as explained above. To facilitate this there is an online system that has been developed for fishing monitoring in Honduras<sup>26</sup>, which not only stores the information but can provide instant reports on the current status of their fishery compared to previous information.

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<sup>26</sup> This free fisheries monitoring tool is available at [www.captura.ourfish.org](http://www.captura.ourfish.org) and fishers or fishing groups can register free to use the system

205. As a condition of the fishing license, all fishers should record their fishing effort and catch levels based on a simple monitoring system. This can be facilitated through the associations or cooperatives, who should be encouraged to develop centralised monitoring systems to report their fishing activities. Fishing cooperatives or associations will be helped to develop the capacity to be able to record and monitor their member's fishing activity as a way of monitoring their own success. These data can ultimately be connected to the relevant management authorities so that monitoring of fisheries can occur in real time and provide a mechanism to link fishers to managers.

c) Registry and license system for artisanal and recreational fishing in and around MPAs

206. Licenses are a fundamental component of fisheries management, for artisanal and recreational fishing as well as industrial fishing. Reliable and up to date information on the number of people involved in fishing activities and where they are fishing is essential to be able to monitor exploitation levels, estimate the livelihood dependence on fishing and measure any displacement effects that occur because of changes to protected area management. Under the 1959 fisheries law all artisanal fishers are legally required to be licensed. In accordance with the proposed paradigm shift towards connecting the management of PAs with local fishing communities, an effective licensing system can be used to grant fishing rights to local fishermen in return for them accepting some responsibility for the status of the fishery. Fishermen can become involved in management by helping to prevent illegal fishing activity, identifying sites for specific protection and monitoring their catch levels. The aim is that fishing is a right for licensed fishermen that they then protect and conserve for their own prosperity. In this way fishers can help to ensure that the conservation goals of marine protected areas and the socioeconomic importance of local fisheries are aligned.

207. Licences should be annual and cover the following categories:

- 1) **Artisanal fishermen** who fish either for subsistence or for commercial purposes.
- 2) **Recreational fishermen** who target species for personal consumption or with tourists including catch and release.

208. The aim is that fishing in and around PAs will only be conducted by registered and licensed persons using vessels registered and licensed for extractive fishing activities. Tourists will only be able to fish with registered and licensed local recreational fishers. All fishers as a condition of license must follow all current fishing restrictions including closed areas, closed seasons, minimum sizes and protected species. By maintaining an accurate registry with contact details for all fishers in the different areas it will be much easier to inform this sector of any changes in the fisheries laws or to encourage their participation in developing new fisheries management strategies.

209. Similar to the registration and licensing of individual fishers, it is essential to monitor the size and extent of the fishing fleet. The licensing of fishing boats is also a legal requirement under existing fishing laws. All boats from canoes to recreational fishing vessels need to be registered and licensed if they are to be used for any type of fishing activity. A license and a non-transferable license number should be given to each boat and that number clearly painted on the bow of the boat or cayuco. It is recommended that vessels have a specific fishing flag that should be hoisted when fishing. Owners whose boats are involved in illegal fishing activities either in Honduran waters or in the territorial waters of other countries should incur penalties irrespective of whether they are on board or not. Ownership of a fishing vessel comes with the same responsibilities that actively fishing does and owners must ensure that anyone using their boats are compliant with the current fishing regulations.

d) Updated and completed regulatory instruments for coastal/marine PA system

210. The project will promote and support the introduction of the following regulations for the artisanal fisheries of the North shore and Bay Islands, in and around MCPAs:

i) *Harmonization, clarification and publication of fishing gear restrictions for all the north shore and Bay Islands*

211. There is currently some confusion in the legality of different fishing gears that can be deployed in the different zones of the north shore. Given the high levels of presumed connectivity across the north shore it is logical to harmonise artisanal fishing regulations for the whole area. In addition to the existing fishing regulations, the project will promote the following restrictions for all artisanal fishing activity, irrespective if they are inside or outside a designated protected area:

- No fish traps of any material, style or design
- No spear fishing except registered Hawaiian slings used to catch lionfish
- No fishing using compressed air diving
- No beach seines
- No gill nets in coral reef areas, seagrass beds or the mouths of mangrove inlets and rivers

ii) *Protection of groupers (serranidae) in the Bay Islands and north shore*

212. Groupers are heavily overexploited across their range in Honduras. The targeting of their spawning aggregation sites has affected their potential to recuperate their populations by drastically reducing their spawning stock biomass, affecting their total reproductive output. Two species of grouper found in Honduras (*Epinephelus striatus* and *E. Itajara*) are on the endangered species list and on the IUCN red list. Because it is not possible to effectively separate the fishing of one species of grouper from another and based on the precautionary fisheries principle as established by the United Nations code of conduct for responsible fisheries, the following regulations are proposed for all groupers:

- No grouper species of the geneses *Epinephelus* and *Mycteroperca* can be landed or traded from December 1<sup>st</sup> to March 15<sup>th</sup> of each year.
- No fishing can occur within a 500m radius of known spawning site during these same months.
- All fish fillets or salt fish produced during the months of October to April must either be made from whole fish or if filleted must maintain a strip of skin the width of the fillet and no narrower than 3cm so the species of origin can be identified

iii) *Protection of all herbivores from capture and sale*

213. Herbivorous fish play an essential role in maintaining the ecological resilience of coral reefs, by consuming the benthic algae that are spatial competitors with corals. Maintaining a high density and diversity of herbivores on coral reefs is therefore a key management objective. There is little market for reef herbivores in Honduras but these species are vulnerable to unselective fishing gears, and market demand may increase as other species become over exploited. To compliment the prohibition of fish traps and the use of gill nets in reef areas, it is recommended that the capture or sale of herbivorous fish species including all species of parrotfish of the family Scaridae, geneses *Scarus* and *Sparisoma* and all species of surgeon fish family Acanthuridae of the genus *Acanthurus* is prohibited.

iv) *Instigate minimum sizes and restrictions for the species of fin fish that can be commercialised including by industrial fishing plants in the Bay Islands and La Ceiba*

214. The commercialisation of undersize fish species places at risk the sustainability of local and national marine resources. Irresponsible buying practices motivate irresponsible fishing activities, including the use of unselective fishing gears in marine protected areas. It is crucial that the fish merchants develop a code of conduct for ethical purchasing to support responsible behaviour by local fishermen.

**Table 22. Recommended minimum capture and sale sizes for groupers and snappers, to be stipulated in regulations**

Groupers (only in season)		Shallow water snappers		Deep water snappers	
<i>Epinephelus fulvus</i>	20 cm	<i>Lutjanus analis</i>	50 cm	<i>Apsilus dentatus</i>	45 cm
<i>Epinephelus guttatus</i>	35 cm	<i>Lutjanus synagris</i>	25 cm	<i>Etelis oculatus</i>	45 cm
<i>Epinephelus striatus</i>	50 cm	<i>Lutjanus apodus</i>	20 cm	<i>Lutjanus buccanella</i>	25 cm
<i>Mycteroperca bonaci</i>	45 cm	<i>Ocyurus chrysurus</i>	25 cm	<i>Lutjanus vivanus</i>	45 cm
<i>Mycteroperca venenosa</i>	45 cm				

v) *Focus on clarifying and enforcing the current legislation on lobster and conch within the artisanal fisheries sector*

215. The conch and lobster fisheries are both under national fisheries regulations. These regulations need to be enforced at a local level for the artisanal fisheries in addition to within local and national seafood markets. This is especially important in the main tourism centres with the continued and growing restaurant demand for these products. Lobster should not be available for sale between March 1<sup>st</sup> and June 30<sup>th</sup> of each year. Lobster tails should always be above 140 mm in length. Conch should not be for sale at any time. Until the status of the conch fishery is clarified by the DIGEPESCA it remains under moratorium and there should be no conch on the menu of any establishment.

vi) *Diversify fishing activity in to catch and release sports fishing or pelagic fishing*

216. In areas of the Bay Islands and along the north shore where tourism development is continuing there is a growing opportunity to transition fishers into sport fishing. This would be particularly suitable in communities within zones 2,3,4,5 & 6. In addition pelagic species are increasing in market demand. For example the small tuna species that have traditionally been caught by artisanal fishers and sold to industrial boats for bait are now worth three times as much if sold for human consumption. Identifying these changes in the markets and helping fishers capitalise on them is a crucial part of assisting fishers decrease their footprint in and around protected areas.

#### **Output 2.4: Strengthened organizational structures and capacities among fishers for governance in support of PA threat reduction**

217. To enhance the efficacy of management and to provide a system whereby the interests of fishermen are heard in the governance system of protected areas, it is important the fishers are incorporated into fishing associations that can represent and communicate their interests. These groups will be specifically targeted for capacity building rather than simply as recipients of equipment or financial donations. These fishers' groups if properly trained can help develop local management capacity, including helping in the enforcement of fishing regulations and the designation and protection of specific no fishing areas.

218. Fishermen in the different areas of the north shore will be encouraged to form local fishing associations connecting communities together as per the zonation foreseen under Component 1. These associations should then be facilitated to develop common agendas between areas and to resolve spatial conflicts that may occur between fishermen. Associations should be formed for artisanal fishers and for recreational fishers and these groups used as the most efficient way to collect and record fishing information as well as to become the point of contact for all communications with fishermen on the north shore of Honduras.

219. As a condition of the co-management agreements with ICF the co-management group should be responsible for ensuring that the fishing activities under the marine or coastal area of their jurisdiction are properly monitored. This should include the centralised registry of fishers, the collection of landing data

and the logging of infractions of fishing regulations encountered by them or reported to them. In addition in areas where co-managers are not present, investment should be made in empowering local fishers to form management units to help enforce local fishing laws.

220. An online database is available to help co-managers with these tasks and to record what enforcement actions are taken for fishing infractions as well as develop an offender's database for repeat offenders<sup>27</sup>. This data base could easily be linked to the fishing licensing data base to assist in licensing compliance for fishing activities.

### **Output 2.5: Systematization, education and awareness programmes on the value of marine and coastal ecosystems**

#### *i) Awareness raising programme*

221. The project will invest in education and awareness raising regarding key issues of relevance to the conservation of marine and coastal biodiversity. There is a need for clarity in the fisheries regulations and protected area legislation pertaining to artisanal fisheries. There is also a need for wider awareness about the functional importance of marine ecosystems, the critical role which fishermen play in structuring that system and the potential for marine protected areas to safeguard the biological and economic potential of marine resources for local communities. Information about the role of protected areas will be made widely available across the entire coastal zone especially in all the dive shops, hotels, restaurants, shops etc. and in local schools and other educational establishments. Ultimately the aim will be to put marine management and sustainable fisheries into the national dialogue and raise it as a political priority to be of central concern in coastal zone development strategies.

#### *ii) Systematization programme*

222. The project will also invest in systematization and awareness raising with more concrete aims. It will support the systematization and interchange of experiences between different PAs, management zones, institutions and communities, thereby facilitating the replication across the zone of the application of the models, approaches and specific management practices which it will promote. These processes will also aim to influence the procedures and mechanisms for PA management and planning, including the incorporation of 'best practice' (including the consideration of regional considerations, integration with fisheries management and effective participation of fishers and other local stakeholders) into the standard requirements of ICF for PA management plans.

#### *iii) Clearing house for information on marine and coastal ecosystems*

223. Information on the status of coastal and marine PAs in the region, fisheries resources and biophysical and socioeconomic conditions is currently highly dispersed and therefore not easily accessible to or usable by decision-makers or the public in general. The project will support the development of a unified, publicly available "clearing house" of information in order to facilitate decision-making and raise public awareness of issues related to the environment and fisheries in the zone. The specific institutional arrangements for the establishment and management of this facility will be defined during the implementation phase; in order to maximize sustainability one option being considered is for it to be managed by a national NGO with permanent presence, such as the Centre for Marine Ecology (one of the Responsible Parties of the project).

### **Component 3: Financial sustainability of marine and coastal PAs**

224. Activities under this component will help to ensure that the PAs that are declared do not remain solely on paper due to lack of funds, and do not lead to already scarce funds being diverted from existing

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<sup>27</sup> A free online reporting tool for marine patrols or other parties involved in regulating fishing activity is available at [www.patrol.ourfish.org](http://www.patrol.ourfish.org) and applications for access to this system can be made through this webpage.

PAs. Opportunities will also be explored to obtain income from the corporate social and environmental responsibility schemes of large actors in sectors such as oil palm and petrochemicals. These initiatives will be complemented by the training of PA managers in financial management, enabling to recognize their financial needs, develop funding strategies and manage the funds that are available in an effective manner.

**Output 3.1: Regional and sub-regional financial sustainability plans for the MCPA sub-system and for individual MCPAs.**

225. These will make provision for a combination of increased Government budgetary appropriations, concessions and gate fees from tourism and fishery permits, motivated by increased awareness of the interrelations between sustainable economic and livelihood development and the sound management of natural resources. The project will support the development of financial sustainability strategies at the level of the coastal/marine PA sub-system as a whole, and in individual MCPAs. These plans will include projections of the financial needs of the sub-system and its PAs, and strategies for ensuring that these needs are satisfied in a sustainable manner, with reduced dependence on short-term donor funding. Particular emphasis will be placed on exploiting the potential for productive sectors to contribute to PA management, in recognition of the environmental goods and services that they receive from PAs – in the case of tourism, their potential to attract tourists due to their aesthetic and interest values, and in the case of fisheries, the role played by coastal ecosystems such as mangroves as spawning and grow-on areas for the fish populations on which the sector depends.

**Output 3.2: Regional strategy, principles and mechanisms for sustainable contributions of tourism to PA management**

226. The fisheries and tourism sectors both depend strongly on the biological integrity of PAs, and at the same time have major potential to undermine the integrity of PAs and therefore their own sustainability. In both cases there are strong arguments for the controls on their environmental impacts being complemented by direct financial contributions by each of these sectors to meeting some of the costs of PA management. Currently, in none of the target PAs do commercial tour operators contribute significantly to PA management, with collaboration between tour operators and PA managers in the protection of PA values; and in none do visitor fees contribute significantly to PA management.

227. In the Bay Islands, the Tourism Free Zone (ZOLITUR) mechanism provides for funds from tourism to be channeled to municipal governments to support environmental projects, and opportunities for similar fiscal schemes will be explored elsewhere in the sub-region. Tourism in Honduras has shown major growth in recent years (visitor numbers increased by almost 120% between 1998 and 2007 and income from tourism in 2007 was around \$470 million). Around 54% of non-business tourists in Honduras carry out nature and adventure tourism. This segment of the market has been prioritized by the Ministry of Tourism through its National Strategy for Sustainable Tourism (to 2021). Despite this generally positive overall context, there is a risk of tourism acting as a ‘double-edged sword’: on the one hand generating revenues that can be fed into PA management and BD conservation, but on the other generating environmental impacts (such as the silting of reefs due to sediment runoff from hotel construction sites and access roads) which undermine the biological sustainability of the PAs and lead to increased cost requirements for control and mitigation.

228. The project will focus initially on systematizing experiences gained to date with generating income from productive sectors (for example by NGO PA co-managers in the Bay Islands) and with environmental controls on tourism (for example through the IADB-funded Bay Islands Environmental Management Project); on the basis of this, it will work with PA managers and other stakeholders to identify needs and opportunities for consolidating these experiences, and sites for potential replication

elsewhere throughout the zone, providing targeted capacity development support to facilitate this replication as required.

*a) Feasibility studies, plans and mechanisms for channeling sector revenues to PA management*

229. Of the 9 MCPAs covered by the project, only 3 charge tourism entry fees (Cayos Cochinos, Jeannette Kawas and Cuero y Salado): the income generated in this way represents only 6.4% of the total amount generated by co-managers. The ICF has established entry fees of US\$10 for foreigners, US\$0.50 for Hondurans and US\$0.25 for national students.

230. Working closely with PA managers, tourism operators and local governments, the project will support the development of a harmonized fee system covering the project area, with local participation, and will design mechanisms for raising funds from tourists and/or tourism operators (for example through dive fees and concessions for trading in PAs) and for ensuring that these are channelled in a transparent and effective manner to PA management. The fee system will be based on detailed studies of visitor numbers and patterns (taking into account the provisions of the National Ecotourism Strategy that prioritises a number of ecotourism “clusters” that coincide with the project area), facilities available, and visitors’ willingness to pay. The fee system will also provide for fees for concessions and other activities such as camping, fishing, hiking, boating and diving).

231. The involvement of local governments in the definition and application of fee systems is important in order to ensure that they agree that such income can be channelled directly to PA management, rather than being regarded as taxes to be handled by local governments. Clear procedures for handling and auditing income are also of vital importance in order to ensure that contributors have confidence that the revenues are being reinvested effectively in ways that favour their interests. Similar mechanisms will be developed for channelling a part of the revenues of commercial fishing operations to PA management, a model with which commercial fishing operators have expressed agreement.

232. PPG studies and evaluations presented in the National Ecotourism Strategy qualified visitor facilities as deficient or inadequate in all of the MCPAs targeted by the project. Project resources will be used to carry out detailed needs assessments and feasibility studies for the improvement of facilities, considering the following factors:

- Definition of the ecosystem services with potential to attract local, national and international tourists;
- Potential mechanisms for taking advantage of ecosystem services;
- Definition of needs for infrastructure and tourism support services (e.g. signs, trails, visitor centres, conservation culture centres, observation towers, lookouts, toilets, car parks), based on assessments of existing infrastructure and funding
- Detailed plans and budgets for bringing facilities up to the standards required.

233. MCPA management plans state that visitors should register on arrival and pay the stipulated fees; however the deficiencies of infrastructure for supervision and control mean that it is difficult to enforce these provisions, or to estimate the amount of income that is lost as a result of failing to enforce them. At the start of the project, detailed studies (beyond the scope of PPG resources) will be carried out of the numbers and types of tourists using each MCPA, and their behaviour, in order to permit a precise definition of where it would be most appropriate to install park guard stations or visitor centres aimed at improving income levels and also control illegal activities.

*b) Standards for sustainable tourism in and around PAs*

234. The project will support the development of region-wide environmental standards for tourism activities and infrastructure in and around PAs. Existing experiences with promoting and regulating good tourism practices, particularly in the Bay Islands (in which local environmental NGOs and PA managers

have been involved) will be systematized and replicated, and standards or regulations will be harmonized between different parts of the zone (with local adaptations as appropriate). This process will involve close cooperation between local Governments, PA managers and co-managers, SERNA, the Ministry of Tourism and the private sector (including local chambers of commerce).

**Output 3.3: Capacity development programs, manuals and procedures for MCPA personnel and stakeholders in support of financial sustainability**

235. The support to be provided by the project to capacities and systems for overall PA management aspects, under Output 2.2, will be complemented by similar capacity development in specific relation to financial sustainability. Training will be provided to PA (co-)managers in financial/business planning and financial management: this will cover aspects such as the calculation of projected financial needs, the identification of financing opportunities and the generation of the proposals required for these to be realized, planning in order to ensure that the resources available are effectively invested in relation to needs and conservation priorities, and management and reporting in accordance with the needs of contributors. This training will be backed up with written manuals which will function as permanent reference materials.

**Output 3.4: Permanent system for economic valuation of PA benefits and channeling of information to decision makers**

236. The awareness of the long-term importance for production sectors of protecting BD and fisheries, expressed by representatives of commercial fishers during the PPG phase, is not reflected among many other key decision-makers in Government, the private sector or civil society. This is evidenced, for example, by the very limited budgetary contribution which is made by central Government to the costs of PA management (see Table 15 and Figure 6), and the fact that DIGEPESCA (which has statutory responsibility for overseeing the fisheries activities which affect PAs) receives only around 1% of the budget assigned to the Ministry of Agriculture and Livestock as a whole.

237. In order to address this situation, the project will finance studies to quantify the economic importance of PAs. These will focus in particular in quantifying the economic costs of maintaining the *status quo* and not taking action to improve the management of PAs, BD and fisheries in general. These calculations will take into account the lost direct revenue from the fisheries and tourism sectors which will result if the current resource degradation trends continue (in the case of fisheries, resource collapse is very imminent); the loss of economic multiplier effects associated with this revenue in local communities; and the costs of compensating social impacts associated with loss of income and employment opportunities in local communities.

238. The project will develop a communication/lobbying strategy in order to ensure that the results of these studies are communicated effectively to decision-makers. This will have specific and measurable goals in terms of the types of decisions which it is intended to influence (for example the introduction of specific regulations, or increases in budgetary allocations to support specific areas of capacity). The Ministry of Finance will be a particularly important target in this regard, in order to achieve increases in budget assignments by central Government to MCPAs.

**Output 3.5: Pilot/demonstration of tourism as an instrument for supporting financial sustainability in PAs**

239. Low visitor numbers to the MCPAs in the project area make it difficult to implement sustainable services and investments. The national tourists (principally students) who visit the areas tend to have limited spending power and therefore little potential as the basis for a viable ecotourism industry. This situation creates a vicious circle: limited demand is a disincentive for the development of facilities, which in turn limits the attractiveness of the MCPAs for visitors. This vicious circle can be broken by creating

quality ecotourism services in and around MCPAs, or clusters of these, with greatest potential. To this end, a pilot of community-based ecotourism as a strategy for supporting PA financial sustainability will be established in one PA (Cuero y Salado), located within the proposed Island-to-Mainland Connectivity Zone. This will build upon and consolidate advances with tourism to date in this PA, involving the local Network for Community-Based Tourism (RECOTUR), and will also take advantage of the relatively good governance conditions there (this PA has some of the highest levels of organization among artisan fishers in the zone), and the existing (underused) infrastructure, including a visitor centre and a light railway by which visitors access the reserve. Cuero y Salado is one of only three PAs in the zone which currently charge entry fees.

240. The pilot will go beyond the development of feasibility studies, plans and mechanisms for channelling sector revenues to PA management, proposed under Output 3.2(a), putting these into practice in a concrete manner in collaboration with local communities and within the framework of local governance structures. To this end, it will work with RECOTUR on developing the capacities of community members to offer visitor services (such as guides, food and accommodation), with the complementary participation, as appropriate, of private operators in aspects including service provision, transport and marketing (subject to negotiated agreements on the distribution of benefits between them and community members). Support will also include planning and organizational development, in order to ensure that the services offered by different actors in and around the reserve complement each other, and that benefits are distributed in an equitable manner. A community-based system will also be developed, with appropriate indicators, for monitoring the environmental and social impacts of tourism, permitting it to be managed in an adaptive manner in accordance with the objectives of the PA and the interests of community members.

#### **Incremental reasoning and expected global, national and local benefits**

241. Under the baseline scenario, coastal and marine ecosystems would continue to be severely underrepresented in the SINAPH, and existing PAs in the zone would be ineffectively managed and under-resourced, with the result that coastal and marine biodiversity would be ineffectively protected from major and growing threats. **Under the GEF alternative**, incremental benefits will be delivered in the form of increases in the proportions of threatened coastal and marine ecosystems and species subject to effective management, taking into account the development needs of the country and of local populations, and the cultural norms of different ethnic groups, and with access to sustainable funding. This will result in major global environmental benefits in terms of the maintenance and improvement of populations of marine fauna in the Honduran portion of the Mesoamerican barrier reef, and reductions in the rates of decline of coral reefs, seagrass beds, mangroves and other key ecosystems. In addition to conservation benefits *per se*, this will yield benefits in terms of social and productive sustainability given the importance of these ecosystems for the health of populations of commercially important species of fish and other marine fauna, on which large numbers of local people depend, either directly or indirectly, for their livelihoods.

242. The contribution of the project to the conservation status of marine and coastal ecosystems such as coral reefs, sea grass beds and mangroves will also generate major socioeconomic benefits, given that these ecosystems are vital as habitat and as spawning and grow-on areas for populations of marine fauna (especially fish) that form the basis of local economies and livelihoods throughout the project area. These benefits will take the form of continued employment opportunities for those involved in commercial fishing activities and in the processing industry; and continued income generation opportunities for artisan fishers who principally operate in coast lagoons and near-shore areas. Any short term limitations on livelihood support activities (such as closed seasons or restrictions on fishing gear), necessary to ensure the effective conservation of species and ecosystems, will be offset by improvements in the

sustainability of these activities in the long term; the integrated fisheries monitoring and management system foreseen by the project will actively involve fisher groups, enabling them to monitor the impacts of their activities and of conservation initiatives on the condition of the resource, and involving them directly in decision-making on its management. The protection of these ecosystems will also generate socioeconomic benefits in terms of increased resilience of livelihoods to the effects of climate change: this is especially well proven in the case of mangroves, which play a vital role in buffering coastal communities and production lands against the impacts of tropical storms and sea level rise. PA management planning will make specific provision for making conservation compatible with the livelihood support activities and cultural norms of local communities, for example through promoting their involvement in small scale ecotourism activities as alternatives or complements to large scale tourism development. Promising experiences have been gained to date in this regard, with support from the GEF Small Grants Programme (managed by UNDP), which has supported the establishment of the award-winning Ruta Moskitia ecotourism programme (<http://www.larutamoskitia.com/>) in communities of the Moskitia region at the easternmost extremity of the project area.

### Key risks and assumptions

Risk	Rating	Risk Mitigation Strategy
Resistance among local populations to PA establishment	Medium/low	Introduction of alternative PA models that satisfy the concerns of local stakeholders (especially ethnic indigenous and autochthonous groups), and promotion their full and real participation by local populations in the development of PA proposals and management strategies. Exploration and promotion of “win-win” strategies allowing the reconciliation of local communities’ development needs and conservation goals (for example through non-extractive and sustainable extractive use of resources)
Poorly developed governance conditions impede application of regulations	Medium/low	Involvement and strengthening of community-based and indigenous organizations as part of PA management strategies, leading to improved governance conditions
Political pressures for large-scale damaging economic development	Medium/low	Support to regional zoning and environmental impact assessment procedures in order to maximize opportunities for avoidance or mitigation of impacts. Development of alliances with the private sector in order to identify and promote opportunities for incorporating sustainability and conservation considerations into development proposals/
Climate change	Medium	Design of PAs and their management strategies in order to anticipate the impacts of climate change, for example the designation of areas into which existing ecosystems can migrate as conditions change.

### Financial modality

243. GEF funds will be provided as a grant to support the development of sustainable capacities among national institutions and local stakeholders.

### Sustainability

244. Component 3 will focus specifically on promoting the financial sustainability of the PAs to be established and strengthened through the project. The actions foreseen will include the development of financial sustainability strategies and the realization of the potential for productive sectors (including tourism, fisheries and agroindustry) to contribute to PA management, in recognition of the environmental

goods and services that they receive from PAs; this will be complemented by the training of PA managers in financial management.

245. Institutional sustainability will also be ensured by promoting effective collaboration between the key institutions involved (including DIBIO, ICF, DIGEPESCA and municipal government) in the planning and management of PAs; and by ensuring that the capacities of these institutions are complemented by the constructive involvement of private sector actors (such as organization of commercial fishers) and local stakeholders (whose involvement will be facilitated through support to effective participation mechanisms and the introduction of alternative models for conservation and management which take into account their needs and priorities).

## PART III. MANAGEMENT ARRANGEMENTS

### Arrangements and responsibilities

246. This 5 year project will be executed by under the National Execution modality, according to the standards and regulations for UNDP cooperation in Honduras. The Implementing Partner (IP) of the project will be SERNA.

#### ***Project Board***

247. The duration of the project would be 5 years. Implementation of the project will be carried out under the general guidance of a Project Board (Steering Committee), specifically formed for this purpose. The composition, responsibilities and rules of operation of the Board will be confirmed during its first meeting. Subject to the decision of this meeting, it is proposed that the Board will be responsible for approving the operational plans and annual reports of the project as well as the terms of reference and appointments of key members of staff, and will be composed of representatives of SERNA (chair), UNDP (secretary), the Ministry of Planning (SECPLAN) the Ministry of Agriculture and Livestock (SAG, to which DIGEPESCA belongs) and the Institute of Forest Conservation and Development (ICF). The Board will meet at least two times per year and in addition could be convened extraordinarily by the Chair, on the request of individual members.

248. The Project Board will be responsible for making executive decisions for the project, in particular when guidance is required by the Project Coordinator. The Project Board will play a critical role in facilitating inter-ministerial coordination, project monitoring and evaluations by quality assuring these processes and products, and using evaluations for performance improvement, accountability and learning. It will ensure that required resources are committed and will arbitrate on any conflicts within the project or negotiate a solution to any problems with external bodies. In addition, it will approve the appointment and responsibilities of the National Project Coordinator and any delegation of its Project Assurance responsibilities. Based on the approved Annual Work Plan, the Project Board will also consider and approve the quarterly plans and will also approve any essential deviations from the original plans.

249. In order to ensure UNDP's ultimate accountability for the project results, Project Board decisions will be made in accordance to standards that shall ensure management for development results, best value for money, fairness, integrity, transparency and effective international competition. In case consensus cannot be reached within the Board, the final decision shall rest with the UNDP.

250. The Board will consist of the following members:

- 1) **The Executive**, who will chair the Board. This role will be filled by the Vice Minister of SERNA or his/her representative.
- 2) A representative of the **Senior Supplier**, who will provide guidance regarding the technical feasibility of the project. This role will be filled by UNDP.
- 3) **Senior Beneficiaries**, who will represent the interests of those who will ultimately benefit from the project and ensure the realization of project results from the perspective of project beneficiaries. The following beneficiaries will be represented on the Project Board:
  - SAG
  - SECPLAN
  - ICF.

### ***Project Director***

251. The project will be under the overall leadership of a National Project Director (NPD), who will be the Director of Biodiversity and will be responsible for orienting and advising the National Project Coordinator on Government policy and priorities. The NPD will also be responsible for maintaining regular communication with the lead institutions in the agriculture and livestock sectors and ensuring that their interests are communicated effectively to the National Project Coordinator.

### ***Project Implementation Unit***

252. Project implementation will be the responsibility in practice of a Project Implementation Unit (PIU), led by a National Project Coordinator (NPC). The NPC will:

- Be the signing authority of requests to UNDP for disbursements of project funds.
- Ensure the logistical, administrative and financial effectiveness of the IP in fulfilling its roles set out above
- To this end, provide monitoring, supervision and guidance to the technical teams based in the project areas (see below)
- Promote incidence in and coordination with the SERNA, SAG and the donor agencies that are supporting them

### ***Responsible parties***

253. The delivery in practice of most of the products of the project will be delegated to two Responsible Parties: the Tropical Agronomic Centre for Research and Teaching (CATIE), and the Marine Ecology Centre (CEM).

**Table 23. Division of tasks between Responsible Parties**

Components/outputs/sub-outputs		Responsibilities
<b>Component 1: Increased coverage of marine and coastal PAs</b>		
<b>1.1 Regional plan for the spatial configuration of the sub-system</b>		CEM team based in La Ceiba and Tegucigalpa
<b>1.2 Reviewed and modified categories for MCPAs</b>		CATIE: specialist in La Ceiba working with DIBIO, ICF and co-managers, in coordination with CEM and supported in Tegucigalpa by the National Project Coordinator in relation to legislative issues
<b>1.3 Establishment of exclusive area for artisan fishing in the Moskitia</b>	a) Formal declaration of the area	CEM team based in La Ceiba and Tegucigalpa
	b) Technical capacities and community-based governance conditions for management by artisan fishers	CEM team based in La Moskitia, 100% co-financed
	c) Monitoring and enforcement mechanisms for illegal commercial fishing in the area	CEM team based in La Ceiba and Tegucigalpa, developing a system to link DIGEPESCA, DIBIO, ICF and the Navy in the application of the existing GPS system in support of the management of the reserve.
<b>1.4 Establishment of island-to-mainland connectivity zone</b>	a) Formal declaration of the area	CEM specialist in La Ceiba working with DIBIO, ICF and co-managers, supported in Tegucigalpa by the National Project Coordinator in relation to legislative issues
	b) Harmonization of planning and management instruments	CATIE specialist in La Ceiba working with DIBIO, ICF and co-managers

Components/outputs/sub-outputs		Responsibilities
1.5 Tela Reef System PA declared by Congressional Decree		CEM team based in La Ceiba and Tegucigalpa.
1.6 Clarified arrangement and capacities among institutional and local actors for resource conservation in PAs and sustainable use areas	a) Clarified institutional roles	National Coordinator, working with DIBIO, DIGEPESCA and ICF
	b) Framework policy instrument for the marine/coastal zone	
Component 2: Improved management effectiveness of marine and coastal PAs in protecting BD against threats		
2.1 Overall strategic management plan for the sub-system of Coastal and Marine PAs		CATIE team based in La Ceiba and Tegucigalpa, working with ICF
2.2 Management instruments and capacities for priority PAs	a) Comprehensive management plans created/revised and implemented for individual PAs and management areas	CATIE specialist working with co-managers, ICF and local communities
	b) Improved guidelines for management plan formulation	
	c) Stakeholder participation plans and mechanisms for PAs	
	d) Monitoring and information management systems for PAs	
	e) Capacity development programmes in support of PA and natural resource management	
	f) Integration of monitoring and management of artisan fisheries into PA management and efficacy assessment	CEM specialist in La Ceiba working with ICF DIGEPESCA and co-managers
2.3 Governance instruments and systems for addressing threats to PAs	a) Community-based governance structures	CATIE specialist in La Ceiba working with ICF and co-managers
	b) Mechanisms and capacities for monitoring industrial fisheries	CEM specialist working with DIGEPESCA and associations of artisan and industrial fishers
	c) Registry and license system for artisanal and recreational fishing in and around MPAs	
	d) Updated and completed regulatory instruments for coastal/marine PA system	
2.4 Strengthened organizational structures and capacities among fishers for governance in support of PA threat reduction		CEM specialist working with DIGEPESCA and organizations of industrial fishers
2.5 Systematization, education and awareness programmes on the value of marine and coastal ecosystems	a) Awareness raising programme	CEM team in Tegucigalpa working with DIBIO, ICF and DIGEPESCA
	b) Systematization programme	CATIE specialist based in La Ceiba
	c) Clearing house for information on marine and coastal ecosystems	CEM specialist basedo in La Ceiba,
Component 3: Financial sustainability of marine and coastal PAs		
3.1 Regional and sub-regional financial sustainability plans for the MCPA sub-system and for individual MCPAs		CATIE specialist based in La Ceiba working with ICF, co-managers, IHT and Chambers of Tourism
3.2 Regional strategy,	a) Feasibility studies, plans and	

Components/outputs/sub-outputs		Responsibilities
<i>principles and mechanisms for sustainable contributions of tourism to PA management</i>	mechanisms for channeling sector revenues to PA management	
	b) Standards for sustainable tourism in and around PAs	
<i>3.3 Capacity development programs, manuals and procedures for MCPA personnel and stakeholders in support of financial sustainability</i>		
<i>3.4 Permanent system for economic valuation of PA benefits and channeling of information to decision makers</i>		
<i>3.5 Pilot/demonstration of tourism as an instrument for supporting financial sustainability in PAs</i>		

254. In addition to these Responsible Parties, which will have specific responsibility for the delivery of the above sub-outputs, the national institutions SERNA/DIBIO, ICF and DIGEPESCA will be integrally involved in the project, in relation to the following elements (in addition to their role in the Project Direction and the Project Board, as explained above):

- **Output 1.1: Regional plan for the spatial configuration of the MCPA sub-system:** a joint task of the three institutions, led by SERNA/DIBIO.
- **Output 1.2: Reviewed and modified categories for MCPAs:** led by SERNA/DIBIO, in collaboration with ICF and co-managers
- **Output 1.3: Establishment of an Exclusive Zone for Artisanal Fishing in the Moskitia:** led by local stakeholders, but principally supported at institutional/political level by SERNA/DIBIO (which is responsible for defining priorities and needs for the establishment of protected areas), and in collaboration with DIGEPESCA (in relation to fisheries regulations and GPS monitoring) and the Navy (in relation to the generation of protocols and capacities for enforcement).
- **Output 1.4: Establishment of Island-to-Mainland Connectivity Zone:** led by SERNA/DIBIO, in collaboration with ICF (in relation to implications for management of constituent PAs), DIGEPESCA (in relation to fisheries regulations) and the Navy (in relation to enforcement).
- **Output 1.5: Clarified arrangements and capacities among institutional and local actors for resource conservation in PAs and sustainable use areas:** to be analysed and negotiated trilaterally between SERNA/DIBIO, ICF and DIGEPESCA, under the lead of SERNA/DIBIO as environment sector head.
- **Output 2.1: Overall strategic management plan for the sub-system of Coastal and Marine PAs.** To be generated through a multi-stakeholder process, led by ICF (which is responsible at national level for PA management planning): SERNA/DIBIO will advise on relations to environmental considerations at policy and strategic level, ICF in relation to specific implications for PA management, and DIGEPESCA on implications for fisheries management; SAG will also be involved in the process in relation to the definition of spatial priorities and regulations for agricultural development initiatives with potential to generate impacts on the project area.
- **Output 2.2: Management instruments and capacities for priority PAs.** ICF will lead and coordinate the process of management planning and capacity development, in collaboration with co-managers and with full participation of local stakeholders; DIGEPESCA will lead on the analysis and incorporation of issues related to fisheries management..

- **Output 2.3: Governance instruments and systems for addressing threats to PAs:** ICF will lead and coordinate the process, in collaboration with co-managers and with participation of local stakeholders; DIGEPESCA will lead on aspects specifically related to fisheries governance.
- **Output 2.4: Strengthened organizational structures and capacities among fishers for governance in support of PA threat reduction:** ICF will lead and coordinate the process, in collaboration with co-managers and with participation of local stakeholders; DIGEPESCA will advise on aspects with implications for fisheries regulations.
- **Output 2.5: Systematization, education and awareness programmes on the value of marine and coastal ecosystems:** SERNA/DIBIO, as environment sector head, will coordinate these programmes and ensure consistency of message and branding.
- **Output 3.1: Regional and sub-regional financial sustainability plans for the MCPA sub-system and for individual MCPAs.** ICF will coordinate and supervise the development of the plans, in collaboration with co-managers.
- **Output 3.2: Regional strategy, principles and mechanisms for sustainable contributions of tourism to PA management.** To be coordinated and supervised by ICF in close collaboration with the Ministry of Tourism and co-managers.
- **Output 3.3: Capacity development programs, manuals and procedures for MCPA personnel and stakeholders in support of financial sustainability.** To be coordinated and supervised by ICF, in collaboration with co-managers.
- **Output 3.4: Permanent system for economic valuation of PA benefits and channeling of information to decision makers.** To be led by SERNA/DIBIO as environment sector head.
- **Output 3.5: Pilot/demonstration of tourism as an instrument for supporting financial sustainability in PAs.** To be coordinated and supervised by ICF, in close collaboration with co-managers and the Ministry of Tourism.

### UNDP Support Services

255. The Government of Honduras shall request UNDP to provide direct project services specific to project inputs according to its policies and convenience. These services –and the costs of such services– will be specified in a Letter of Agreement. In accordance with GEF Council requirements, the costs of these services will be part of the executing entity’s Project Management Cost allocation identified in the project budget. UNDP and the Government of Honduras acknowledge and agree that these services are not mandatory and will only be provided in full accordance with UNDP policies on recovery of direct costs. UNDP will provide Project Assurance, supporting the Project Board Executive by carrying out objective and independent project oversight and monitoring functions.

### Collaborative arrangements with related projects

256. GEF project 1032 “Sustainable Management of the Shared Marine Resources of the Caribbean Large Marine Ecosystem (CLME) and Adjacent Regions” will come to completion around the time that the implementation phase of this project is due to start. The design of the current project will play close attention to the results of project 1032: in particular, it will take advantage of the shared knowledge base established through project 1032, and it will incorporate as far as possible the institutional and procedural approach to LME level monitoring, evaluation and reporting for management decision-making developed through that project. Project 1032 has supported the development, between 2009 and 2011, of Transboundary Diagnostic Analyses (<http://www.clmeproject.org/clmetdas2.html>), at regional level

(covering 26 countries and ten dependent territories, including the Northern Brazil Continental Shelf). These served as guidance for the development in 2012 of a Programme of Strategic Actions (PAE) for the expanded Caribbean Large Marine Ecosystem (CLME+) region. The PAE is currently in the process of being endorsed by the different participating countries of the region: in the case of Honduras, it has been endorsed by the Ministries of Agriculture and Livestock, and Natural Resources and the Environment. Given the magnitude of the region and the diversity of issues covered, the PAE is necessarily generic in nature: the next stage that is necessary will be the translation of the PAE into concrete actions at the level of each country. The present project will contribute to the implementation of Action 4.4 of the PAE in Honduras, namely “improvement and coordination of national and sub-regional efforts for conservation of the biodiversity of reefs and associated habitats, including the strengthening of networks of marine protected areas (MPAs), marine resource management areas and initiatives for fishing and sustainable fishing practices, such as programmes to address the issue of invasive alien species.”

257. The project will coordinate with, and build on the actions taken by, GEF projects 3729 (Building a Sustainable National Marine Protected Area Network in the Bahamas), and 3813 (Mitigating the Threats of Invasive Alien Species in the Insular Caribbean (Bahamas, Dominican Republic, Jamaica, Saint Lucia, Trinidad and Tobago) in relation to lionfish control, following STAP advice<sup>28</sup>. on lionfish control options in the Caribbean in relation. Specifically, it will participate in the regional reporting system that was recommended by STAP for the presence and absence of lionfish in Caribbean GEF projects; and apply the lessons learnt in the pilots/demonstrations recommended by STAP, and the information on the effectiveness of control measures generated through the studies recommended by STAP.

258. The project will complement the actions of GEF project 2885 “Meso-American Barrier Reef System II”, with which it will coincide. Project 2885 has more of a focus on ecosystem management and environmental mainstreaming into productive sectors, which will be complemented by the focus of this project on protected areas. This project will take advantage, where possible, of the policy and governance frameworks to be strengthened by project 2885, such as the barrier reef committees and stakeholder participation structures. Of particular value will be the major proposed investment of project 2885 in monitoring and evaluation, which will be of direct utility to the present project. Coordination mechanisms will take advantage of the large number of institutional actors that the two projects will have in common, including environmental and fisheries sector ministries and national and international conservation NGOs.

259. The project will learn lessons from IADB's long-running projects in the Bay Islands, including the GEF-IADB Full-Sized Project (number 1515) approved in 2003/2004. (the conservation and management of which will be of direct benefit to fisheries resources in the Bay Islands); it is foreseen that investments in the Bay Islands will be relatively limited, given the scale of investments there to date, and will focus on incremental issues not originally foreseen in the GEF-IADB project. This project will help to ensure that the management of the Bay Islands MCPAs incorporates regional-level socioeconomic and biophysical considerations, through the development of a strategic management plan for the marine and coastal zone as a whole, and the establishment of the Island-to-Mainland Connectivity/Expanded Buffer Zone (Project 1515 proposed a network of PAs but only at the level of the Bay Island themselves, without considerations of biological connectivity between the mainland and the islands); and it will support the introduction of a fully integrated approach (as described in response to Comment 14 above) into the fisheries monitoring and management systems established by Project 1515. Lessons learnt from the GEF-IADB initiatives, which will be taken into account in the present project, include i) how to navigate

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[http://www.thegef.org/gef/sites/thegef.org/files/repository/Caribbean\\_lionfish%20control\\_GEF\\_3729\\_and\\_3813\\_STAP\\_comments\\_June2009.pdf](http://www.thegef.org/gef/sites/thegef.org/files/repository/Caribbean_lionfish%20control_GEF_3729_and_3813_STAP_comments_June2009.pdf)

efficiently the institutional and administrative pathways for achieving MCPA delimitation and ii) the importance of incorporating fisheries communities and fisheries management issues from the outset in PA planning processes.

260. The project team will collaborate with the team of the Guatemala MPA project (GEF ID 4639) in training and capacity building, data collection, and lessons learned, specifically in relation to monitoring and addressing threats posed to MPA effectiveness from land-based sources of pollution and sedimentation.

#### **Prior obligations and Prerequisites**

N/A

#### **Audit arrangements**

261. The Government will provide the Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the established procedures set out in the Programming and Finance manuals. UNDP will be responsible for making audit arrangements for the project in communication with the Project Implementing Partner.

262. The project will be audited in accordance with the UNDP Financial Regulations and Rules and applicable audit policies. UNDP and the project Implementing Partner will provide audit management responses and the Project Manager and project support team will address audit recommendations.

263. As a part of its oversight function, UNDP will conduct audit spot checks at least two times a year.

#### **Agreement on intellectual property rights and use of logo on the project's deliverables**

264. In order to accord proper acknowledgement to GEF for providing funding, a GEF logo should appear on all relevant GEF project publications, including among others, project hardware and vehicles purchased with GEF funds. Any citation on publications regarding projects funded by GEF should also accord proper acknowledgment to GEF.

## **PART IV. MONITORING FRAMEWORK AND EVALUATION**

265. The project will be monitored through the following M&E activities. The M&E budget is provided in the table below.

### **Project start:**

266. A Project Inception Workshop will be held within the first 2 months of project start with those with assigned roles in the project organization structure, UNDP country office and where appropriate/feasible regional technical policy and programme advisors as well as other stakeholders. The Inception Workshop is crucial to building ownership for the project results and to plan the first year annual work plan.

267. The Inception Workshop should address a number of key issues including:

- a) Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of UNDP CO and RCU staff vis à vis the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff will be discussed again as needed.
- b) Based on the project results framework and the relevant GEF Tracking Tool if appropriate, finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.
- c) Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed and scheduled.
- d) Discuss financial reporting procedures and obligations, and arrangements for annual audit.
- e) Plan and schedule Project Board meetings. Roles and responsibilities of all project organisation structures should be clarified and meetings planned. The first Project Board meeting should be held within the first 12 months following the inception workshop.

268. An Inception Workshop report is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

### **Quarterly:**

- Progress made shall be monitored in the UNDP Enhanced Results Based Management Platform.
- Based on the initial risk analysis submitted, the risk log shall be regularly updated in Atlas. Risks become critical when the impact and probability are high. Note that for UNDP GEF projects, all financial risks associated with financial instruments such as revolving funds, microfinance schemes, or capitalization of ESCOs are automatically classified as critical on the basis of their innovative nature (high impact and uncertainty due to no previous experience justifies classification as critical).
- Based on the information recorded in Atlas, a Project Progress Reports (PPR) can be generated in the Executive Snapshot.
- Other Atlas logs can be used to monitor issues, lessons learned etc... The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

### **Annually:**

- Annual Project Review/Project Implementation Reports (APR/PIR): This key report is prepared by the Project Coordinator to monitor progress made since project start and in particular for the previous

reporting period (30 June to 1 July). The APR/PIR combines both UNDP and GEF reporting requirements.

269. The APR/PIR includes, but is not limited to, reporting on the following:

- Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative)
- Project outputs delivered per project outcome (annual).
- Lesson learned/good practice.
- AWP and other expenditure reports
- Risk and adaptive management
- ATLAS QPR
- Portfolio level indicators (i.e. GEF focal area tracking tools) are used by most focal areas on an annual basis as well.

**Periodic Monitoring through site visits:**

270. UNDP CO and the UNDP RCU will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Other members of the Project Board may also join these visits. A Field Visit Report/BTOR will be prepared by the CO and UNDP RCU and will be circulated no less than one month after the visit to the project team and Project Board members.

**Mid-term of project cycle:**

271. The project will undergo an independent Mid-Term Evaluation at the mid-point of project implementation (insert date). The Mid-Term Evaluation will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the [UNDP Evaluation Office Evaluation Resource Center \(ERC\)](#).

272. The relevant GEF Focal Area Tracking Tools will also be completed during the mid-term evaluation cycle.

**End of Project:**

273. An independent Final Evaluation will take place three months prior to the final Project Board meeting and will be undertaken in accordance with UNDP and GEF guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

274. The Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded to PIMS and to the [UNDP Evaluation Office Evaluation Resource Center \(ERC\)](#).

275. The relevant GEF Focal Area Tracking Tools will also be completed during the final evaluation.

276. During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

### **Learning and knowledge sharing:**

277. Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums.

278. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects.

279. Finally, there will be a two-way flow of information between this project and other projects of a similar focus.

### **M& E workplan and budget**

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team staff time</i>	Time frame
Inception Workshop and Report	<ul style="list-style-type: none"> <li>Project Manager</li> <li>UNDP CO, UNDP GEF</li> </ul>	Indicative cost: 10,000	Within first two months of project start up
Measurement of Means of Verification of project results.	<ul style="list-style-type: none"> <li>UNDP GEF RTA/Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members.</li> </ul>	To be finalized in Inception Phase and Workshop.	Start, mid and end of project (during evaluation cycle) and annually when required.
Measurement of Means of Verification for Project Progress on <i>output and implementation</i>	<ul style="list-style-type: none"> <li>Oversight by Project Manager</li> <li>Project team</li> </ul>	To be determined as part of the Annual Work Plan's preparation.	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	<ul style="list-style-type: none"> <li>Project manager and team</li> <li>UNDP CO</li> <li>UNDP RTA</li> <li>UNDP EEG</li> </ul>	None	Annually
Periodic status/ progress reports	<ul style="list-style-type: none"> <li>Project manager and team</li> </ul>	None	Quarterly
Mid-term Evaluation	<ul style="list-style-type: none"> <li>Project manager and team</li> <li>UNDP CO</li> <li>UNDP RCU</li> <li>External Consultants (i.e. evaluation team)</li> </ul>	Indicative cost: 18,025 (15,000 fees + 3,025 for travel costs)	At the mid-point of project implementation.
Final Evaluation	<ul style="list-style-type: none"> <li>Project manager and team,</li> <li>UNDP CO</li> <li>UNDP RCU</li> <li>External Consultants (i.e. evaluation team)</li> </ul>	Indicative cost : 18,025 (15,000 fees + 3,025 for travel costs)	At least three months before the end of project implementation
Project Terminal Report	<ul style="list-style-type: none"> <li>Project manager and team</li> <li>UNDP CO</li> <li>local consultant</li> </ul>	0	At least three months before the end of the project
Audit	<ul style="list-style-type: none"> <li>UNDP CO</li> <li>Project manager and team</li> </ul>	Indicative cost per year: 3,000 (total \$15,000)	Yearly

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team staff time</i>	Time frame
Visits to field sites	<ul style="list-style-type: none"> <li>▪ UNDP CO</li> <li>▪ UNDP RCU (as appropriate)</li> <li>▪ Government representatives</li> </ul>	For GEF supported projects, paid from IA fees and operational budget	Yearly
<b>TOTAL indicative COST</b> Excluding project team staff time and UNDP staff and travel expenses		US\$ 61,050.00	

## **PART V. LEGAL CONTEXT**

280. This document together with the Country Programme Action Plan (CPAP) signed by the Government and UNDP which is incorporated by reference constitute together a Project Document as referred to in the Standard Basic Assistance Agreement (SBAA) [or other appropriate governing agreement] and all CPAP provisions apply to this document.

281. Consistent with the Article III of the SBAA, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP's property in the implementing partner's custody, rests with the implementing partner.

282. The implementing partner shall:

- a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
- b) assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

283. UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

284. The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via <http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm>. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

## STRATEGIC RESULTS FRAMEWORK AND GEF INCREMENT

<b>Contribution to achieving the following Country Programme Outcome as defined in CPAP or CPD:</b> Effect 3.2: The Government of Honduras, the communities in the areas of intervention adopt good practices of ecosystem management, solid waste management and climate change mitigation and the preservation of natural capital, the reduction of economic losses and the generation of income opportunities for vulnerable sectors of society
<b>Outcome Indicators:</b> 3.2.1: Good practices implemented for natural resource management, and generation and use of renewable energy by local and regional authorities in the area of influence of the United Nations System, which generate benefits and empowerment for communities and to climatic phenomena.
<b>Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one):</b> Strengthened national management of the environment while ensuring adequate protection of the poor.
<b>Strategic Objective and Program:</b> BD1: Improve Sustainability of Protected Area Systems
<b>Expected Outcomes:</b> GEF Outcome 1.1: Improved management effectiveness of existing and new protected areas.
<b>Key Indicators:</b> 1.1: Protected area management effectiveness score as recorded by Management Effectiveness Tracking Tool.

Indicator	Baseline		Targets End of Project		Source of verification	Risks and Assumptions
Increase in number of sites in 7 target PAs with Simplified Integrated Reef Health Index of >2.6	<b>PA</b>	<b>Sites</b>	<b>PA</b>	<b>Sites</b>	Reef surveys	Climate change  Political pressures for large-scale damaging economic development
	Cayos Cochinos	1 out of 7	Cayos Cochinos	7 out of 7		
	Jeannette Kawa	0/3	Jeannette Kawa	3 out of 3		
	Cuyamel Omoa	Tbd	Cuyamel Omoa	Tbd		
	Bay Islands	1 out of 58	Bay Islands	58 out of 58		
	Punta Izopo	Tbd	Punta Izopo	Tbd		
	Miskito Cays	Tbd	Miskito Cays	Tbd		
	Tela Bay	Tbd		Tbd		
Coverage and connectivity of mangrove forests in 5 target PAs (Jeannette Kawa, Cuyamel Omoa, Cuero y Salado, Bay Islands, Punta Izopo)	Jeannette Kawa NP: - Area = 1,741.6ha - Landscape Similarity Index = 7.3 (core), 0.3 (buffer) - Fractal Dimension Index = 1.134 (core) 1.168 (buffer) Baseline values for the other 4 PAs to be determined at project start.		No reduction in areas or index values in any of the 5 sites		Satellite imagery	

	<p>Maintenance of status of key species in 7 target areas (see table below for indicators/site):</p> <ul style="list-style-type: none"> <li>- Manatee (annual presence young individuals)</li> <li>- Marine birds (%sites with breeding)</li> <li>- Benthic assemblage (% coral cover and % algal cover)</li> <li>- Biomass of commercial species (groupers and snappers)</li> <li>- Biomass of herbivorous fish species (parrotfish and surgeon fish)</li> <li>- Spawning aggregation sites (breeding in known sites)</li> </ul>	See table below for values per site	Current values are maintained (see table below)	Direct observation and reef surveys	
	<p>Artisanal fisheries as indicator of marine biodiversity</p> <ul style="list-style-type: none"> <li>- Catch diversity,</li> <li>- Catch per unit effort</li> <li>- Mean Trophic Index of catch</li> <li>- Average size of landed fisheries</li> <li>- Genetic Diversity of key commercial and ecologically important species</li> </ul>	<p>Identity of indicator fisheries species</p> <p>Baseline levels of catches of indicator fisheries species</p>	Remain stable	Catch monitoring	

1. Increased coverage of marine and coastal PAs	Area legally declared as being under protection to promote biological, productive and social sustainability of marine and coastal resources	7 PAs with decrees, or (in the case of Tela Bay) to be decreed by project start, covering <b>875,141ha</b> : <table><tr><td>PA</td><td>Area (ha)</td></tr><tr><td>Cayos Cochinos</td><td>114,925</td></tr><tr><td>Punta Izopo</td><td>18,500</td></tr><tr><td>Jeannette Kawas</td><td>78,146</td></tr><tr><td>Port Royal (part of Bay Islands MNP)</td><td>500</td></tr><tr><td>Bay Islands MNP</td><td>649,730</td></tr><tr><td>Cuero y Salado</td><td>13,027</td></tr><tr><td>Turtle Harbour</td><td>813</td></tr></table>	PA	Area (ha)	Cayos Cochinos	114,925	Punta Izopo	18,500	Jeannette Kawas	78,146	Port Royal (part of Bay Islands MNP)	500	Bay Islands MNP	649,730	Cuero y Salado	13,027	Turtle Harbour	813	1,860,000ha of additional area under effective protection under alternative PA models: - <b>Island-to-Mainland Connectivity/Expanded Buffer Zone</b> linking Utila, Cuero y Salado Wildlife Refuge, Punta Izopo NP, Blanca Janeth Kawas Fernández NP and Cuyamel Omoa NP, declared by executive or legislative decree, increasing the effectiveness and effective size of these PAs, covering approximately 300,000ha (in addition to the area of the PAs themselves) - <b>Exclusive Zone for Artisan Fishing</b> covering around the Miskito Cays declared by executive or legislative decree: 1,450,000ha - <b>Tela Reef System PA</b> declared by Congressional Decree, covering 110,000ha	Decrees	Resistance among local populations to PA establishment
PA	Area (ha)																				
Cayos Cochinos	114,925																				
Punta Izopo	18,500																				
Jeannette Kawas	78,146																				
Port Royal (part of Bay Islands MNP)	500																				
Bay Islands MNP	649,730																				
Cuero y Salado	13,027																				
Turtle Harbour	813																				
1.1 Regional plan for the spatial configuration of the sub-system of Marine and Coastal Protected Areas 1.2 Reviewed and modified categories for MCPAs 1.3 Establishment of exclusive area for artisan fishing in the Moskitia 1.4 Establishment of island-to-mainland connectivity zone 1.5 Tela Reef System PA declared by Congressional Decree 1.6 Clarified arrangement and capacities among institutional and local actors for resource conservation in PAs and sustainable use areas																					
2. Improved management effectiveness of marine and coastal PAs in protecting BD against threats	Increase in the average management effectiveness rating of 7 PAs (including improvements in infrastructure and enforcement), measured through the GEF Management Effectiveness Tracking Tool (METT)	Baseline METT scores for existing PAs: <table><tr><td>Cayos Cochinos</td><td>73</td></tr><tr><td>Cuero y Salado</td><td>66</td></tr><tr><td>Jeannette Kawas</td><td>58</td></tr><tr><td>Cuyamel Omoa</td><td>37</td></tr><tr><td>Punta Izopo</td><td>62</td></tr><tr><td>Turtle Harbour-Rock Harbour (Utila)</td><td>51</td></tr><tr><td>Tela Bay</td><td>TBD</td></tr></table>	Cayos Cochinos	73	Cuero y Salado	66	Jeannette Kawas	58	Cuyamel Omoa	37	Punta Izopo	62	Turtle Harbour-Rock Harbour (Utila)	51	Tela Bay	TBD	10% increase over baseline	METT surveys	Poorly developed governance conditions impede application of regulations		
Cayos Cochinos	73																				
Cuero y Salado	66																				
Jeannette Kawas	58																				
Cuyamel Omoa	37																				
Punta Izopo	62																				
Turtle Harbour-Rock Harbour (Utila)	51																				
Tela Bay	TBD																				

	Increase in the management effectiveness of the existing 3-mile exclusive zone for artisan fishing (covering 2,600km <sup>2</sup> , without counting the area of overlap with the Island-to-Mainland Connectivity Zone)	7% of commercial shrimp fishing effort currently occurs within the 3 mile zone	3% of commercial shrimp fishing effort occurs within the 3 mile zone (a reduction of 60%)	GPS monitoring of industrial fleet					
	Numbers of fishers belonging to groups committed to responsible fishing (as defined by the FAO responsible fishing standard of 1995 and the forthcoming DIGEPESCA standard)	0	100 in Cuero y Salado 100 in Jeannette Kawas 100 in Cuyamel Omoa 100 in Río Plátano	Surveys of fishers					
2.1 Overall strategic management plan for the sub-system of MCPAs									
2.2 Management instruments and capacities for priority PAs									
2.3 Governance instruments and systems for addressing threats to priority PAs from industrial fisheries									
2.4 Strengthened organizational structures and capacities among stakeholders for governance in support of PA threat reduction									
2.5 Systematization, education and awareness programmes on the value of marine and coastal ecosystems									
3. Financial sustainability of marine and coastal PAs	Increases in sustainable income sources (visitor fees and Government budget) for 6 PAs	2011: Visitor fees: \$92,743 Government recurrent budget: \$442,033		Visitor fees: \$120,566 (30% increase) Government recurrent budget: \$450,874	Data from co-managers	Global or national economic downturn			
	Increase in Financial Sustainability Scorecard rating for selected MCPAs		Element	Score		Element	Score	Interviews with co-managers	Limited political commitment to funding PAs
		1	3/6		1	5/6			
		2	8/9		2	9/9			
		3	2/9		3	4/9			Reluctance in
		4	7/12		4	10/12			productive sectors
		5	6/18		5	12/18			to contribute to
		6	1/6		6	4/6			covering PA costs
		7	1/12		7	4/12			
		8	0/3		8	2/3			
		9	1/24		9	4/24			
	Total	29/99		Total	54/99				
3.1 Regional and sub-regional financial sustainability plans for the MCPA sub-system and for individual MCPAs									
3.2 Regional strategy, principles and mechanisms for sustainable contributions of tourism to PA management									
3.3 Capacity development programmes, manuals and procedures for MCPA personnel and stakeholders in support of financial sustainability									
3.4 Permanent system for economic valuation of PA benefits and channeling of information to decision makers									
3.5 Pilot demonstration of tourism as an instrument for supporting financial sustainability in PAs									

### Baseline values of biological indicators

Indicator	Protected area						
	Cayos Cochinos	Cuero y Salado	Jeannette Kawas	Cuyamel Omoa	Bay Islands	Punta Izopo	Miskito Cays
Manatee ( <i>Trichechus manatus</i> ): Annual presence young individuals		≥ 4	≥ 2	≥ 2			

Colonial marine birds: % of sites verified with annual breeding							
Sooty Tern	<i>Onychoprion fuscatus</i>						
Royal Tern	<i>Thalasseus maximus</i>						
Black Noddy	<i>Anous minutus</i>						
Brown Noddy	<i>Anous stolidus</i>						
Brown Booby	<i>Sula leucogaster</i>						
Masked Booby	<i>Sula dactylatra</i>						
Western Sandpiper	<i>Calidris mauri</i>						
Brown Pelican	<i>Pelecanus occidentalis</i>						
Magnificent Frigatebird	<i>Fregata magnificens</i>						
Laughing Gull	<i>Leucophaeus atricilla</i>						
Benthic assemblage (% coral cover and % algal cover)	Baseline from HRI 2012	Baseline from HRI 2012			Baseline from HRI	Baseline from HRI	Baseline from HRI
Biomass of commercial species (groupers and snappers)	Above 840g per 100m <sup>2</sup>	Above 840g per 100m <sup>2</sup>			Above 840g per 100m <sup>2</sup>	Above 840g per 100m <sup>2</sup>	Above 840g per 100m <sup>2</sup>
Biomass of herbivorous fish species (parrotfish and surgeon fish)	Above 1920g per 100m <sup>2</sup>	Above 1920g per 100m <sup>2</sup>			Above 1920g per 100m <sup>2</sup>	Above 1920g per 100m <sup>2</sup>	Above 1920g per 100m <sup>2</sup>
Algal cover: % cover of fleshy macroalgae	Baseline from HRI 2012	Baseline from HRI 2012			Baseline from HRI 2012	Baseline from HRI 2012	Baseline from HRI 2012
SPAGs: verification of breeding event in 100% of known sites.	100%	100%	100%		100%	100%	

### Artisanal fisheries indicators as metric for marine biodiversity

Indicator	Protected area						
	Cayos Cochinos	Cuero y Salado	Jeannette Kawas	Cuyamel Omoa	Bay Islands	Punta Izopo	Miskito Cays
Mean Trophic Index calculated from each fishery	Maintained at baseline to be established at beginning of project						
Catch per unit effort							
Average size of landed fish							
Catch diversity							
Genetic diversity of lobster, conch, yellowtail snapper and stoplight parrotfish							

### SECTION III: TOTAL BUDGET AND WORKPLAN

GEF Outcome/ Atlas Activity	Responsible party	Source of funds	ERP/ATLAS Budget Description/ Input	Atlas Code	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Note
					US\$	US\$	US\$	US\$	US\$	US\$	
1		GEF	International Consultants	71200	1,250	1,250	1,250	1,250	1,250	6,250	1
			Contractual Services - Individual	71400	51,685	51,685	51,685	51,685	51,685	258,425	2
			Travel	71600	24,910	17,350	7,600	1,100	1,100	52,060	3
			Contractual services - companies	72100	235,727	113,939	85,589	71,868	51,634	558,757	4
			Equipment and Furniture	72200	23,400	2,000	2,000	4,000	-	31,400	5
			Materials and Goods	72300	16,500	11,500	6,500	1,000	-	35,500	6
			Supplies	72500	1,640	-	-	-	-	1,640	7
			Rental & Maintenance-Premises	73100	3,600	3,600	3,600	3,600	3,600	18,000	8
			Audio Visual&Print Prod Costs	74200	7,000	-	-	-	-	7,000	9
			Miscellaneous Expenses	74500	1,200	1,200	1,200	1,200	1,200	6,000	10
			Training	75700	23,400	23,400	23,400	23,400	23,400	117,000	11
			<b>GEF Subtotal Outcome 1</b>		<b>390,312</b>	<b>225,924</b>	<b>182,824</b>	<b>159,103</b>	<b>133,869</b>	<b>1,092,032</b>	
2		GEF	International Consultants	71200	1,250	1,250	1,250	1,250	1,250	6,250	12
			Contractual Services - Individ	71400	28,520	28,520	28,520	28,520	28,520	142,600	13
			Travel	71600	32,324	34,776	27,389	14,341	7,265	116,095	14
			Contractual services - companies	72100	159,701	203,602	186,813	143,567	64,374	758,057	15
			Equipment and Furniture	72200	19,300	2,000	2,000	4,000	0	27,300	16
			Materials and Goods	72300	16,500	11,500	6,500	1,000	0	35,500	17
			Supplies	72500	2,160	1,415	1,775	995	535	6,880	18
			Rental & Maintenance-Premises	73100	3,600	3,600	3,600	3,600	3,600	18,000	19
			Audio Visual&Print Prod Costs	74200	0	11,000	7,500	5,000	0	23,500	20
			Miscellaneous Expenses	74500	1,200	1,200	1,200	1,200	1,200	6,000	21

		Training	75700	31,400	53,733	53,733	50,733	43,400	232,999	22
		GEF Subtotal Outcome 2		295,955	352,596	320,280	254,206	150,144	1,373,181	
		Contractual Services - Individ	71400	6,760	6,760	6,760	6,760	6,760	33,800	23
		Travel	71600	1,080	7,560	8,235	4,320	4,995	26,190	24
		Contractual services - companies	72100	42,879	73,287	73,354	49,113	43,203	281,836	25
		Supplies	72500	1,020	1,020	1,020	1,020	1,020	5,100	26
		Audio Visual&Print Prod Costs	74200	0	0	0	10,000	10,000	20,000	27
		Training	75700	0	19,000	19,000	19,000	3,000	60,000	28
		GEF Subtotal Outcome 3		51,739	107,627	108,369	90,213	68,978	426,926	
PM	UNDP	International Consultants	71200			15,000		15,000	30,000	29
		Contractual Services - Individ	71400	19,335	19,335	6,835	6,835	6,835	59,175	30
		Travel	71600			3,025		3,025	6,050	31
		Contractual services - companies	72100	3,000		8,000		8,000	19,000	32
		Professional Services	74100	3,000	3,000	3,000	3,000	3,000	15,000	33
		Direct Project Costs	74599	3,000	3,000	3,000	3,000	3,000	15,000	34
		GEF subtotal project management		28,335	25,335	38,860	12,835	38,860	144,225	
		TRAC	Contractual Services - Individ	71400	8,000	8,000	8,000	8,000	40,000	
			Travel	71600	1,500	1,500	1,500	1,500	7,500	
			Miscellaneous	74500	500	500	500	500	2,500	
		TRAC sub-total project management		10,000	10,000	10,000	10,000	10,000	50,000	
		Total project management		38,335	35,335	48,860	22,835	48,860	194,225	
	Totals by financing source	GEF		766,341	711,482	650,333	516,357	391,851	3,036,364	
		TRAC		10,000	10,000	10,000	10,000	10,000	50,000	
<b>Totals</b>				776,341	721,482	660,333	526,357	401,851	3,086,364	

### Budget by category

		Year 1	Year 2	Year 3	Year 4	Year 5	Total
International Consultants	71200	2,500	2,500	17,500	2,500	17,500	42,500

Contractual Services - Individual	71400	106,300	106,300	93,800	93,800	93,800	494,000
Travel	71600	58,314	59,686	46,249	19,761	16,385	200,395
Contractual services - companies	72100	441,307	390,828	353,756	264,548	167,211	1,617,650
Equipment and Furniture	72200	42,700	4,000	4,000	8,000	0	58,700
Materials and Goods	72300	33,000	23,000	13,000	2,000	0	71,000
Supplies	72500	4,820	2,435	2,795	2,015	1,555	13,620
Rental & Maintenance- Premises	73100	7,200	7,200	7,200	7,200	7,200	36,000
Professional Services	74100	3,000	3,000	3,000	3,000	3,000	15,000
Audio Visual&Print Prod Costs	74200	7,000	11,000	7,500	15,000	10,000	50,500
Miscellaneous Expenses	74500	2,400	2,400	2,400	2,400	2,400	12,000
Direct Project Costs	74599	3,000	3,000	3,000	3,000	3,000	15,000
Training	75700	54,800	96,133	96,133	93,133	69,800	409,999

### Budget notes

#	Budget code	Amount (\$)	Explanation
<b>Component 1</b>			
1	International Consultants	71200	6,250
2	Contractual Services - Individual	71400	258,425
3	Travel	71600	52,060
4	Contractual services - companies	72100	558,757
5	Equipment and Furniture	72200	31,400
6	Materials and Goods	72300	35,500
7	Supplies	72500	1,640

8	Rental & Maintenance-Premises	73100	18,000	Partial costs of rental of office space in Tegucigalpa
9	Audio Visual&Print Prod Costs	74200	7,000	Publications for dissemination and awareness raising
10	Miscellaneous Expenses	74500	6,000	Vehicle insurance
11	Training	75700	117,000	Participatory workshops for developing capacities on PA design and planning among widely dispersed stakeholders
<b>Component 2</b>				
12	International Consultants	71200	6,250	International specialists on PA, biodiversity and fisheries management, to provide technical oversight and advice to national staff
13	Contractual Services - Indiv	71400	142,600	Prorata salary costs of National Project Coordinator, Administrative Assistant and Secretary
14	Travel	71600	116,095	Prorata national travel costs of NPC, and national and international travel costs of national staff and consultants contracted by CEM/Smithsonian and CATIE
15	Contractual services - companies	72100	758,057	Contracts for the delivery of the following products: - CEM/Smithsonian: Outputs 2.2f, 2.3b-d, 2.4, 2.5 a and c - CATIE: Outputs 2.1, 2.2a-e, 2.3a and 2.5b
16	Equipment and Furniture	72200	27,300	- Prorata costs of computers, printer and photocopier for National Project Coordinator (NPC), Legal, Policy and Institutional Specialist, Administrative Assistant and Secretary - Computers, digital mapping equipment and field equipment for CEM/Smithsonian and CATIE
17	Materials and Goods	72300	35,500	Satellite images and laboratory costs for mapping and sampling work in support of Outputs 2.2f, 2.3b-d, 2.4, 2.5 a and c
18	Supplies	72500	6,880	Fuel and maintenance for vehicles and boats used in support of project activities
19	Rental & Maintenance-Premises	73100	18,000	Partial costs of rental of office space in Tegucigalpa
20	Audio Visual&Print Prod Costs	74200	23,500	Publications for dissemination and awareness raising
21	Miscellaneous Expenses	74500	6,000	Vehicle insurance
22	Training	75700	232,999	Participatory workshops for developing capacities on PA, BD and fisheries management among widely dispersed stakeholders
<b>Component 3</b>				
23	Contractual Services - Indiv	71400	33,800	Prorata salary costs of National Project Coordinator, Administrative Assistant and Secretary
24	Travel	71600	26,190	Prorata national travel costs of NPC, and national and international travel costs of national staff and consultants contracted by CATIE
25	Contractual services - companies	72100	281,836	- Contract with CATIE for the delivery of Outputs 3.1-3.5
26	Supplies	72500	5,100	Fuel and maintenance for vehicles and boats used in support of project activities

27	Audio Visual&Print Prod Costs	74200	20,000	Publications for dissemination and awareness raising
28	Training	75700	60,000	Training courses, workshopsand training specialist costs fordeveloping capacities on financial sustainability
<b>Component 4</b>				
29	International Consultants	71200	30,000	Honoraria for external consultants for mid-term and final evaluations
30	Contractual Services - Individ	71400	59,175	Prorata salary costs of National Project Coordinator, Administrative Assistant and Secretary
31	Travel	71600	6,050	Travel costs of external consultants for mid-term and final evaluations
32	Contractual services - companies	72100	19,000	Inception, mid-term and closure workshops
33	Professional Services	74100	15,000	External financial audits
34	Direct Project Costs	74599	15,000	Direct Project Services: Estimated UNDP Direct Project Service/Cost recovery charges to UNDP for executing services. In accordance with GEF Council requirements, the costs of these services will be part of the executing entity's Project Management Cost allocation identified in the project budget. DPS costs would be charged at the end of each year based on the UNDP Universal Price List (UPL) or the actual corresponding service cost. The amounts here are estimations based on the services indicated, however as part of annual project operational planning the DPS to be requested during the calendar year would be defined and the amount included in the yearly project management budgets and would be charged based on actual services provided at the end of that year.

## SECTION IV: ADDITIONAL INFORMATION

### **PART I. Terms of References for key project staff and main sub-contracts**

#### **Project Coordinator**

Under the overall supervision of the National Project Director (NPD, the Director of Biodiversity of SERNA), the Coordinator will have the following responsibilities:

- Coordination of project actions, in compliance with Annual Work Plans and Budgets (APWBs).
- Supervision of the activities of the technical members of the Project Implementation Unit (PIU), thereby ensuring their relevance, effectiveness and efficiency.
- Preparation of terms of reference for external consultants contracted by the project, supervision and coordination of their work, and review and approval of their products.
- Ensuring that the project is implemented with the full participation of local actors and that functioning mechanisms exist that ensure that their interests are taken into account, communicated and reflected in the implementation of the project.
- Promotion of the coordinated participation of Government institutions and NGOs, at central and local levels, in project implementation.
- Realization of continuous and periodic monitoring of project impacts, in relation to the achievements foreseen in the APWBs and the impacts foreseen in the project results framework.
- In communication with the NPD, ensuring that the project is implemented in accordance with the policies and plans of the SERNA, as Executing Agency.
- In communication with the Programme Official of UNDP, ensuring that the project is implemented in accordance with the United Nations Development Assistance Framework (UNDAF) in Honduras.
- Identification and promotion opportunities for actions by other agencies of the UN system in the project areas.
- Ensuring that a cross-cutting gender focus is incorporated into the actions of the project.
- Together with UNDP, preparation of Periodic Implementation Reports (PIRs), detailing project progress, to be presented to GEF.
- Together with UNDP and the project team and in discussion with local stakeholders, preparation of APWBs for approval by the NSC and the GEF.
- With support from the project administrative team, ensuring efficient and transparent execution of financial and physical resources, in conformity with the rules of the Government, GEF and UNDP.
- Design and implementation of professional development plans for the members for the PIU.
- Identification of risks that could affect the achievement of the foreseen impacts of the project, and the definition and application of corresponding mitigation strategies.
- Support to the functioning of the PSC, through the provision of advice and logistics.
- Preparation and oversight of the implementation of the operational manuals for the implementation of the project.
- Organization and support of external evaluations of the project.

**PART II. Nationally and globally important species**  
**Crustaceans and Molluscs:**

Family	Species	Spanish common name	Endemic	IUCN	CITES	National priority species	PAs where reported
<b>Crabs</b>							
<b>Palinuridae</b>	<i>Panulirus argus</i>	langosta				X	PNJK, MNMCC, PNPI, PNMIB
<b>Penaeidae</b>	<i>Penaeus spp</i>	camarón				X	PNJK, MNMCC, PNPI, PNMIB
<b>Portunidae</b>	<i>Callinectes spp.</i>	Jaibas					PNJK, RVSCS
<b>Pseudothelphusidae</b>	<i>Potamocarcinus roatensis</i>		X	VU			PNMIB (isla de Roatán)
	<i>Raddaus mertensi</i>			VU			MNMCC
<b>Molluscs</b>							
<b>Strombidae</b>	<i>Strombus gigas</i>	Caracol reina			AP II	X	MNMCC, PNPI, PNMIB
<b>Unionidae</b>	<i>Unio tampicoensis</i>				AP I		

PNJK = Parque Nacional Jeannette Kawas, MNMCC= Monumento Natural Marino Cayos Cochinos, PNPI Parque Nacional Punta Isopo, PNMIB= Parque Nacional Marino Islas de la Bahía.

**Corals:**

Family	Species	Spanish common name	IUCN	CITES	National priority species	PAs where reported
<b>Acroporidae</b>	<i>Acropora cervicornis</i>	Cuernos de Ciervo	CR	AP II	X	PNMIB
	<i>Acropora palmata</i>	Cuerno de Alce	CR	AP II	X	PNMIB
	<i>Acropora prolifera</i>	Cuernos fusionados de ciervo		AP II	X	PNMIB
<b>Agariciidae</b>	<i>Agaricia lamarcki</i>	Coral estrellado	VU	AP II	X	PNMIB
	<i>Agaricia tenuifolia</i>	Coral Hoja Delgada	NT	AP II	X	PNMIB
	<i>Agaricia agaricites</i>	Coral Lechuga		AP II	X	PNMIB
	<i>Agaricia fragilis</i>	ND		AP II	X	PNMIB
	<i>Agaricia grahamae</i>	Coral hoja		AP II	X	PNMIB
	<i>Agaricia humilis</i>	Coral Lechuga		AP II	X	PNMIB
	<i>Agaricia undata</i>	Coral hoja		AP II	X	PNMIB
	<i>Helioseris cucullata</i>	Coral Lechuga		AP II	X	
<b>Antipathidae</b>	<i>Antipathes atlantica</i>	Coral abanico		AP II	X	PNMIB
	<i>Antipathes caribbeana</i>	Cepillo de botella		AP II	X	
	<i>Stichopathes lutkeni</i>	ND		AP II	X	
<b>Atrocoeniidae</b>	<i>Stephanocoenia intersepta</i>	ND		AP II	X	PNMIB
<b>Caryophylliidae</b>	<i>Cladocora arbuscula</i>	Coral de tubo		AP II	X	
	<i>Cladocora debilis</i>	Coral fino de tubo		AP II	X	
	<i>Coenocyathus caribbeana</i>	ND		AP II	X	
	<i>Coenosmilia arbuscula</i>	Coral arbolito		AP II	X	
	<i>Colangia immersa</i>	ND		AP II	X	
	<i>Colangia jamaicaensis</i>	ND		AP II	X	
	<i>Deltocyathus calcar</i>	Coral estrella de lo hondo		AP II	X	
	<i>Deltocyathus eccentricus</i>	Coral estrella extraño		AP II	X	
	<i>Eusmilia fastigiata</i>	ND		AP II	X	PNMIB
	<i>Oxysmilia rotundifolia</i>	Coral rotundo		AP II	X	

Family	Species	Spanish common name	IUCN	CITES	National priority species	PAs where reported
	<i>Phacelocyathus flos</i>	Tazón Veteado		AP II	X	
	<i>Stephanocyathus coronatus</i>	Tazón coronado		AP II	X	
	<i>Stephanocyathus paliferus</i>	ND		AP II	X	
	<i>Thalamophyllia riisei</i>	Barroco de cuevas		AP II	X	
	<i>Trochocyathus rawsonii</i>	Tazón de Rawson		AP II	X	
<b>Dendrophylliidae</b>	<i>Balanophyllia pittieri</i>	ND		AP II	X	
	<i>Rhizopsammia goesi</i>	Posillo de goes		AP II	X	
<b>Faviidae</b>	<i>Montastraea annularis</i>	Boulder star	EN	AP II	X	PNMIB
	<i>Montastraea faveolata</i>	Coral Montañoso	EN	AP II	X	PNMIB
	<i>Colpophyllia breviserialis</i>	Coral in row		AP II	X	
	<i>Colpophyllia natans</i>	Boulder Brain		AP II	X	PNMIB
	<i>Diploria clivosa</i>	Knobby Brain		AP II	X	PNMIB
	<i>Diploria labyrinthiformis</i>	Grooved Brain		AP II	X	PNMIB
	<i>Diploria strigosa</i>	Cerebro simétrico		AP II	X	PNMIB
	<i>Favia fragum</i>	Pelota de golf		AP II	X	PNMIB
	<i>Manicina areolata</i>	Coral Rosa		AP II	X	
	<i>Montastrea cavernosa</i>			AP II	X	
	<i>Solenastrea bournonii</i>	Smooth Star		AP II	X	
	<i>Solenastrea hyades</i>	Estrellado nudoso		AP II	X	PNMIB
	<i>Montastraea franksi</i>	Macizo de Frank	VU	AP II	X	
<b>Gardineriidae</b>	<i>Gardineria minor</i>	ND		AP II	X	
<b>Meandrinidae</b>	<i>Dendrogyra cylindrus</i>		VU	AP II	X	PNMIB
	<i>Dichocoenia stokesii</i>	Coral Piña	VU	AP II	X	PNMIB
	<i>Dichocoenia stellaris</i>	Coral aplastado		AP II	X	PNMIB
	<i>Meandrina brasiliensis</i>	Rosa Bracileña		AP II	X	PNMIB
	<i>Meandrina maeandrites</i>	Coral laberinto		AP II	X	PNMIB
<b>Milleporidae</b>	<i>Millepora alcicornis</i>	Coral de Fuego		AP II	X	PNMIB
	<i>Millepora complanata</i>	Coral de Fuego		AP II	X	PNMIB
<b>Mussidae</b>	<i>Isophyllastrea rigida</i>	Coral áspero		AP II	X	PNMIB
	<i>Isophyllia sinuosa</i>	Coral Sinuoso		AP II	X	PNMIB
	<i>Mussa angulosa</i>	Coral Angular		AP II	X	PNMIB
	<i>Mycetophyllia aliciae</i>	Coral Nudoso		AP II	X	PNMIB
	<i>Mycetophyllia daniana</i>	Poca Cresta		AP II	X	PNMIB
	<i>Mycetophyllia ferox</i>	Coral Espinoso	VU	AP II	X	PNMIB
	<i>Mycetophyllia lamarckiana</i>	Coral Crestado		AP II	X	PNMIB
	<i>Mycetophyllia reesi</i>	Coral Liso		AP II	X	PNMIB
	<i>Scolymia cubensis</i>	Alcachofa de Mar		AP II	X	PNMIB
	<i>Scolymia lacera</i>	Hongo del Atlántico		AP II	X	PNMIB
<b>Oculinade</b>	<i>Madrepora carolina</i>	Marfil de Carolina		AP II	X	
	<i>Madrepora oculata</i>	Coral Blanco Escondido		AP II	X	PNMIB
	<i>Oculina diffusa</i>	Coral de Marfil		AP II	X	PNMIB
	<i>Oculina varicosa</i>	Fundido de Marfil	VU	AP II	X	
<b>Pocilloporidae</b>	<i>Madracis decactis</i>	Diez de Rayos		AP II	X	PNMIB
	<i>Madracis formosa</i>	Ocho rayos		AP II	X	PNMIB
	<i>Madracis myriaster</i>	Estriado de dedos		AP II	X	PNMIB
	<i>Madracis pharensis</i>	Coral Estrella		AP II	X	PNMIB
	<i>Madracis senaria</i>	Seis Rayos		AP II	X	PNMIB
<b>Poritidae</b>	<i>Porites astreoides</i>	Coral Mostaza		AP II	X	PNMIB
	<i>Porites divaricata</i>	Dedos Finos		AP II	X	PNMIB
	<i>Porites furcata</i>	Ramificado de Dedos		AP II	X	PNMIB
	<i>Porites porites</i>	Coral de Dedos		AP II	X	PNMIB
<b>Siderastreidae</b>	<i>Siderastrea radians</i>	Coral Estrellita		AP II	X	PNMIB
	<i>Siderastrea siderea</i>	Estrellita Macizo		AP II	X	PNMIB
<b>Stylasteridae</b>	<i>Stylaster roseus</i>	Coral Rosado		AP II	X	PNMIB

**Fish:**

Family	Species	Spanish common name	IUCN	CITES	CMS	National priority species	PAs where reported
<b>Cichlidae</b>	<i>Amphilophus hogaboomorum</i>	Guapotillo					
	<i>TherAP wessely</i>	Canchay					
<b>Carcharhinidae</b>	<i>Carcharhinus acronotus</i>	Tiburón Hocico Negro				X	MNMCC
	<i>Carcharhinus longimanus</i>	T. Aleta Blanca	VU			X	
	<i>Carcharhinus obscurus</i>	T. Arenero	VU			X	
	<i>Carcharhinus plumbeus</i>	T. Aleton	VU			X	
	<i>Carcharhinus brevipinna</i>	T. Aleta Negra	NT			X	
	<i>Carcharhinus falciformis</i>	T. Jaqueton	NT			X	PNMIB
	<i>Carcharhinus leucas</i>	T. Toro	NT			X	RVSCS, PNMIB
	<i>Carcharhinus limbatus</i>	T. Puntas Negras	NT			X	MNMCC, PNMIB
	<i>Carcharhinus perezii</i>	T. Arrecife	NT			X	MNMCC, RVSCS, PNMIB
	<i>Galeocerdo cuvier</i>	T. Tigre	NT			X	
	<i>Negaprion brevirostris</i>	T. Limon	NT			X	RVSCS
	<i>Prionace glauca</i>	T. Azul	NT			X	
<b>Grammatidae</b>	<i>Hyporhodus flavolimbatus</i>	Mero Aleta Amarilla	VU				
	<i>Hyporhodus niveatus</i>	Cherna Pintada	VU				
<b>Istiophoridae</b>	<i>Kajikia albida</i>	Marlín Del Atlántico	VU				
	<i>Makaira nigricans</i>	Marlín Azul	VU				
	<i>Kajikia audax</i>	Marlín Rayado	NT				
<b>Labridae</b>	<i>Lachnolaimus maximus</i>	Pargo Gallo	VU			X	PNMIB
<b>Lamnidae</b>	<i>Isurus oxyrinchus</i>	Mako	VU		X	X	
<b>Mobulidae</b>	<i>Manta birostris</i>	Manta Gigante	VU		X		
<b>Myliobatidae</b>	<i>Aetobatus narinari</i>	Aguila Punteada	NT				PNMIB
<b>Mugilidae</b>	<i>Joturus pichardi</i>	Pez Bobo				X	RVSCS, PNPI
	<i>Agonostomus monticola</i>	Lisa De Rio					RVSCS, PNPI, PNJK
<b>Pristidae</b>	<i>Pristis pristis</i>	Pez Sierra		AP I			
	<i>Pristis perotteti</i>	Pez Peine	CR	AP I			
<b>Rhcodontidae</b>	<i>Rhcodon typus</i>	T. Blanco		AP II	X	X	PNMIB
<b>Rhinobatidae</b>	<i>Rhinoptera bonasus</i>	Raya Gavilán	NT				
<b>Scombridae</b>	<i>Thunnus thynnus</i>	Tuna Aleta Azul	EN				
	<i>Thunnus obesus</i>	Tuna Ojo Grande	VU				
	<i>Thunnus alalunga</i>	Albacora	NT				
	<i>Thunnus albacares</i>	Tuna Aleta Amarilla	NT				
<b>Serranidae</b>	<i>Mycteroperca interstitialis</i>	Cherna Amarilla, Bacalao	VU				PNMIB

	<i>Dermatolepis inermis</i>	Mero	NT				PNMIB
	<i>Epinephelus morio</i>	Mero Rojo	NT				PNJK, MNMCC, RVSCS
	<i>Epinephelus itajara</i>	Mero Goliat	CR				PNJK
	<i>Epinephelus striatus</i>	Mero Nassau	EN			X	PNJK, MNMCC, RVSCS, PNMIB
	<i>Mycteroperca venenosa</i>	Mero Aleta Amarilla	NT				MNMCC, PNMIB
	<i>Mycteroperca bonaci</i>	Mero Negro	NT				MNMCC, RVSCS, PNMIB
<b>Sphyrnidae</b>	<i>Sphyrna lewini</i>	Tiburón Martillo	EN			X	
	<i>Sphyrna Mokarran</i>	Tiburón Martillo	EN			X	
	<i>Sphyrna corona</i>	Tiburón Cornuda	NT			X	
<b>Syngnathidae</b>	<i>Hippocampus erectus</i>	Caballito De Mar	VU	AP II			PNPI
	<i>Hippocampus reidi</i>	Caballito De Mar		AP II			PNPI
	<i>Microphis brachyurus lineatus</i>	ND				X	PNJK

PNMIB= Parque Nacional Marino Islas de la Bahía, PNJK = Parque Nacional Jeannette Kawas, MNMCC= Monumento Natural Marino Cayos Cochinos, PNPI Parque Nacional Punta Isopo. Los nombres comunes son los referidos por Fishbase

#### Mammals:

Family	Species	Spanish common name	Endemic	IUCN	CITES	CMS	National priority species	PAs where reported
<b>Agoutidae</b>	<i>Agouti paca</i>	Guatuza					X	MNMCC
<b>Atelidae</b>	<i>Alouatta palliata</i>	Mono Aullador			AP I		X	PNJK, RVSCS, PNPI
	<i>Ateles geoffroyi</i>	Mono Araña		EN	AP II		X	PNCO
<b>Balaenopteridae</b>	<i>Balaenoptera musculus</i>	Ballena Azul			AP I	X		
	<i>Balaenoptera edeni</i>	Ballena De Bryde			AP I	X		
	<i>Balaenoptera physalus</i>	Ballena De Aleta			AP I	X		
	<i>Megaptera novaeangliae</i>	Ballena Yubarta			AP I	X		
<b>Brabypodidae</b>	<i>Bradypus variegatus</i>	Perezoso De Tres Dedos			AP II		X	
<b>Cebidae</b>	<i>Cebus capucinus</i>	Mono Cara Blanca			AP I/II		X	PNJK, RVSCS, PNPI, PNCO
<b>Cervidae</b>	<i>Mazama americana</i>	Venado					X	
<b>Cuniculidae</b>	<i>Cuniculus paca</i>	Tepezcuintle			AP III			
<b>Dasyproctidae</b>	<i>Dasyprocta ruatanica</i>	Aguti De Roatán	X	EN			X	PNMIB (isla de Roatán)
<b>Delphinidae</b>	<i>Delphinus delphis</i>	Delfín Común			AP II	X	X	PNJK,PN

								PI, PNCO
	<i>Globicephala macrorhynchus</i>	Calderon			AP II			PNMIB
	<i>Grampus griseus</i>	Delfin Gris			AP II			
	<i>Orcinus orca</i>	Orca			AP II			PNMIB
	<i>Peponocephala electra</i>	Calderon Menor			AP II			
	<i>Pseudorca crassidens</i>	Falsa Orca			AP II			
	<i>Sotalia fluviatilis</i>	Tucuxi			AP I	X		
	<i>Stenella attenuata</i>	Delfin Moteado			AP II	X	X	PNPI
	<i>Stenella clymene</i>	Delfin De Pico Largo			AP II		X	
	<i>Stenella coeruleoalba</i>	Delfin Rayado			AP II	X	X	
	<i>Stenella frontalis</i>	Delfin Manchado			AP II			
	<i>Stenella longirostris</i>	Delfin De Pico Largo			AP II	X	X	PNMIB
	<i>Steno bredanensis</i>	Delfin De Dientes Rugosos			AP II		X	PNMIB
<b>Erethizontidae</b>	<i>Sphiggurus mexicanus</i>	Puerco Espin			AP III			
<b>Felidae</b>	<i>Leopardus wiedii</i>	Tigrillo		NT	AP I		X	PNJK, PNPI, PNCO
	<i>Panthera onca</i>	Jaguar		NT	AP I		X	PNJK, PNPI, PNCO
	<i>Leopardus pardalis</i>	Tigrillo			AP I		X	
<b>Molossidae</b>	<i>Cynomops mexicanus</i>	Murciélago					X	
	<i>Choeronycteris mexicana</i>	Murciélago Trompudo		NT				
	<i>Ectophylla alba</i>	Murciélago Blanco		NT			X	
	<i>Vampyrus spectrum</i>	Vampiro		NT				
	<i>Physeter macrocephalus</i>	Cachalote		VU				
	<i>Tadarida brasiliensis</i>	Murciélago				X		
<b>Mustelidae</b>	<i>Eira barbara</i>	Nutria			AP III		X	
	<i>Galictis vittata</i>	Huron					X	
	<i>Lontra longicaudis</i>	Nutria			AP I		X	PNJK, PNPI, PNCO
	<i>Mustela frenata</i>	Comadreja					X	PNCO
<b>Myrmecophagidae</b>	<i>Myrmecophaga tridactyla</i>	Oso Caballo		VU	AP II		X	PNCO
<b>Physeteridae</b>	<i>Physeter macrocephalus</i>	Cachalote			AP I		X	PNMIB
	<i>Nasua narica</i>	Coatí			AP III			PNJK, RVSCS, PNPI, PNCO

	<i>Potos flavus</i>	Mico De Noche			AP III			
<b>Tapiridae</b>	<i>Tapirus bairdii</i>	Tapir		EN			X	PNJK, PNPI
<b>Tayassuidae</b>	<i>Tayassu pecari</i>	Pecarí Labiado		NT	AP II			PNJK, PNPI, PNCO
<b>Trichechidae</b>	<i>Trichechus manatus</i>	Manatí		VU	AP I	X	X	PNJK, RVSCS, PNPI, PNCO
<b>Vespertilionidae</b>	<i>Bauerus dubiaquercus</i>	Murcielago		NT				
<b>Ziphiidae</b>	<i>Mesoplodon densirostris</i>	Ballena			AP II			

PNMIB= Parque Nacional Marino Islas de la Bahía, PNJK = Parque Nacional Jeannette Kawas, MNMCC= Monumento Natural Marino Cayos Cochinos, PNPI Parque Nacional Punta Isopo, PNCO=Parque Nacional Cuyamel Omoa.

### Reptiles:

Family	Species	Spanish common name	Endemic	UICN	CITES	CMS	National priority species	PAs where reported
<b>Alligatoridae</b>	<i>Caiman crocodilus</i>	Caimán			AP II			PNJK, RVSCS, PNPI
<b>Anguidae</b>	<i>Celestus rozellae</i>	Lagartija		NT				
<b>Boidae</b>	<i>Boa constrictor</i>	Boa			AP I		X	MNMCC, PNPI
	<i>Corallus annulatus</i>	Boa			AP II			
<b>Cheloniidae</b>	<i>Eretmochelys imbricata</i>	Tortuga Carey		CR	AP I	X	X	MNMCC, PNPI, PNMIB
	<i>Lepidochelys olivacea</i>	Tortuga Golfina		VU	AP I	X	X	
	<i>Lepidochelys kempii</i>	Tortuga Lora		CR		X		PNMIB
	<i>Caretta caretta</i>	Tortuga Caguama		EN	AP I	X	X	PNPI, PNMIB
	<i>Chelonia mydas</i>	Tortuga Verde		EN	AP I	X	X	PNPI, PNMIB
<b>Chelydridae</b>	<i>Chelydra rossignonii</i>	Tortuga		VU				
<b>Colubridae</b>	<i>Ninia espinali</i>	ND		NT			X	
	<i>Oxybelis wilsoni</i>	Culebra	X				X	PNMIB (Isla de Roatán)
<b>Crocodylidae</b>	<i>Crocodylus acutus</i>	Cocodrilo		VU	AP II		X	PNJK, RVSCS, PNPI, PNMIB
<b>Dermochelyidae</b>	<i>Dermochelys coriacea</i>	Tortuga Baula		CR	AP I	X	X	
<b>Elapidae</b>	<i>Micrurus ruatanus</i>	Serpiente Coral De Roatán	X	CR			X	PNMIB (Isla de Roatán)
	<i>Micrurus nigrocinctus</i>	Coral Macho			AP III			
<b>Geoemydidae</b>	<i>Rhinoclemmys areolata</i>	Tortuga Sabanera		NT			X	

<b>Iguanidae</b>	<i>Ctenosaura bakeri</i>	Garrobo De Utila	X	CR	AP II			PNMIB (isla de Utila)
	<i>Ctenosaura flavidorsalis</i>	Iguana Cola Espinosa		EN				
	<i>Ctenosaura oedirhina</i>	Garrobo	X	EN	AP II			PNMIB (isla de Roatán)
	<i>Ctenosaura melanosterna</i>	Garrobo	X	EN	AP II			MNMCC
	<i>Iguana iguana</i>	Iguana Verde			AP II			PNJK, MNMCC, RVSCS, PNPI, PNMIB
<b>Loxocemidae</b>	<i>Loxocemus bicolor</i>	Serpiente			AP II		X	
<b>Polychrotidae</b>	<i>Anolis loveridgei</i>	Anolis	X	EN				Montañas de Yoro y Texiguat
	<i>Anolis amplisquamosus</i>	Anolis		EN				
	<i>Anolis muralla</i>	Anolis		VU				
<b>Tropidophiidae</b>	<i>Ungaliophis continentalis</i>	Boa			AP II			
<b>Viperidae</b>	<i>Crotalus durissus</i>	Cascabel			AP III			

PNMIB= Parque Nacional Marino Islas de la Bahía, PNJK = Parque Nacional Jeannette Kawas, MNMCC= Monumento Natural Marino Cayos Cochinos, PNPI Parque Nacional Punta Isopo, PNCO=Parque Nacional Cuyamel Omoa.

#### Birds:

Family	Species	Spanish common name	Endemic	UICN	CITES	CMS	National priority species	PAs where reported
<b>Accipitridae</b>	<i>Accipiter bicolor</i>	Gavilán Bicolor			AP II			
	<i>Accipiter striatus</i>	Gavilán			AP II			
	<i>Asturina nitida</i>	Asparvero			AP II			PNCO
	<i>Busarellus nigricollis</i>	Aguililla Canela			AP II			RVSCS, PNPI
	<i>Buteo albicaudatus</i>	Aguililla Aura			AP II			
	<i>Buteo albonotatus</i>	Aguililla			AP II			
	<i>Buteo brachyurus</i>	Aguililla			AP II			PNCO
	<i>Buteo jamaicensis</i>	Aguililla			AP II			PNPI
	<i>Buteo magnirostris</i>	Aguililla			AP II			PNPI, PNCO
	<i>Buteo platypterus</i>	Aguililla			AP II			RVSCS, PNCO
	<i>Buteogallus anthracinus</i>	Aguililla Negra Mayor			AP II			PNPI, PNCO
	<i>Buteogallus urubitinga</i>	Aguililla Negra			AP II			PNCO
	<i>Chondrohierax uncinatus</i>	Gavilan Piguiganchudo			AP II			PNCO
	<i>Elanoides forficatus</i>	Tijereta			AP II			
	<i>Elanus leucurus</i>	Milano Cola Blanca			AP II			
	<i>Geranospiza caerulescens</i>	Gavilan Zancon			AP II			
	<i>Harpagus bidentatus</i>	Gavilan Bidentado			AP II			
	<i>Ictinia plumbea</i>	Milano Plomiso			AP II			

	<i>Leptodon cayanensis</i>	Gavilan Cabeza Gris			AP II			
	<i>Leucopternis albicollis</i>	Aguililla Blanca			AP II			
	<i>Morphnus guianensis</i>	Aguila Crestada		NT	AP II			
	<i>Rostrhamus sociabilis</i>	Caracolero			AP II			RVSCS
	<i>Spizaetus ornatus</i>	Aguila Elegante		NT	AP II			
	<i>Spizaetus tyrannus</i>	Aguila Negra			AP II			PNPI, PNCO
	<i>Contopus cooperi</i>	Pibi		NT				PNJK, MNMCC, RVSCS
<b>Anatidae</b>	<i>Cairina moschata</i>	Pato Criollo			AP III			RVSCS, PNPI
	<i>Dendrocygna autumnalis</i>	Pijije Ala Blanca			AP III			PNJK, RVSCS, PNPI
<b>Apadidae</b>	<i>Chaetura pelagica</i>	Vencejo		VU				
<b>Ardeidae</b>	<i>Agamia agami</i>	Garza		VU				PNPI
	<i>Egretta rufescens</i>	Garceta Rojiza		VU				PNPI
<b>Cathartidae</b>	<i>Sarcoramphus papa</i>	Zopilote			AP III			PNCO
<b>Columbidae</b>	<i>Patagioenas leucocephala</i>	Paloma Corana Blanca		VU				
<b>Coniidae</b>	<i>Jabiru mycteria</i>	Cigüeña				X		RVSCS, PNPI, PNCO
<b>Cracidae</b>	<i>Crax rubra</i>	Pavón		VU				RVSCS, PNPI
<b>Emberizidae</b>	<i>Passerina ciris</i>	Colorin Sietecolores		NT				MNMCC, RVSCS, PNJK
<b>Falconidae</b>	<i>Caracara cheriway</i>	Caracara			AP II	X		
	<i>Circus cyaneus</i>	Aguilucho						
	<i>Falco deiroleucus</i>	Halcón Enano		NT				
	<i>Falco peregrinus</i>	Halcón Peregrino			AP II	X		PNJK, PNPI, PNCO
	<i>Falco columbarius</i>	Halcón			AP II	X		PNCO
	<i>Falco deiroleucus</i>	Halcón Negro		NT	AP II			
	<i>Falco femoralis</i>	Halcón Plomizo			AP II			
	<i>Falco rufigularis</i>	Halcón Murcieleguero			AP II			PNPI, PNCO
	<i>Falco sparverius</i>	Cernicaro			AP II			PNPI, PNCO
	<i>Herpetotheres cachinnans</i>	Halcón Guaco			AP II			PNPI
	<i>Ibycter americanus</i>	Chupacacao			AP II			
	<i>Micrastur ruficollis</i>	Halcón De Selva			AP II			PNCO
	<i>Micrastur semitorquatus</i>	Halcón Selvático De Collar			AP II			
<b>Icteridae</b>	<i>Dolichonyx oryzivorus</i>	Tordo Arrocero				X		
<b>Laridae</b>	<i>Sterna dougallii</i>	Charran Rosado				X		MNMCC
<b>Momotidae</b>	<i>Electron carinatum</i>	Momoto		VU				

<b>Pandionidae</b>	<i>Pandion haliaetus</i>	Aguila Pescadora			AP II			
<b>Parulidae</b>	<i>Dendroica cerulea</i>	Chipe		VU		X		MNMCC
	<i>Dendroica vitellina</i>	Chipe		NT				PMAACR
	<i>Vermivora chrysoptera</i>	Reinita		NT				PNJK
<b>Psittacidae</b>	<i>Aratinga canicularis</i>	Perico Frente Naranja			AP II			PNPI
	<i>Aratinga holochlora</i>	Perico			AP II			PNPI
	<i>Aratinga nana</i>	Perico Pecho Sucio			AP II			PNPI, PNCO
	<i>Amazona albifrons</i>	Loro Cachete Amarillo			AP II			PNPI
	<i>Amazona auropalliata</i>	Loro Nuca Amarilla		NT	AP I			PNJK
	<i>Amazona autumnalis</i>	Loro Cachete Amarillo			AP II			RVSCS, PNPI, PNCO
	<i>Amazona oratrix</i>	Loro Cabeza Amarilla		EN	AP I			
<b>Ramphastidae</b>	<i>Ramphastos sulfuratus</i>	Tucán Pico De Canoa			AP II			RVSCS, PNCO
<b>Stregidae</b>	<i>Tryngites subruficollis</i>	Playero		NT				
	<i>Glaucidium brasilianum</i>	Tecolote			AP II			PNPI
	<i>Glaucidium griseiceps e</i>	Mochuelo			AP II			
	<i>Lophotrix cristata</i>	Búho Cuerno Blanco			AP II			
	<i>Pseudoscops clamator</i>	Búho Cara Clara			AP II			
	<i>Pulsatrix perspicillata</i>	Búho De Anteojos			AP II			
	<i>Strix virgata</i>	Lechuza			AP II			
<b>Tinamidae</b>	<i>Tinamus major</i>	Tinamu		NT				PNCO
<b>Trochilidae</b>	<i>Amazilia candida</i>	Colibrí			AP II			
	<i>Amazilia cyanocephala</i>	Colibrí Corona Azul			AP II			
	<i>Amazilia tzacatl</i>	Colibrí Cola Rojiza			AP II			
	<i>Anthracothorax prevostii</i>	Colibrí Garganta Negra			AP II			MNMCC
	<i>Archilochus colubris</i>	Colibrí Garganta Rubí			AP II			
	<i>Campylopterus hemileucurus</i>	Fandanguero			AP II			
	<i>Chalybura urochrysis</i>	Colibrí			AP II			
	<i>Chlorostilbon canivetii</i>	Esmeralda Tijereta			AP II			MNMCC
	<i>Colibrí delphinae</i>	Colibrí			AP II			
	<i>Florisuga mellivora</i>	Colibrí Nuquiblanco			AP II			
	<i>Helimaster constantii</i>	Colibrí Picudo			AP II			
	<i>Heliothryx barroti</i>	Hada Enmascarada			AP II			
	<i>Hylocharis eliciae</i>	Zafiro Garganta Azul			AP II			
	<i>Lophornis helenae</i>	Coqueta Cresta Negra			AP II			
	<i>Microchera albocoronata</i>	Colibrí Coroniblanco			AP II			

	<i>Phaethornis longirostris</i>	Hermitaño			AP II			
	<i>Phaethornis striigularis</i>	Hermitaño Enano			AP II			
	<i>Thalurania colombica</i>	Ninfa			AP II			
	<i>Threnetes ruckeri</i>	Hermitaño Barbudo			AP II			
<b>Trogonidae</b>	<i>Pharomachrus mocinno</i>	Quetzal		VU	AP I			PNCO
<b>Tytonidae</b>	<i>Tyto alba</i>	Lechuza De Campanario			AP II			
<b>Vireonidae</b>	<i>Vireo bellii</i>	Vireo		VU				MNMCC

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### PART III. Socioeconomic data for target PAs

#### Cuyamel Omoa National Park

Variable	Baseline Value
Population (INE Census, 2001)	Omoa Municipality: 30,148
Human Development Index in 2004 (UNDP, 2006)	Omoa: 0.639
Average monthly labour income by gender in 2004 (UNDP, 2006)	<b>Omoa</b> Women: Lps 1,761 (US\$76.21). Men: Lps 2,789 (US\$120.80)
Literacy (UNDP, 2006)	Omoa: 0.751

#### Jeannette Kawas National Park

Variable	Baseline Value
Population (INE Census, 2001)	Tela Municipality: 77,031 Puerto Cortés Municipality: 90,161
Human Development Index in 2004 (UNDP, 2006)	Tela: 0.673 Puerto Cortés: 0.678
Average monthly labour income by gender in 2004 (UNDP, 2006)	<b>Tela</b> Women: Lps.2,095 (US\$90.74) Hombre: Lps 3,127 (US\$135.44) <b>Puerto Cortés</b> Women: Lps.2,306 (US\$99.88) Hombre: Lps. 3,487 (US\$151.03)
Literacy (UNDP, 2006)	Tela: 0.807 Puerto Cortés: 0.777

### Punta Izopo National Park

Variable	Baseline Value
Population (INE Census, 2001)	Tela: 77,031 Arizona: 19,660
Human Development Index in 2004 (UNDP, 2006)	Tela: 0.673 Arizona: 0.637
Average monthly labour income by gender in 2004 (UNDP, 2006)	<b>Tela</b> Women: Lps.2,095 (US\$90.74) Men: Lps 3,127 (US\$135.44) <b>Arizona</b> Women: Lps.1,650 (US\$71.46) Men: Lps 2,540 (US\$110.01)
Literacy (UNDP, 2006)	Tela: 0.807 Arizona: 0.754

### Cuero y Salado Wildlife Refuge

Variable	Baseline Value
Population (INE Census, 2001)	El Porvenir: 14,437 San Francisco: 10,683. Esparta: 15,486
Human Development Index in 2004 (UNDP, 2006)	El Porvenir: 0.678 San Francisco: 0.678 La Masica: 0.643 Esparta: 0.632
Average monthly labour income by gender in 2004 (UNDP, 2006)	<b>El Porvenir</b> Women: Lps.1,960 (US\$84.89) Men: Lps.3,138 (US\$135.91) <b>San Francisco</b> Women: Lps.2,016 (US\$87.32) Men: Lps.3,220 (US\$139.46) <b>La Masica</b> Women: Lps.1,821 (US\$78.87) Men: Lps.2,771 (US\$120.02) <b>Esparta</b> Women: Lps.1,593 (US\$69.00) Men: Lps.2,404 (US\$104.12)
Literacy (UNDP, 2006)	El Porvenir: 0.828 San Francisco: 0.818 La Masica: 0.765 Esparta: 0.752

### Cayos Cochinos National Marine Monument

Variable	Baseline Value
Human Development Index in 2004 (UNDP, 2006)	Jutiapa: 0.616 Balfate: 0.580
Average monthly labour income by gender in 2004 (UNDP, 2006)	<b>Jutiapa</b> Women: Lps.1,578 (US\$ Men: Lps.2,297 (US\$ <b>Balfate</b> Women: Lps.1,116 (US\$ Men: Lps 2,032 (US\$
Literacy (UNDP, 2006)	Jutiapa: 0.723 Balfate: 0.717

### Bay Islands Marine Park

Variable	Baseline Value
Population (INE Census, 2001)	Utila: 1,979 Guanaja: 4,535. Santos Guardiola: 7,613 Roatán: 17,425
Human Development Index in 2004 (UNDP, 2006)	Utila: 0.717 Guanaja: 0.719 Santos Guardiola: 0.724 Roatán: 0.730
Average monthly labour income by gender in 2004 (UNDP, 2006)	<b>Utila</b> Women: Lps.2,078 (US\$68.35) Men: Lps 3,289 (US\$142.45) <b>Guanaja</b> Women: Lps.2,018 (US\$87.40) Men: Lps 3,360 (US\$145.53) <b>Santos Guardiola</b> Women: Lps. 1,971 (US\$85.37) Men: Lps.3,366 (US\$145.79) <b>Roatán</b> Women: Lps.2,364 (US\$102.39) Men: Lps.3,706 (US\$160.51)
Literacy (UNDP, 2006)	Utila: 0.953 Guanaja: 0.963 Santos Guardiola: 0.963 Roatán: 0.955

### Guaymoreto Lagoon Wildlife Refuge

Variable	Baseline Value
Population (INE Census, 2001)	Trujillo: 43,454
Human Development Index in 2004 (UNDP, 2006)	Trujillo: 0.646
Average monthly labour income by gender in 2004 (UNDP, 2006)	<b>Trujillo</b> Women: Lps.1,464 (US\$63.41) Men: Lps 2,841 (US\$123.05)
Literacy (UNDP, 2006)	Trujillo: 0.809

### Economically Active Population (EAP) in Atlántida Department

Municipality	Total Population	Nominal EAP	EAP generating income	Real EAP (%)	Unemployment/ Subemployment %
LA CEIBA	185,831	105,923.67	84,738.94	80.0	20.0
EL PORVENIR	22,517	12,834.69	8,342.55	65.0	35.0
ESPARTA	16,089	9,170.73	4,126.83	45.0	55.0
JUTIAPA	33,842	19,289.94	8,680.47	45.0	55.0
LA MASICA	28,202	16,075.14	11,252.60	70.0	30.0
SAN FRANCISCO	1,205	686.85	377.77	55.0	45.0
TELA	87,644	49,957.08	38,466.95	77.0	23.0
ARIZONA	21,376	12,184.32	5,239.26	43.0	57.0

Fuente: Elaboración INYPSA datos Informe de Desarrollo Humano Honduras 2008/2009

### Average Family Income

Municipality	Average Family Income, 2007 (US\$)
OMOA	3,076
PUERTO CORTÉS	5,045
TELA	3,453
ARIZONA	2,699
ESPARTA	2,828
LA MASICA	2,622
SAN FRANCISCO	3,603
EL PORVENIR	3,481
LA CEIBA	5,964
JUTIAPA	2,359
BALFATE	2,033
TRUJILLO	3,030
UTILA	5,559
GUANAJA	4,928
ROATÁN	5,149
SANTOS GUARDIOLA	3,510

## PART IV. Stakeholder analysis

### Cuyamel Omoa National Park

Stakeholder group	Characteristics	Relevance to the project	Potential roles
Artisan fishers	<p>Around 250 fishers, with 100 boats, are involved in fishing in Omoa and Puerto Cortés. The most important fisher organizations are <b>FENAPESCA</b> (the National Federation of Artisan Fishers) and the Association of Fishers of y la Asociación de Pescadores de Puerto Cortés.</p> <p>Within the PA there are around 166 fishers distributed bewteen the following 9 fishing villages: Pueblo Nuevo, Masca, Las Flores, Muchilena, El Paraíso, Veracruz, Barra del Motagua, Buena Vista and Barra del Cuyamel.</p> <p><b>Fishing methods used:</b> hooks and nets.</p> <p>In Gaifuna comunities (Bajamar, Travesía and Masca), the use of dragnets is common, in addition to line fishing close to the coast.</p> <p><b>Gender:</b> Garifuna women do not fish. They are normally responsible for local marketing.</p> <p><b>Other economic activities:</b> subsistence agricultura, daily labour, tourism.</p>	<p><b>High.</b> FENAPESCA is a key actor for the strengthening of MPAs, given thay its members are users of the area's fishery resources. Given that fisheries are a free access resource and are not controlled or supervised by Government bodies, local fishers operate in ways that are ecologically damaging. Some members of the federation are aware of this problem and consider that they should be involved in the management of fisheries. Despite being part of the threats, if strengthened and involved in fisheries management they may become part of the solution.</p>	<p>Fishers should become co-managers of the fisheries resources of the MPA, and the PA managers should involve them in the process of fisheries zoning (delimitation of fishing and reserve areas. Once these areas are defined, responsibility for the management of off-take areas should be passed to fishers.</p> <p>Organized groups of fishers will be created and/or strengthened, allowing them to implement a rights-based management system base don principles of sustainable fishing.</p>
Subsistence farmers	<p>Subsistence farmers lack organization. Their production is principally focused on staples such as maize, rice and beans as well as cocoa, coffee, cocounuts, plantain, watermelon and taro.</p> <p><b>Other economic activities:</b> daily and salaried labour.</p>	<p><b>High.</b> Highly relevant, as their productive activities constitute one of the greatest threats to the environmental sustainability of the MPA, including the advance of the agricultural frontier. This group has limited access to financial and technical support.</p>	<p>This group requires involvement in training and technical and financial support. As PA managers have limited involvement in agricultural issues, it is necessary to créate alliances between the farmers and institutions which support the agricultural sector (e.g. SAG, ZAMORANO)</p>

Stakeholder group	Characteristics	Relevance to the project	Potential roles
Medium and large scale farmers	Inside the AMP, these farmers carry out large scale production of crops such as rice, bananas, plantain and cocoa. The rice producers are members of the Honduran Association of Rice Producers (AHPRA). There are in addition other local associations and committees of farmers.	<b>Medium.</b> This group of actors constitutes part of the threats affecting the MPA. Large scale agricultural production has accelerated the advance of the agricultural frontier, resulting in modifications to coastal ecosystems, especially mangroves.	Promotion of alliances between these farmers and institutions working in the agricultural sector, and involvement of these farmers in the green development mechanism.
Ranchers	Ranching is mostly carried out in the central valley, near to Cuyamel, Tegucigalpa, Rio Chiquito and Los Achiotes. The cattle herds are typically double purpose, in order to ensure that income from milk covers maintenance costs. Milk and meat products are marketed in large cities such as El Progreso and San Pedro Sula. Some of these ranchers are also involved in agriculture. <b>Organized groups:</b> Association of ranchers of Cuyamel, Omoa and Puerto Cortés.	<b>Medium.</b> The ranchers use the natural resources of the MPA and their production practices constitute a threat for its sustainability.	Partners in the implementation of environmental mitigation measures and responsible production practices.
Tourism	Inside the MPA there are around 10 restaurants and 7 hotel, in a number of different coastal villages. This sector is not organized as yet, working on an individual and seasonal basis. <b>Organized groups:</b> Association of Masqueño Tourism Operators (ADETURMA), the Chamber of Tourism of Omoa. <b>Other economic activities:</b> fishing and paid labour.	<b>Medium.</b> This group has the potential to become allies of the project, given the link between biodiversity protection and tourism opportunities.	Co-managers of tourism sites. In order to involve them in the management and conservation of natural resources, this group of stakeholders should receive training and technical assistance.

## Jeannette Kawas National Park

Stakeholder group	Characteristics	Relevance to the project	Potential roles
Mestizo artisan fishers	<p>The community of Los Cerritos, on the Los Micos Lagoon, is the only mestizo fishing village in the MPA, with 30 fishers who fish in the lagoon. There is a fishers cooperative in the village.</p> <p><b>Fishing methods:</b> hooks and nets.</p> <p><b>Species:</b> comercial fish and crabs.</p> <p><b>Other economic activities:</b> agriculture, daily labour, salaried work and hunting.</p>	<p><b>High.</b> This is the main used group of the fishers resources (lagoon and marine) of the MPA. Their fishing practices constitute a severe threat to the sustainability of marine biodiversity. Conversely, they have the potential to form part of the solution, if they are strengthened and empowered.</p>	<p>Co-managers of the lagoon, with dfined fishing rights, appropriate fishing techniques and closed seasons. Should be involved in the monitoring and control of the fishery resources.</p>
Garífuna artisan fishers	<p>The Garífuna artisan fishers of the MPA are Tornabé (20 fishers) and Miami (20 fishers). Both communities have fisher cooperatives. Fishing is mostly carried out using wooden canoes with paddles. A smaller number of fishers use fiberglass boats with outboard motors.</p> <p><b>Fishing methods:</b> hooks, driftnets and dragnets.</p> <p><b>Species:</b> pargo, mero, róblalo, macarela, cubera, caguacha, lisa and curvina.</p> <p><b>Other economic activities:</b> agriculture, tourism, salaried work.</p> <p>Financial remittances are an important source of household income.</p>	<p><b>High.</b> This group of fishers has reduced its dependence on fishing and at the same time its connection with marine ecosystems. Fishing still constitutes a threat due to the use on non-selective practices.</p>	<p>This group of fishers should be trained and involved to make them responsable for the management of their fisheries.</p>
Subsistence farmers	<p>Subsistence farmers are not organized. They work individually, using family labour. Their principal crops are staples such as maize, beans, plantain and cassava. In addition, they plant some fruit trees, but mostly for home consumption..</p> <p><b>Other economic activities:</b> daily and salaried labour, village stores and hunting.</p>	<p><b>High.</b> This group represents a significant threat, as the cause of fragmentation, pollution and degradación of coastal resources.</p>	<p>Could be involved in projects aimed at reforestation, crop diversification and good agricultural practices. To achieve this, alliances should be created with agricultural institutions or projects.</p>
Medium and large scale farmers	<p>These include the Standard Fruit Company, the Association of Cocoa Producers (AHPROCACAO), Association of Rambután Produced and Exporters (AHPERAMBUTAN). This groups of farmers has a relatively high technical level, and produces on large land holdings, especially the lowlands of the León Valley.</p>	<p><b>Medium.</b> These actors constitute threats to natural resources, however the fact that they tend to have well defined legal status as well as strong technical and financial capacities makes it</p>	<p>Creation of alliances between these producers and institutions working in the agricultural sector, and participation of this sector in the gren development mechanism.</p>

Stakeholder group	Characteristics	Relevance to the project	Potential roles
		difficult to influence their activities.	
Tourism	The rapid tourism development that has occurred in Tela Bay has generated great expectations in local communities. The tourism organizations present in the zone include: the Tela Chamber of Tourism, the Garifuna Chamber of Tourism, the Municipal Tourism Unit, the Association of Hotel Owners of Tela and the Public and Private Tourism Platform.	<b>High.</b> There are many individuals or organized groups whose interests may be affected positively or negatively by the project.	Support to the management of the MPA. This group could potentially be assigned PA management responsibilities if trained. They also have the potential to support the MPA financially (through a conservation quota).

#### Punta Izopo

Stakeholder group	Characteristics	Relevance to the project	Potential roles
Artisan fishers	The two fishing communities in the MPA are La Esenada (20 fishers) and El Triunfo de la Cruz (80 fishers). Both communities have an organization of fishers. Artisan fisheries contribute around 30% of these communities' incomes. <b>Fishing methods:</b> hooks, driftnets and dragnets. <b>Species:</b> commercial species, and occasionally of manatees. <b>Other economic activities:</b> agriculture, ranching, salaried labour, tourism, small scale commerce. The main source of income in Triunfo are remittances.	<b>High.</b> Although the number of fishers has declined, they continue to have an impact on fisheries resources. The fishers continue to use unsustainable practices and to capture species of high ecological value (such as manatees and sharks). Strengthening and empowerment of this group could contribute to improving the management of the MPA.	The fishers should be the co-managers of the fisheries of the MPA. The managers of the MPA should therefore involve them in the process of fisheries zoning. Once fishing and reserve zones are defined in this way, a rights-based management system involving principles of sustainable fishing should be applied.
Subsistence farmers	Subsistence farmers are not organized. Their production is on a small scale (1-20ha), principally of staple crops (maize, beans, rice, plantain and cassava). They sell their excess locally or to intermediaries. This is the sector of the population with lowest socioeconomic indicators. Generally, subsistence farmers combine this activity with fishing in order to ensure their livelihood sustainability.	<b>High.</b> This group represents a significant threat, as the cause of fragmentation, pollution and degradation of coastal resources.	Could be involved in projects aimed at reforestation, crop diversification and good agricultural practices. To achieve this, alliances should be created with agricultural institutions or projects.

Stakeholder group	Characteristics	Relevance to the project	Potential roles
Ranchers	<p>Most of the cattle herds are double-purpose, and located principally around the community of Triunfo de la Cruz. In small and medium-sized farms, ranchers obtain cash from the daily sale of milk and from the sale of bullocks weaned at the end of the rainy season.</p> <p><b>Organized groups:</b> some of the ranchers of the área are members of the Association of Ranchers and Farmers of Atlántida, the Association of Ranchers and Farmers of Tela, the Regional Association of Farmers, cooperatives and milk collection centres.</p>	<p><b>Medium.</b> This group of stakeholders is one of the main users of coastal ecosystems: this is an important source of employment for the local population, but also constitutes a threat to the environmental integrity of the MPAs.</p>	<p>Potential beneficiaries of technical assistance to be provided by, or in association with, co-managers. Potential contributors to possible future environmental service payment schemes.</p>
Tourism	<p>The communities of La Ensenada and Triunfo de la Cruz have achieved significant results from tourism: 40% of the income of Triunfo de la Cruz is generated from restaurants, bars and hotels. A number of households provide tourism services individually. In La Ensenada, there is a tourism complex which provides employment to local people.</p> <p><b>Organized groups:</b> there is a tourism cooperative in Triunfo de la Cruz.</p>	<p><b>High.</b> The households and groups providing tourism services may be affected positively (through improved environmental sustainability and increased opportunities for ecological tourism) or negatively (due to increased restrictions on activities with potential to generate environmental impacts).</p>	<p>Support to PA management: once the required capacities have been developed, this group of stakeholders may be assigned responsibilities for management, and may contribute to PA financial sustainability through the payment of fees and concessions.</p>

#### Cuero y Salado

Stakeholder group	Characteristics	Relevance to the project	Potential roles
Artisan fishers	<p>The principal communities in the reserve are the following: La Rosita (20 fishers), Boca Cerrada (20 fishers), Barra de Cuero (25 fishers), Salado Barra (30 fishers) and El Porvenir (25 fishers). Fishing activity in these communities is mostly carried out using small wooden rowboats (canoes), with far fewer numbers of fibreglass boats using outboard motors.</p> <p><b>Organized groups:</b> in each of these communities there is a fishers association, one of the most outstanding of which is that of La Rosita. Another organization, APROCUS, brings together fishers from three communities: this is the strongest organization with the highest level of influence over management decisions in the area.</p>	<p><b>High.</b> Currently, APROCUS has great influence of the management of the fisheries resources of the MPA, and has the potential to participate in the application of sustainable fisheries strategies as part of the solution promoted by the project. This depends on commitments and capacities among each of the individual fishers.</p>	<p>APROCUS has the potential to participate actively and positively in fisheries management, if provided with knowledge and tools for responsible fishing, community-based fisheries monitoring and marine governance.</p>

Stakeholder group	Characteristics	Relevance to the project	Potential roles
	<b>Fishing methods used:</b> hooks, nets, chinchorros, currican. <b>Species:</b> pargos, meros, guaju, cawacha, jurel, pez pluma, calale. <b>Other economic activities:</b> agriculture, paid labour, tourism.		
Subsistence farmers	Subsistence agricultura is principally aimed at the production of staple grains (maize, beans and rice), while some farmers produce small quantities of chili, tomato, cabbages, cucumber and squash. This sector of the population has limited resources, and their production is for subsistence consumption or local markets. There are some groups of organized producers.	<b>High.</b> This group represents a significant threat, as the cause of fragmentation, pollution and degradación of coastal resources.	Could be involved in projects aimed at reforestation, crop diversification and good agricultural practices. To achieve this, alliances should be created with agricultural institutions or projects.
Medium and large farmers	<p>The three crops produced on a large scale are pineapple, oil palm and cocoa. The Standard Fruit Company has large pineapple plantations which employ around 1,600 people, making this one of the economically most important crops in the area. There are two agroindustrial companies, “Agropecuaria El Porvenir (AGROPOR)” and “Montecristo Packing Plant”.</p> <p>The oil palm plantations have undergone rapid expansión in the last 5 years, and are expanding into areas which were previously used for ranching and cocoa production. This crop employs around 20,000 people. Oil palm is grown by large landowners, and also by a large number of independent producers, represented by the National Federation of Oil Palm Producers (FENAPALMAH).</p> <p>Cocoa is typically associated with tree species and bananos or plantains. Cocoa producers typically have limited economic resources and limited marketing experience. They are represented by the Association of Cocoa Producers of Honduras (APROCACHO).</p>	<b>Medium.</b> This group of producers constitutes and threat for terrestrial BD in the Pas. The spread of oil palm has led to the loss of forest and mangroves, affecting the environmental sustainability of the Pas.	There is potential to involve these producers actively, through agreements with co-managers, ICF, SERNA and SAG, in reforestation, sustainable agriculture and clean development projects, as well as potentially schemes for environmental service payments.
Ranchers	<p>Most of the cattle herds are double-purpose. In small and medium-sized farms, ranchers obtain cash from the daily sale of milk and from the sale of bullocks weaned at the end of the rainy season. Milk and its derivatives are marketed locally through intermediaries, who then sell it to processing plants of the LEYDE company.</p> <p><b>Organized groups:</b> some of the ranchers of the area belong to the Association of Ranchers and Farmers of Atlántida, the Regional Association of Agricultural Producers, cooperatives</p>	<b>Medium.</b> This group of stakeholders is one of the main users of coastal ecosystems: this is an important source of employment for the local population, but also constitutes a threat to the environmental integrity of the MPAs.	Potential beneficiaries of technical assistance to be provided by, or in association with, co-managers. Potential contributors to possible future environmental service payment schemes.

Stakeholder group	Characteristics	Relevance to the project	Potential roles
	and milk collection centres.		
Tourism	Tourism is one of the main sources of income of the local population. In the PA there are various communities with tourism committees. The communities closest to the core zone offer tourism services. In addition to the community tourism committees, each municipality has a Tourism Unit. At Department level, there is a network of tourism communities (RECOTURH); this is active and works with the Chamber of Tourism of La Ceiba.	<b>High.</b> These groups and households dedicated to tourism depend on the existence of ecosystems and species to develop their economic activities, while restrictions on tourism activities aimed at protecting BD may affect their interests negatively in the short term.	Support to PA management: once the required capacities have been developed, this group of stakeholders may be assigned responsibilities for management, and may contribute to PA financial sustainability through the payment of fees and concessions.

#### Cayos Cochinos

Stakeholder group	Characteristics	Relevance to the project	Potential roles
Garifuna artisan fishers	<p>The main fishing communities in the area of influence of the PA are: Chachahuat (20 fishers), East End (10 fishers), Corozal (50 fishers), Cacao (20 fishers), Sambo Creek (20 fishers), Nueva Armenia (40 fishers), Balfate (40 fishers) y Río Esteban (30 fishers): a total of around 200 fishers. Each of these communities has a fishers association. The Association of Artisan Fishers of La Ceiba (ACEPA) has around 100 members, with modern launches, outboard motors, using drift nets and <b>cordel</b> for fishing. ACEPA has legal recognition as an organization, but it has significant organizational deficiencies.</p> <p><b>Fishing techniques:</b> hooks, drift nets, <b>chinchorros</b> and diving with speargun</p> <p><b>Species:</b> robalos, jureles, pargos, meros, corvinas, macarelas, sábalo, lisas, bagres, cawachas, lobster, conch and shark.</p> <p><b>Other economic activities:</b> agriculture, paid work, tourism and small scale trading.</p> <p>Artisan fishing accounts for around 30% of the income of these communities. The importance of fishing has declined in recent years, due to the rapid growth of tourism, as well as migration and remittances.</p>	<b>High.</b> The fishers are the main users of this marine area. For the communities in the PA, fishing is the main source of food, employment and income. The management regulations of the PA have generated conflicts between the co-manager and the fishers.	With an adequate induction process, the fishers could play an important role in collecting fisheries data, which could allow the joint formulation and implementation of management measures by the fishers and the PA managers.

Stakeholder group	Characteristics	Relevance to the project	Potential roles
Industrial fishers	Industrial fishing is an important economic sector for the north of the country, particularly the towns of La Ceiba, Roatán and Guanaja. Industrial fishing is sub-divided into several different fisheries (shrimp, scale fish, lobster and sea cucumber). One of the most recognized organizations of industrial fishers is APICAH.	<b>High.</b> Industrial fishers constitute a major threat for marine biodiversity. It is an urgent priority for them to be included in the management of the Pas of the north coast, given that the fisheries on which they depend in turn depend on the condition of the marine ecosystems.	Economic support for the management of PAs. Fisheries planning and management initiatives, and sustainable fishing. Rights-based fishing.
Subsistence agriculture	This is the predominant form of agricultura of the communities located in the area of influence of the PA. This type of farmer is characterized by limited access to capital, high dependence on family labour and problems with land tenure security. The principal crops produced are maize, beans, plantain and cassava. Although there are some organized groups of farmers, most work on an individual basis.	<b>Medium.</b> This group of farmers, although not located within the PA itself, represents a major threat for the marine ecosystems, due to their use of agricultural chemicals and the generation of soil erosion due to their agricultural practices.	Creation of alliances with agricultural institutions and projects which provide support to subsistence farmers. Involvement in reforestation, crop diversification and sustainable agriculture initiatives..
Tourism	Tourism has recently become the second most important resource use in the PA. Most of the communities have some tourism infrastructure. There are several community tourism committees, and the Garifuna communities have cultural groups (dance, theatre and handicrafts).  Another important actor in relation to tourism in the PA is the Chamber of Tourism of La Ceiba (CANATUR).	<b>High.</b> The numbers of households and groups providing tourism services have grown rapidly in recent years, placing increasing pressures on marine ecosystems.	Strengthening of tourism organizations and development of a sustainable tourism strategy. Possible financial contribution by tourism operators to the protection of natural resources of importance for tourism. Promotion of scientific tourism initiatives.

## Bay Islands MNP

Stakeholder group	Characteristics	Relevance to the project	Potential roles
Artisan and recreational fishers of Roatán and Guanaja	<p>The main communities of artisan fishers are: Punta Gorda (60 fishers), Oak Ridge (20 fishers), Santa Helena (30 fishers) Coxen Hole (20 fishers), Flowers Bay (20 fishers) and Guanaja (75 fishers). In most of these communities the fishers are not organized. At present, CEM is working with fishers of Punta Gorda to form a fishing cooperative.</p> <p>The recreational fishing communities are Sandy Bay, West End, French Harbor and Utila. There is a cooperative of sport fishers.</p> <p><b>Fishing practices:</b> hooks, anzuelo, chinchorros and spear fishing.</p> <p><b>Species:</b> pargos, meros, jacks, parrot fish, pelagic fish, lobster and conch.</p> <p>Sport fishing uses lines to catch blue marlín, barracuda, whoo, King fish and tuna.</p> <p>Other economic activities: tourism, paid work and small scale trading.</p>	<p><b>High.</b> Currently, there are few organized groups of fishers. However, they are highly relevant for the management of the natural resources of the PA and have the potential to contribute to the sustainability of the management of the PA and its fisheries resources. This depends on them being strengthened, empowered and provided with management tools. It is also vital to obtain commitment to sustainable fishing, from each fisher.</p>	<p>Active participation in the management of fisheries, subject to their strengthening and empowerment. Transfer of knowledge and tools for responsible fishing, community fisheries monitoring, marine governance, etc. Provision of opportunities to implement rights-based fishing, whereby they are themselves responsible for the protection of fisheries.</p>
Artisan fishers of Utila	<p>The 60 fishers of the cays of Utila are not organized, and operate individually. They normally use open boats (dories) made of wood, with diesel motors of between 15 and 150 HP.</p> <p><b>Fisheries techniques:</b> hooks, traps for groupers, spear fishing</p> <p><b>Species:</b> yellowtail snapper, tuna, wahoo, jacks, groupers, lobster and conch.</p> <p>This fisher community is composed of islanders (the owners of the boats) and immigrants from the mainland (crew members)</p> <p>The capture of groupers and yellowtail snapper is for export. The fishers sell these to three local purchasers, who sell them to export companies in Roatán.</p> <p><b>Other economic activities:</b> Tourism,</p>	<p><b>High.</b> The fishers are key actors for the management of the PA, given that they are the main users of the fishery resources of the area. Given that the fisheries are a free Access resource and not subject to effective control or supervision by the Government, local fishers carry out irresponsible practices which harm the ecosystem. Some fishers are aware of this problem and consider that they should be involved in fisheries management. Despite forming part of the problem, groups of fishers once strengthened and involved in fisheries management could become part of the solution.</p>	<p>The fishers should act as local co-managers of the fisheries of the PA. The managers of the PA should therefore involve them in fisheries planning (delimitation of fishing and reserve areas). Once these areas are defined, the fishers should be given responsibility for managing the offtake areas. An organized group of fishers should be formed, in order to implement management systems based on rights and principles of responsible fishing.</p>

Stakeholder group	Characteristics	Relevance to the project	Potential roles
	construction and small-scale trading.		
Tourism	Tourism is the main economic activity in the Bay Islands. There are a number of local and foreign providers of tourism services. Organized groups include the Bay Islands Chamber of Tourism, ZOLITUR, associations of dive shops, associations of hotel owners and local tourism committees.	<b>High.</b> Tourism is the main use of, and threat to, the natural resources of the PA. Accelerated tourism development has caused degradation of marine and coastal ecosystems. To improve the management of the PA, it is essential to involve all of the actors and businesses that provide tourism services.	Participation in the delimitation of area of permitted use, and in the production and implementation of a guide for the responsible use of marine resources in each area. Economic contributions for management actions linked to the tourism sector. Possible contributors to future schemes of payment for environmental services.

#### Guaimoreto Lagoon Wildlife Refuge

Stakeholder group	Characteristics	Relevance to the project	Potential roles
Artisan fishers	Artisan fishing is carried out in Garifuna communities located in the coastal zone. This activity is principally carried out in the marine area, and to a lesser degree within the lagoon itself. Around 40-80 fishers operate in the Lagoon, using wooden boats propelled with oars. The main fishing techniques used are hooks and nets.	<b>High.</b> The fishers are key actors for the management of the PA, given that they are the main users of the fishery resources of the area. Despite forming part of the problem, groups of fishers once strengthened and involved in fisheries management could become part of the solution	The fishers should act as local co-managers of the fisheries of the PA. An organized group of fishers should be formed, in order to implement management systems based on rights and principles of responsible fishing.
Aquaculture operators	There are various cooperatives of aquaculture operators active in the lagoon, one of the strongest of which is the Trujillo Aquaculture Cooperative, with 20 members. Its members principally produce tilapia, with around 20 cages.	<b>High.</b> The aquaculture producers are the principal users of the PA. Aquaculture is the main source of income for local households. Management regulations have generated conflicts between the co-manager and the aquaculture operators, which makes the involvement in the design and implementation of management mechanisms a prerequisite for the effective management of the PA.	Active participants in the management of the lagoon. The aquaculture producers should be made responsible for designing and implementing management actions that contribute to the conservation of the biodiversity of the lagoon. In addition, possible beneficiaries of programmes of technical assistance enabling them to improve their production practices.

Stakeholder group	Characteristics	Relevance to the project	Potential roles
Subsistence farmers	<p>Subsistence farms are not organized. They mainly produce staple grains (maize, rice, cocoa, coffee, plantains, watermelon and taro).</p> <p><b>Other economic activities:</b> daily paid work and salaried employment.</p>	<p><b>High.</b> Their productive activities constitute one of the greatest threats to the environmental sustainability of the PA. Given their limited access to cash and technical support, these producers practice shifting slash and burn agriculture, resulting in the advance of the agricultural frontier..</p>	<p>Involvement in possible programmes of training, technical assistance and credit. Given that the PA managers have little influence on agricultural issues, support to this group requires alliances with other institutions (such as SAG, development NGOs and the Panamerican Agricultural School)</p>
Medium to large farmers	<p>The main crops produced are oil palm, citrus, cassava, coconuts, plantains and bananas.</p>	<p><b>Medium.</b> This group constitutes one of the threats for the PA. Large scale farming has resulted in advance of the agricultural frontier, and the alteration of coastal ecosystems, especially mangroves.</p>	<p>Given that the technical and financial resources of the co-manager do not allow it to work on agricultural issues, alliances should be developed between these producers and support institutions in the agricultural sector. These producers may also be involved in clean development mechanism initiatives.</p>
Ranchers	<p>Ranching is carried out on small and medium scales, with between 10 and 200 head of cattle per herd. Ranchers face a range of problems related to shortage of pasture due to drought, and cattle theft.</p>	<p><b>Medium.</b> This group of stakeholders is one of the main users of coastal ecosystems: this is an important source of employment for the local population, but also constitutes a threat to the environmental integrity of the MPAs.</p>	<p>Partners in the implementation of measures to mitigate environmental impacts in the PA. Key actors for the implementation of responsible agricultural practices.</p>

## PART V. Stakeholder participation

### Consultations during the PPG phase

There has been extensive consultation with indigenous and other stakeholders regarding the proposed establishment of the Exclusive Zone for Artisan Fishing in the Moskitia, and representatives of all relevant stakeholder groups have expressed their written support to the proposal, in the letters presented as a separate file.

### Detailed list of stakeholders interviewed

Sector	Sub-Sector	Name	Number of people interviewed
Central Government Institutions	PA management	<ul style="list-style-type: none"> <li>• ICF</li> <li>• Dirección de Areas Protegidas y Visa Silvestre DAPVS</li> <li>• Departamento de Areas Protegidas</li> <li>• Departamento de Vida Silvestre</li> <li>• Unidad de Corredores Biológicos y Areas Protegidas</li> </ul>	7
	Políticas Ambientales	<ul style="list-style-type: none"> <li>• DIBIO - SERNA</li> </ul>	
	Turismo	<ul style="list-style-type: none"> <li>• IHT</li> </ul>	
	Protección Ambiental	<ul style="list-style-type: none"> <li>• Fiscalía Especial de Medio Ambiente</li> </ul>	
Regional Government Institutions	PA management	<ul style="list-style-type: none"> <li>• ICF Región Forestal de San Pedro Sula</li> <li>• ICF Región Forestal de Atlántida</li> <li>• ICF Región Forestal Nor Occidental</li> <li>• ICF Sub-Regional Tela</li> </ul>	15
	Políticas Ambientales	<ul style="list-style-type: none"> <li>• SERNA Oficina Regional San Pedro Sula</li> <li>• SERNA Oficina Regional La Ceiba</li> </ul>	
	Manejo Pesquero	<ul style="list-style-type: none"> <li>• DIGEPESCA Oficina Regional La Ceiba</li> <li>• DIGEPESCA Regional San Pedro Sula</li> <li>• DIGEPESCA Oficina de Tela</li> <li>• DIGEPESCA Oficina Roatán</li> <li>• DIGEPESCA Oficina Trujillo</li> <li>• DIGEPESCA Oficina Regional Omoa-Pto. Cortes</li> </ul>	
	Turismo	<ul style="list-style-type: none"> <li>• ZOLITUR</li> </ul>	
	Vigilancia y Protección	<ul style="list-style-type: none"> <li>• Fuerza Naval Base La Ceiba</li> <li>• Fuerza Naval Base San Pedro Sula</li> </ul>	
Instituciones Gubernamentales Nivel Local	Unidades Ambientales Municipales	<ul style="list-style-type: none"> <li>• UMA Tela</li> <li>• UMA El Porvenir</li> <li>• UMA San Francisco</li> <li>• UMA La Másica</li> <li>• UMA Esparta</li> <li>• UMA Arizona</li> <li>• UMA Trujillo</li> <li>• UMA Santos Guardiola</li> <li>• UMA Omoa</li> <li>• Departamento Ambiental Municipal Pto. Cortes</li> </ul>	12
	Entes Municipales	<ul style="list-style-type: none"> <li>• Unidad Turística Municipal de Municipalidad de Trujillo</li> <li>• Departamento Municipal de Justicia Utila</li> </ul>	
Comanejadores	ONG	<ul style="list-style-type: none"> <li>• Fundación Amigos Cayos Cochinos. HCRF</li> <li>• PROLANSTATE</li> </ul>	8

Sector	Sub-Sector	Name	Number of people interviewed
		<ul style="list-style-type: none"> <li>• FUCSA</li> <li>• FUCAGUA</li> <li>• BICA Utila</li> <li>• BICA Roatán</li> <li>• Roatán Marine Park</li> <li>• CCO</li> </ul>	
Entes Organizados Nivel Regional	Manejo de Recursos Naturales	<ul style="list-style-type: none"> <li>• TRIGOH</li> </ul>	1
Entes Organizados Nivel Local	Turismo	<ul style="list-style-type: none"> <li>• <b>CANATURH</b> Capítulo La Ceiba</li> <li>• Cámara de Turismo de Utila</li> <li>• Cámara de Turismo Trujillo</li> <li>• Cámara de Turismo de Roatán</li> <li>• RECOTURH Red de Comunidades Turísticas de Honduras</li> </ul>	6
	Ambiente	<ul style="list-style-type: none"> <li>• AMATELA. Asociación Amigos Arrecife de Tela</li> </ul>	
Participación Ciudadana	Consejos Consultivos Forestal, Áreas Protegidas y Vida Silvestre	<ul style="list-style-type: none"> <li>• Consejo Consultivo Municipal Omoa</li> <li>• Consejo Consultivo Comunitario Comunidad Salado Barra</li> <li>• Consejo Consultivo Comunitario Comunidad Hicaque</li> <li>• Consejo Consultivo Comunitario Guaimoreto</li> <li>• Consejo Consultivo Comunitario Comunidad Oak Ridge</li> <li>• Consejo Consultivo Comunitarios de Gravel Bay</li> <li>• Consejo Consultivo Comunitario Cuyamel-Omoa</li> </ul>	7
Grupos organizados sector pesquero	Artesanal	<ul style="list-style-type: none"> <li>• Cooperativa Unión Mixta Tornabeña</li> <li>• Pescadores de Santa Elena (Roatán)</li> <li>• Asociación de Pescadores de Punta Gorda (Roatán)</li> <li>• Pescadores de Comunidad de Miami</li> <li>• Asociación de Pescadores Triunfo de la Cruz</li> <li>• Asociación de Pescadores de Cuero y Salado APROCUS</li> <li>• Asociación Delfines de la Rosita</li> <li>• Asociación de Pescadores de Los Cayitos (Utila)</li> <li>• Asociación Pescadores Río Negro (Trujillo)</li> <li>• Asociación de Acuicultores (Trujillo)</li> <li>• Asociación de Pescadores Capiro-Jerico (Trujillo)</li> <li>• Asociación Pescadores Yalifu (Masca)</li> <li>• FENAPESCA Sector Puerto Cortés- Omoa</li> <li>• Cooperativa de Pescadores de Pto. Cortes COPESPCOL</li> </ul>	15
	Industrial	<ul style="list-style-type: none"> <li>• APICAH</li> </ul>	
Cooperación Internacional	Proyectos	<ul style="list-style-type: none"> <li>• Proyecto Desarrollo de un Modelo de Turismo Sostenible en la Costa Norte de Honduras</li> <li>• PROCORREDOR</li> <li>• Proyecto Mejora de Sistemas Productivos para Pescadores y Pescadoras Artesanales de Costa Norte. AEIC</li> </ul>	3

### **Provisions for participation during the implementation phase**

The main opportunity for direct stakeholder inputs into the operational and strategic direction of the project will be through the Project Board. As explained in Section I Part III of the Project Document, the core members of the Board will be SERNA (chair), UNDP (secretary), the Ministry of Planning (SECPLAN) the Ministry of Agriculture and Livestock (SAG, to which DIGEPESCA belongs) and the

Institute of Forest Conservation and Development (ICF). In order to maximize participation opportunities, however, Board meetings will be opened to representatives of all main stakeholder groups. The National Project Coordinator will be responsible for ensuring timely and broad announcement of when the meetings will be held, and for developing and applying mechanisms to allow feedback from stakeholders on the adequacy and effectiveness of provisions for their participation in the Board and in other participation opportunities provided by the project. Board meetings will be held in the project area, normally in La Ceiba but with the option of moving periodically to other locations in the area, such as the Bay Islands. Specific budgetary provision will be made for facilitating the travel of selected stakeholder representatives to Board meetings.

The only element of the project which has significant implications for indigenous groups (the Miskitos), the Exclusive Zone for Artisan Fishing in the Moskitia, has already been consulted with, and received firm written expressions of support from, all relevant stakeholder groups in the Moskitia including representatives of indigenous organizations and federations (see letters and minutes in separate Annex of Project Document). The project as a whole has also been socialized with all relevant stakeholders, including representatives of the Miskito indigenous group, through a multi-stakeholder workshop (see minutes in Annex to this document). With support from UNDP Country Office, a mechanism for Free Prior Informed Consent by indigenous groups is currently under development in Honduras, with the full and active participation of indigenous representatives. As a precursor to the FPIC mechanism, a Biocultural Protocol has been agreed between the Government and indigenous groups, and all project initiatives with potential implications for the access by indigenous people to biocultural resources will be subject to the conditions of this protocol.

The project will also strengthen mechanisms for stakeholder participation in PA management and zoning, under Output 2.2c: during the project period, this will also in practice facilitate stakeholder participation in decisions of the project itself at local level, regarding the development and application of PA management strategies. As explained in the text of the Project Document, key features of the approach to participation proposed under Output 2.2c are that it will take advantage of existing social institutions such as village committees (patronatos), water user committees (juntas de agua), producer and fisher organizations or cooperatives, community-based NGOs and indigenous organizations; and that it will explore a wide range of alternative stakeholder participation mechanisms (ranging from committees involving leaders of stakeholder organisations through to bilateral interviews and participatory social appraisal methods).

# and Coastal Protected Areas in Honduras (as of 2011)

	CATEGORIA DE MANEJO	AREA. HAS.	PRIORITARIAS	NO PRIORITARIAS	INSTRUMENTO LEGAL	ORIGEN DE INSTRUMENTO LEGAL	N° INSTRUMENTO LEGAL	LIMITES DEFINIDO	LIMITES DEMARCADOS	PLAN DE MANEJO	EXISTENCIA CONVENIO COMANEJO	PRESENCIA DE OTROS ACTORES
	Monumento Natural Marino	122,012.84	X		Decreto	Legislativo	114- 03	X	X**	Aprobado: Resolution: GG-MP- 178-2008	<b>Fundation Hondureña para la Protection y Conservation de Cayos Cochinos (HCRF)</b> y Municipalidad de Roatan.	Fundation Cayos Cochinos, WWF, TNC, USAID.
	Parque Nacional	18,584.54		X	Decreto	Legislativo	261- 00	X	X**	Aprobado: JI-MP-013 2004/25 Agosto 2004	PROLASANTE, Municipalidades de Arizona, Yoro, y Esparta.	ICF, OFRANEH
	Parque Nacional	79,381.78	X		Decreto	Legislativo	154- 94 43-95	X	X**	Aprobado: JI-MP-020- 2004/ 02 SEP-2004	<b>PROLANSATE,</b> , Municipalidades de Puerto Cortes,Tela, y Esparta	I.C.F., IHT, PROCORREDOR / SERNA.
	Parque Nacional	499.59	X		Decreto	Legislativo	75- 2010					I.C.F. IHT, BICA. Municipalidad Santos Guardiola del Departamento de Islas de la Bahía.
	Parque Nacional Marino	647,152.49	X		Decreto	Legislativo	75- 2010	x			<b>Instituto Hondureño de Turismo</b>	Municipalidades de Roatán, Utila, Guanaja y Santos Guardiola.
	Refugio de Vida Silvestre	13,027.00	X		Decreto	Legislativo	99- 87 38-89	X	X*	Aprobado JI-MP-014- 2004/27 agosto	<b>FUCSA</b> y Municipalidades El Porvenir, San Francisco, La	FUCSA, PROCORREDOR /SERNA

CODIGO	NOMBRE	CATEGORIA DE MANEJO	AREA. HAS.	PRIORITARIAS	NO PRIORITARIAS	INSTRUMENTO LEGAL	ORIGEN DE INSTRUMENTO LEGAL	N° INSTRUMENTO LEGAL	LIMITES DEFINIDO	LIMITES DEMARCADOS	PLAN DE MANEJO	EXISTENCIA CONVENIO COMANEJO	PRESENCIA DE OTROS ACTORES
RVS013Hnd	Turtle Harbour	Refugio de Vida Silvestre	933.85	X		Decreto	Legislativo	75-2010	X			BICA	IHT, Municipalidad de Utila
PNM002Hnd	Abogado Agustin Córdoba Rodríguez (Isla del Cisne)	Parque Nacional Marino	358.88	X		Acuerdo	Presidencial	3056-91					Fuerza Naval de Honduras
RVS001Hnd	Laguna de Guaymoreto	Refugio de Vida Silvestre	8,018.73	X		Acuerdo	Presidencial	1118-92	X	X		FUCAGUA, Municipalidad de Trujillo	ICF, PROCORREDOR /SERNA
PN022Hnd	Cuyamel-Omoa	Reserva Biológica	30,029.00		X	Propuesta			X	X		Cuerpos de Conservación de Omoa (CCO). Municipalidad de Omoa.	I.C.F.
PNM004Hnd	Cayos Misquitos	Parque Nacional Marino	27,966.43		X	Propuesta							
RB007Hnd	Cayos Zapotillos	Reserva Biológica	1,063.89		X	Propuesta							
<b>TOTAL</b>			<b>949,029.01</b>										

**PART VII. List of the fish species caught by the artisanal fisheries of the north shore of Honduras in coral reef, near shore marine and brackish water lagoon areas.**

The fishing methods normally used to catch each species and their usual market destination are also included.

				Fishing Gear									Market Destination			
				Shallow-water hook & line	Deep-water hook & line	Off shore trolling	Long line	Gill nets	Trammel nets	Beach seines	Diving / Spear fishing	Traps	U.S Market	Caribbean Market (Jamaica /Cayman)	National Market	Regional Salt fish
	Fish species	Latin name	Fishery type													
Inverts	Conch	<i>Strombus gigas</i>	Shallow reef								x		x			
	King Crab	<i>Mithrax spinosissimus</i>	Shallow reef								x				x	
	Lobster	<i>Panularis argus</i>	Shallow reef								x	x	x			
	Blue crab	<i>Callinectes sapidus</i>	Lagoon / near shore					x	x							
Tuna	Blackfin tuna	<i>Thunnus atlanticus</i>	Pelagic			x	x								x	
	Little tunny	<i>Euthynnus alletteratus</i>	Pelagic			x	x								x	
	Skipjack tuna	<i>Katsuwonus pelamis</i>	Pelagic			x	x								x	
	Yellowfin tuna	<i>Thunnus albacares</i>	Pelagic			x	x								x	
Pelagics	Bar jack	<i>Caranx ruber</i>	Pelagic / near shore	x		x		x	x	x	x	x			x	x
	Barracuda	<i>Sphyraena barracuda</i>	Pelagic/ near shore	x		x		x	x		x				x	x
	Dolphinfish	<i>Coryphaena hippurus</i>	Pelagic			x	x								x	
	Greater Amberjack	<i>Seriola dumerili</i>	Pelagic			x	x								x	x
	Horse eye jack	<i>Caranx latus</i>	Pelagic /near shore			x	x	x	x	x					x	x
	Kingfish	<i>Scomberomorus cavalla</i>	Pelagic			x	x	x							x	
	Lesser Amberjack	<i>Seriola fasciata</i>	Pelagic			x	x								x	x
	Spanish Mackerel	<i>Scomberomorus maculatus</i>	Pelagic			x	x	x							x	
	Wahoo	<i>Acanthocybium solandri</i>	Pelagic			x	x								x	
Grouper	Black grouper	<i>Mycteroperca bonaci</i>	Shallow reef	x							x	x	x			
	Coney	<i>Cephalopholis fulva</i>	Shallow reef	x						x	x	x			x	
	Gag Grouper	<i>Mycteroperca microlepis</i>	Shallow reef		x											
	Goliath Grouper	<i>Epinephelus itajara</i>	Shallow reef/lagoon	x				x			x		x			

	Grasby	<i>Cephalopholis cruentatus</i>	Shallow reef	x						x	x	x				x	
	Nassau grouper	<i>Epinephelus striatus</i>	Shallow reef/lagoon	x				x			x	x	x	x			
	Red Grouper	<i>Epinephelus morio</i>	Shallow reef	x													
	Red hind	<i>Epinephelusguttatus</i>	Shallow reef	x								x	x				
	Rock Hind	<i>Epinephelus adscensionis</i>	Shallow reef	x								x	x				
	Tiger Grouper	<i>Mycteroperca tigris</i>	Shallow reef	x								x					
	Yellowedge grouper	<i>Hyporthodus flavolimbatus</i>	Shallow reef	x								x	x				
	Yellowfin grouper	<i>Mycteroperca veneosa</i>	Shallow reef	x								x	x				
	Yellowmouth Grouper	<i>Mycteroperca interstitialis</i>	Shallow reef	x								x					
	Misty grouper	<i>Hyporthodus mystacinus</i>	Deep shelf		x											x	
Snapper	Cubera snapper	<i>Lutjanus cyanopterus</i>	Shallow reef	x								x				x	
	Dog Snapper	<i>Lutjanus jocu</i>	Shallow reef	x								x				x	
	Glass eye snapper	<i>Heteropriacanthus cruentatus</i>	Shallow reef	x	x											x	
	Grey snapper	<i>Lutjanus griseus</i>	Shallow reef	x				x				x				x	
	Lane snapper	<i>Lutjanus synagris</i>	Shallow reef	x				x			x	x	x			x	
	Mahogany snapper	<i>Lutjanus mahogoni</i>	Shallow reef	x				x			x	x	x			x	
	Mutton snapper	<i>Lutjanus analis</i>	Shallow reef	x					x			x				x	
	School master snapper	<i>Lutjanus apodus</i>	Shallow reef	x				x			x	x	x			x	x
	Tomtate	<i>Haemulon aurolineatum</i>	Shallow reef	x							x					x	
	Yellowtail snapper	<i>Ocyurus chrysurus</i>	Shallow reef	x							x					x	
	Blackfin Snapper	<i>Lutjanus buccanella</i>	Deep shelf		x											x	
	Caribbean red snapper	<i>Lutjanus purrpheus</i>	Deep shelf		x											x	
	Queen snapper	<i>Etelis oculatus</i>	Deep shelf		x											x	
	Red Snapper	<i>Lutjanus campechanus</i>	Deep shelf		x											x	
	Silk snapper	<i>Lutjanus vivanus</i>	Deep shelf		x											x	
	Vermillion snapper	<i>Rhomboplites aurorubens</i>	Deep shelf		x											x	
Grunts	Bluestriped grunt	<i>Haemulon sciurus</i>	Shallow reef	x							x	x	x			x	
	French grunt	<i>Haemulon flavolineatum</i>	Shallow reef	x							x	x	x			x	
	White grunt	<i>Haemulon plumierii</i>	Shallow reef	x							x	x	x			x	

Porgy	Jolthead Porgy	<i>Calamus bajonado</i>	<i>Shallow reef</i>	x						x	x	x				x	
	Knob head porgy	<i>Calamus nodosus</i>	<i>Shallow reef</i>	x						x	x	x				x	
	Saucer eye porgy	<i>Calamus calamus</i>	<i>Shallow reef</i>	x						x	x	x				x	
Parrotfish	Blue parrotfish	<i>Scarus coeruleus</i>	<i>Shallow reef</i>								x	x				x	
	Midnight parrotfish	<i>Scarus coelestinus</i>	<i>Shallow reef</i>								x					x	
	Princess parrotfish	<i>Scarus taeniopterus</i>	<i>Shallow reef</i>								x	x				x	
	Queen parrotfish	<i>Scarus vetula</i>	<i>Shallow reef</i>								x					x	
	Rainbow parrotfish	<i>Scarus guacamaia</i>	<i>Shallow reef</i>								x					x	
	Redband parrotfish	<i>Sparisoma aurofrenatum</i>	<i>Shallow reef</i>							x	x	x				x	
	Redtail parrotfish	<i>Sparisoma chrysopterus</i>	<i>Shallow reef</i>							x	x	x				x	
	Stoplight parrotfish	<i>Sparisoma viride</i>	<i>Shallow reef</i>							x	x	x				x	
	Striped parrotfish	<i>Scarus iserti</i>	<i>Shallow reef</i>							x	x	x				x	
	Yellowtail parrotfish	<i>Sparisoma rubripinne</i>	<i>Shallow reef</i>									x				x	
Trigger fish	Gray Triggerfish	<i>Balistes capriscus</i>	<i>Shallow reef</i>	x							x					x	
	Ocean Triggerfish	<i>Canthidermis sufflamen</i>	<i>Shallow reef</i>	x							x					x	
	Queen Triggerfish	<i>Balistes vetula</i>	<i>Shallow reef</i>	x				x	x		x	x				x	
Other reef fish	Hogfish	<i>Lachnolaimus maximus</i>	<i>Shallow reef</i>	x				x	x		x					x	
	Longspine squirrelfish	<i>Holocentrus rufus</i>	<i>Shallow reef</i>	x						x	x	x				x	
	Nurse shark	<i>Ginglymostoma cirratum</i>	<i>Shallow reef</i>	x				x	x	x			x			x	
	Reef squirrelfish	<i>Sargocentron coruscum</i>	<i>Shallow reef</i>	x						x	x	x				x	
Snook	Swordspine snook	<i>Centropomus ensiferus</i>	<i>Lagoon/ near shore</i>					x								x	x
	Fat snook	<i>Centropomus parallelus</i>	<i>Lagoon/ near shore</i>					x								x	x
	Tarpon snook	<i>Centropomus pectinatus</i>	<i>Lagoon/ near shore</i>					x								x	x
	Common snook	<i>Centropomus undecimalis</i>	<i>Lagoon/ near shore</i>					x								x	x
Croakers (Corvina)	Croakers	<i>Bairdiella sp</i>	<i>Lagoon/ near shore</i>					x								x	
	Ground croaker	<i>Bairdiella ronchus</i>	<i>Lagoon/ near shore</i>					x								x	
	Gulf croaker	<i>Menticirrhus littoralis</i>	<i>Lagoon/ near shore</i>					x								x	
n and near shore	Atlantic Tarpon	<i>Megalops atlanticus</i>	<i>Lagoon/ near shore</i>	x			x	x								x	x
	Atlantic bumper	<i>Chloroscombrus chrysurus</i>	<i>Lagoon/ near shore</i>					x		x						x	

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## PART VIII. Financial Data for 7 Surveyed PAs

### 1. Income for 7 selected PAs (by management entity) in 2001 (US\$).

AVAILABLE FUNDS US\$	HCRF	FUCSA	PROLANSATE	BICA Útila	BICA Roatán	R Marine Park	ICF	SERNA	TOTAL	Percentage of the total
Government	25,000.00		4,875.00				46,182.55	5,000.00	81,057.55	3,8%
Operating budget	25,000.00		4,875.00				46,182.55	5,000.00	81,057.55	
Budget for investment and infrastructure									-	
Extra-budgetary funding for PA management	-	128,562.40	236,772.90	24,900.00	87,000.00	120,678.00	-	-	597,913.30	28,.0%
Channelled through Government	-	126,518.55	165,272.90	-	45,000.00	11,450.00	-	-	348,241.45	
Taxes used por PAs									-	
Trust Funds		2,842.11							2,842.11	
Donor Funds		123,676.44	165,272.90		45,000.00	11,450.00			345,399.34	
Loans									-	
Debt-for-Nature swaps									-	
Funds channelled through third parties	-	2,043.85	71,500.00	24,900.00	42,000.00	109,228.00	-	-	249,671.85	
Trust Funds									-	
Donor Funds		1,517.53	70,000.00	24,000.00	22,000.00	87,280.00			204,797.53	
Loans									-	
NGO			1,500.00						44,874.32	

AVAILABLE FUNDS US\$	HCRF	FUCSA	PROLANSATE	BICA Útila	BICA Roatán	R Marine Park	ICF	SERNA	TOTAL	Percentage of the total
memberships		526.32		900.00	20,000.00	21,948.00				
Total income	1,243,023.00	23,947.37	16,622.50	5,638.79	-	163,616.00	-	-	1,452,847.66	68,0%
Tourism income	553,023.00	23,947.37	15,872.50	-	-	-	-	-	592,842.87	
Tourism entry fees	58,023.00	23,947.37	10,772.50						92,742.87	
Other fees related to tourism and recreation	495,000.00		5,100.00						500,100.00	
Income from concessions									-	
Payment for Environmental Services									-	
Water, Carbon, Biodiversity and Others									-	
Other fees and charges not related to tourism	690,000.00		750.00	5,638.79		163,616.00			860,004.79	
Fees for scientific research									-	
Genetic patents									-	
Pollution charges									-	
NGO souvenir sales			750.00	800.00		101,184.00			102,734.00	
Others	690,000.00			4,838.79		62,432.00			757,270.79	
<b>GRAND TOTAL</b>	<b>1,268,023.00</b>	<b>152,509.77</b>	<b>258,270.40</b>	<b>30,538.79</b>	<b>87,000.00</b>	<b>284,294.00</b>	<b>46,182.55</b>	<b>5,000.00</b>	<b>2,131,818.51</b>	

## 2. Financial needs for surveyed PAs, under basic and optimum management scenarios

	HCRF	FUCSA	PROLANSATE	BICA Útila	BICA Roatán	R Marine Park	ICF	SERNA	CCO	FUCAGUA	TOTAL
Total PA management costs	655.000,00	164.993,45	256.825,00	97.200,00	106.500,00	233.094,00	46.182,55	5.000,00			<b>1,564,795.00</b>
Government							46.182,55	5.000,00			<b>51,182.55</b>
Independent/other sources	655.000,00	164.993,45	256.825,00	97.200,00	106.500,00	233.094,00					<b>1,513,612.45</b>
Estimated financial needs											
Estimated financial needs for basic management	655.000,00	164.993,45	280.975,00	97.200,00	106.500,00	233.094,00	146.658,54	15.000,00			<b>1,699,420.99</b>
Operational costs at central level							146.658,54	15.000,00			<b>161,658.54</b>
Site-level PA operational costs	655.000,00	164.993,45	275.575,00	97.200,00	106.500,00	233.094,00					<b>1,532,362.45</b>
Site-level infrastructure investment costs											
Capacity development costs			5.400,00								<b>5,400.00</b>
Estimated financial needs for optimum management	850.000,00	195.275,00	483.240,00	255.500,00	271.250,00	505.368,00	293.317,07	20.000,00			<b>2,873,950.07</b>
Operational costs at central level							293.317,07	20.000,00			<b>313,317.07</b>
Site-level PA operational costs	850.000,00	165.275,00	451.025,00	255.500,00	221.250,00	480.368,00					<b>2,432,418.00</b>
Site-level infrastructure investment costs		30.000,00	32.215,00		50.000,00	25.000,00					<b>137,215.00</b>

	HCRF	FUCSA	PROLANSATE	BICA Útila	BICA Roatán	R Marine Park	ICF	SERNA	CCO	FUCAGUA	TOTAL
Capacity development costs											
Estimated financial needs to expand the PA system to be ecologically representative									292.325,50	439.800,00	<b>732,125.50</b>
Basic management costs for new PAs									83.500,00	138.975,00	<b>222,475.00</b>
Optimum management costs for new PAs									208.825,50	300.825,00	<b>509,650.50</b>

### 3. Funding gap for 7 surveyed PAs, under basic and optimum management scenarios

	HCRF	FUCSA	PROLANSATE	BICA Útila	BICA Roatán	R Marine Park	ICF	SERNA	CCO	FUCAGUA	TOTAL
Annual funding gap for basic management scenario	613.023,00	(12.483,70)	(22.704,60)	(66.661,21)	(19.500,00)	51.200,00	(100.475,98)	(10.000,00)			432.397,51
Operations											
Infrastructural investment											
Annual funding gap for optimum management scenario	418.023,00	(42.765,25)	(224.969,60)	(224.961,21)	(184.250,00)	(221.074,00)	(247.134,52)	(15.000,00)			(742.131,58)
Operations											
Infrastructural investment											
Annual financial gap for basic management of expanded PA system									(83.500,00)	(50.335,00)	(133.835,00)
<b>Financial gap without including Cayos Cochinos</b>											
Annual funding gap for basic management scenario		(12.483,70)	(22.704,60)	(66.661,21)	(19.500,00)	51.200,00	(100.475,98)	(10.000,00)			(180.625,49)
Operations											
Infrastructural investment											
Annual funding gap for optimum management scenario		(42.765,25)	(224.969,60)	(224.961,21)	(184.250,00)	(221.074,00)	(247.134,52)	(15.000,00)			(1.160.154,58)
Operations											
Infrastructural investment											

	HCRF	FUCSA	PROLANSATE	BICA Útila	BICA Roatán	R Marine Park	ICF	SERNA	CCO	FUCAGUA	TOTAL
Annual financial gap for basic management of expanded PA system									(83.500,00)	(50.335,00)	(133.835,00)

## PART IX. Biological Monitoring Plan

### 1. Simplified Integrated Index of Reef Health (SIIRH) (Healthy Reefs Initiative, 2010)

This indicator comprises 7 sub-indicators:

- Coral cover: the proportion of the reef area which is covered by live rocky corals.
- Incidence of coral disease: the percentage of the total number of colonies which is visibly affected by some disease.
- Coral recruitment: the process by which drifting coral larvae adhere to the sea floor and start to grow (vital as a measure of recovery following disturbance, measured as the number of recruits per square metre).
- Index of fleshy macroalgae: the percentage of the surface of the reef which is covered by fleshy macroalgae, measured through the same transects used to determine coral cover.
- Abundance of herbivorous fish: the biomass (total fish weight/unit area) of surgeon and parrot fish, which are vital for controlling smothering plants.
- Abundance of commercial fish: the biomass (total fish weight/unit area) of fish of commercial importance.
- Abundance of crown of thorns urchin, a key herbivore which grazes on algae.

Guidance values for these indicators are as follows:

INDEX/ INDICATOR	VERY GOOD (5)	GOOD (4)	FAIR(3)	POOR (2)	CRITICAL (1)
<b>Coral Index</b>					
Coral cover (%)	≥40	20.0–39.9	10.0–19.9	5.0–9.9	<5
Coral disease prevalence(%)	<1	1.1–1.9	2.0–3.9	4.0–6.0	>6
Coral recruitment (m <sup>-2</sup> )	≥10	5.0–9.9	3.0–4.9	2–2.9	<2
<b>Reef Biota Index</b>					
Fleshy Macroalgal Index	<10	10–19	20–39	40–59	≥60
Herbivorous fish abundance (g·100m <sup>-2</sup> )	≥4800	3600–4799	2400–3599	1200–2399	<1200
Commercial fish abundance (g·100m <sup>-2</sup> )	≥2800	2100–2799	1400–2099	700–1399	<700
<i>Diadema</i> abundance (m <sup>-2</sup> )	>2.5 (and <~7)	1.1–2.5	0.5–1.0	0.25–0.49	<0.25

**Methodology:** the SIIRH will be evaluated in each target site, by qualified personnel from CEM (in coordination with ICF), using the standardized Atlantic and Gulf Rapid Reef Assessment (AGRRA) protocol (see [www.agrra.org](http://www.agrra.org)). This protocol has been promoted and applied to date in Honduras by the Healthy Reefs Initiative (HRI) and its members (government institutions, NGO co-managers, academia and others). CEM has an agreement with ICF which provides for its responsibility for monitoring and research, as well as training and institutional strengthening of ICF.

## **2. Coverage (hectares) of mangrove forests within protected areas**

This indicator reflects the direct correlation that is assumed between mangrove cover and marine/coastal biodiversity status. It will be measured using satellite imagery (see [www.promebio.irbioccad.org](http://www.promebio.irbioccad.org) for measurement protocols) and area changes will be calculated using the programmes Fragstats and Erdas ArcGIS. ICF will be responsible for monitoring of this indicator, through its remote sensing unit (the Forest Estate Information Centre or CIPF) in the Department of Protected Areas.

## **3. Landscape similarity index (% LSIM) of mangrove forests within protected areas**

This indicator of connectivity measures the relative predominance (%) of the area of the target forest type. It will be measured using satellite imagery (see [www.promebio.irbioccad.org](http://www.promebio.irbioccad.org) for measurement protocols) and area changes will be calculated using the programmes Fragstats and Erdas ArcGIS. ICF will be responsible for monitoring of this indicator, through its remote sensing unit (the Forest Estate Information Centre or CIPF) in the Department of Protected Areas.

## **4. Fractal Dimension Index (FRACT) of mangrove forests within protected areas**

This index of connectivity indicates the convolution of the form of each patch and ranges from  $1 \leq \text{FRACT} \leq 2$ . Values of 1 are simple forms (circles, squares) and values of 2 are highly complex. It will be measured using satellite imagery (see [www.promebio.irbioccad.org](http://www.promebio.irbioccad.org) for measurement protocols) and area changes will be calculated using the programmes Fragstats and Erdas ArcGIS. ICF will be responsible for monitoring of this indicator, through its remote sensing unit (the Forest Estate Information Centre or CIPF) in the Department of Protected Areas.

## **5. Status of species of special concern**

### ***i) Manatee (*Trichechus manatus*): annual presence young individuals.***

Presence/absence measure, using aerial observations (# observations/flight hour), or by kayak for specific sites.

### ***ii) Nesting sites for marine birds: % of sites verified with annual breeding.***

Inspections of pre-identified nesting sites during nesting periods.

### ***iii) Staghorn coral (*Acropora cervicornis*): average % of live coral cover in Banco Cordelia.***

Obtained from AGRRA monitoring.

### ***iv) SPAGs: Verification of breeding event in 100% of known sites.***

Inspection of pre-identified aggregation sites during aggregation periods, using SCUBA equipment.