

**ANNEX IV**  
**INCORPORATION OF STAP REVIEWER’S COMMENTS**

STAP reviewer comments are presented as italics

*“Controlling fishing with sustainable limits will be difficult.. The possibility of giving individual communities sole rights to particular fishing areas might be considered.”*

The issue of fishing rights for traditional fishermen will be addressed through the zoning scheme in marine protected areas. Conservation Zone II will allow limited extraction with priority being given to those traditionally using that area.

*“Reduction or elimination of economic incentives which lead to increased nutrient run-off from the land, for instance the subsidy on fertilizers, is highly desirable.”*

There is no evidence from a satellite image of the Belizean coast that the pollution plume, including sediment, nutrient enrichment and other contaminants, is an immediate threat to the barrier reef complex. Nevertheless, taking a long-term perspective, the role of economic incentives in increased nutrient enrichment is a valid concern. Guaranteeing the reduction or elimination of economic incentives (such as the subsidy on fertilizers) is outside the scope of the project. However, mobilizing and raising awareness among key government officials and the Board of Directors of the CZM Authority about the impact of such subsidies on the ecology of the barrier reef complex is an integral component of the project. The strengthened technical capacity of the CZM institute to monitor reef health and provide sound scientific data and analysis on the impact of nutrient run-off, along with the inter-sectoral composition of the CZM Authority offers a good opportunity to influence policy relating to subsidies. The issue of reduced fertilizer use will partly also be addressed as part of the government’s baseline program on sustainable agriculture.

*“This raises the question of how resources will be found for such continued planning after the completion of this project.”*

Effective coordination and planning in the coastal zone must be predicated on sound scientific data collection, monitoring and analysis capacities, appropriate training of the members of the CZM Authority, and also training and participation of stakeholders in the coastal zone in designing regional plans. All these activities are essential to developing management strategies that are feasible and practical and that provide a sound basis for conserving coastal and marine biodiversity. Belize needs external assistance to overcome these initial barriers and it is in this context that existing outlays under the baseline (outlays for core expenses such as salaries and administration) are unlikely to provide the above described sound foundation for long-term biodiversity conservation. Components 4 and 5 will contribute towards meeting the recurrent costs of continued planning and management in the coastal zone over and above core expenses covered by the government.

*“Careful attention will have to be given to defining the respective responsibilities of, and relationship between, the Coastal Zone Management Authority and the Coastal Zone Management Institute and their CEOs.”*

While thus far there has been no evidence of competition between the CZM Authority,

the Technical Institute and their respective CEOs, responsibilities need to be clearly outlined for the different decision making bodies. We are fully cognizant of this and explicit terms of reference are going to be developed and agreed upon by all parties. *“The Data Center should be located in the CZM Institute.”*

The data center will be part of the CZM Institute (see outputs 1.6 and 1.7).

*“The Authority will need to be given by the Government real authority ... ”.*

The ideal situation is one where the CZMA has full authority. However, this incipient institutional structure is still new to Belize and it must first test it out before vesting full authority. The strategy over the next five years is to work gradually towards full delegation of power with authority being given progressively.

*“Consideration might be given to requiring, as a condition of having a permit, tourist operators in protected areas (such as dive operators) to collect on behalf of the Government a daily “management charge” from each tourist using their service.”*

The most appropriate modality for collecting user fees will be one of the initial activities of component 4 and the reviewer’s recommendation can be considered therein. Belize has an existing policy environment that is suited to the use of economic instruments for conservation financing for terrestrial and marine conservation areas. In addition tourists are charged a conservation fee at the point of exit. Therefore, it is important to not only choose the most appropriate way of collecting user fees but to also consider a streamlined process of collection in order not to overburden the users (see output 4.4).

*“Attention should be given to representation of women and young people in appropriate fora and organisations.”*

While historically Belize has had a fairly good record of participation of women, the reviewer’s comment will be taken into account in the establishment of the CACs (output 1.3) and MPAACs (output 2.1).

*“It is recommended that the strategy of “training the trainers” be applied to all aspects of capacity building, to take advantage of the multiplier effect.”*

Again, this strategy will be taken into account in all training activities under Outputs 1, 2, 3 and 6.

*“Network of voluntary wardens for MPAs... However this should be done with recognition of the difficulties involved – particularly the clear definition of the powers (and limits of powers)of the wardens, their relationship with the professional officers and their selection and training to cope with occasional violence or threat.”*

This is a very valid concern. Belize has a system of “special constables” whereby persons are trained in basic law enforcement skills to ensure that powers are exercised appropriately. In selecting voluntary wardens for the protected area network, the project will draw on this existing system.

#### *General minor points*

- List of references has been inserted.

- Endorsement of the operational focal point has been obtained.
- List of acronyms is now complete.
- The known and verified crocodile attacks have not come from the saltwater crocodile (or the American crocodile). There have been some cases of attacks by saltwater crocodiles that have been attracted by open garbage dumps, but these have been on dogs and not humans. Therefore, what is needed is to raise awareness in these areas about this issue and to promote the better management of garbage dumps as a solution, rather than the killing of crocodiles.

**ANNEX V**  
**LETTER OF ENDORSEMENT**



**GOVERNMENT OF BELIZE**  
*Ministry of Economic Development*

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*Belmopan*  
*Belize, Central America*

August 4, 1998

Mr. Bruno Moro  
Resident Representative  
United Nations Development Programme  
El Salvador

**Dear Mr. Moro:**

**RE: CONSERVATION AND SUSTAINABLE USE OF THE BARRIER REEF COMPLEX**

The Government of Belize hereby expresses its support for and endorsement of the above-cited project brief in accordance with the Coastal Zone Steering and Technical Committees.

Submitted for your kind consideration.

**With Best Wishes!**

A handwritten signature in black ink, appearing to read "Zenaida Moya".

**Zenaida Moya (Ms.)**  
**GEF Operational Focal Point**  
**for Permanent Secretary**  
**Ministry of Economic Development**

cc: Mr. Moises Cal, Programme Officer, UNDP, Belize

**ANNEX VI**  
**THREATS, UNDERLYING CAUSES AND PROPOSED ACTIONS**

| <b>Habitats &amp; species</b> | <b>Proximate Threats</b>  | <b>Impact</b>  | <b>Underlying Cause (institutional &amp; socioeconomic determinants)</b>   | <b>Necessary Actions</b>  |
|-------------------------------|---|--|--|---|
| Coral reefs                   | Direct damage to corals due to diver inflicted breaks & scrapes at popular dive sites & anchor damage inflicted by larger boats & yachts. | Damaged coral reefs results in cumulative effect on related marine fauna & flora.  | Poor capacity to monitor diver activity & limited self-enforcement by divers themselves.<br>Lack of navigational support to boats & awareness among boat operators.<br>(Appropriate navigational support & guidelines can reduce occurrence of anchor damage.) | Improved regulation of diver activity through better planning & enforcement of MPA management plans (Component 2)<br>Awareness about diving codes of conduct targeted at divers (Component 5).<br>Installation of mooring buoys (Belize Tourist Board's National Mooring Buoys Program in the baseline).<br>Upkeep & maintenance of buoys through better MPA planning & operations (Component 2).<br>Through the management plans ensure that recreational vessels comply with guidelines on anchoring, placement of moorings, use of public moorings, & vessel speeds (Component 2). |
|                               | Over exploitation of fish stocks to unsustainable levels (low to moderate threat)   | Disruption of the ecological balance of the reef.                                  | Open-access resource with limited regulation by way of licenses to fishing vessels.<br>Poor enforcement of no-take zones in marine reserves.<br>Alternative livelihoods for local communities have not been identified.  | Revised fisheries act & regulations to improve management of fish stocks (Baseline efforts by Department of Fisheries).<br>Improve planning & enforcement of zoning requirements in management plans of MPAs to ensure the observance of no-take zones (Component 2).<br>Improve marine conservation awareness among fishermen & consumers of marine resources, & explain the rationale for marine resource legislation (Component 5).<br>Barrier Reef sub-account resources to be used to diversify income generating opportunities (Component 4).                                   |
|                               | Shoreline erosion due to uncontrolled developments near the shoreline.  | Shoreline erosion results in high levels of sediment load thus affecting the reef. | Lack of integration of planning & control of developments on   | Build technical expertise in the problem of shoreline erosion & effective ways of addressing it, and provide practical guidelines   |

| Habitats & species | Proximate Threats   | Impact  | Underlying Cause (institutional & socioeconomic determinants)   | Necessary Actions  |
|--------------------|---|---|---|--|
|                    |   |   | the Cayes with conservation concerns of diverse marine resources.   | (Component 3).   |
|                    | Marine dredging & sand-mining operations.   | Increased turbidity causes physical smothering of corals, & decreased productivity of coral reefs & associated fisheries. | Insufficient technical capacity within Geology Unit charged with regulating & controlling dredging operations; & poor enforcement around MPAs.  | Strengthen capacity within the Geology & Petroleum Unit to apply guidelines on dredging equipment, methods, timing, reconditioning of sites, environmental monitoring & compliance (Component 3).<br>Checking of illegal dredging operations near MPAs (particularly in the Caye Caulker area) through the improved design & enforcement of management plans (Component 2).<br>Allocation of licences (Baseline).  |
|                    | Disturbance to the seabed by visiting divers & snorkelers is increasing sediment-load of the waters.                          | Increased turbidity causes physical smothering of corals, & decreased productivity of coral reefs & associated fisheries. | Poor surveillance & regulation of divers & snorkelers; poor awareness about the impact of over-disturbance of seabed.   | Improved regulation of diver activity through better planning & enforcement of MPA management plans (Component 2)<br>Awareness-raising through information material targeted to tour guides, divers & snorkelers (Component 5).<br>“Closed areas” in zoning scheme for MPAs (Component 2).   |
|                    | Agricultural practices & deforestation along waterways in coastal watersheds is causing siltation of coastal & marine waters. | Increased turbidity causes physical smothering of corals, & decreased productivity of coral reefs & associated fisheries. | Lack of technical assistance to farmers in sustainable agricultural practices.<br>Legislation relevant to environmental protection not observed. For example, National Lands Act mandates a 66 feet buffer zone to be left undisturbed along waterways. | Sustainable Agriculture Program (Baseline program by the Department of Agriculture).<br>Improved surveillance & monitoring to ensure compliance with relevant legislation (Baseline: Program of Lands Department).<br>Establishment of forest reserves for watershed protection (Baseline programs of the Department of Forestry).<br>Study the impacts within the coastal zone of changing land-use practices to help develop a unified approach to local management of land & coastal resources (Baseline study conducted by WRISCS & funded by the EU).<br>Strengthen capacity within CZM Authority to integrate activities & programs of the Ministry of Agriculture with CZM (Component 1). |

| Habitats & species | Proximate Threats   | Impact   | Underlying Cause (institutional & socioeconomic determinants)   | Necessary Actions   |
|--------------------|---|--|---|---|
|                    |   |  |   | <p>Improved monitoring of physical parameters (water temperature, salinity, turbidity, nutrients, phosphates) &amp; biological parameters (% live cover, species diversity) to track the health of the coral reef ecosystem (Component 1).</p> <p>Build awareness about the impact of inland activities on coastal &amp; marine resources among local &amp; district level officials &amp; local people (Component 5).</p>  |
|                    | <p>Nutrient enrichment of coastal &amp; marine waters due to heavy fertilizer use &amp; clear-cutting &amp; deforestation in coastal watersheds, &amp; sewage.</p>  | <p>Changes in reef community structure such as decreases in live coral cover &amp; increases in algae &amp; sponges.</p> <p>Increase in species-poor communities (similar impact on mangroves and seagrass).</p> | <p>Availability of subsidized fertilizer that results in excessive application.</p> <p>Lack of planning guidelines on cayes that address the problem of sewage.</p>                     | <p>Strengthen capacity within CZM Authority to integrate activities &amp; programs of the Ministry of Agriculture with CZM (Component 1).</p> <p>Build awareness about the impact of inland activities on coastal &amp; marine resources among local &amp; district level officials &amp; local people (Component 5).</p> <p>Develop guidelines and policies on sewage disposal (Component 3).</p> <p>Improved monitoring of physical parameters (water temperature, salinity, turbidity, nutrients, phosphates) &amp; biological parameters (% live cover, species diversity) to track the health of the coral reef ecosystem (Component 1).</p> |
|                    | <p>Agrochemical pollution from use of pesticides (a greater threat for nearshore areas &amp; less so for distant coral reefs).</p> <p>Pollution from agroindustries</p> <p>Plastic pollution &amp; ship-generated debris that wash ashore from international waters (low to moderate threat).</p> | <p>Changes in reef community structure.</p>  | <p>Lack of agricultural extension support to farmers on ways of reducing pesticide use.</p> <p>Need for effluent standards &amp; monitoring &amp; control of industrial activities.</p> | <p>Technical assistance to farmers on methods of integrated pest management practices that limit the need for pesticide use such as bubble-house technology (Baseline program of the Ministry of Agriculture).</p> <p>Education on the safety &amp; proper use of agrochemicals (Baseline program of the Ministry of Agriculture).</p> <p>Study the impacts within the coastal zone of changing land-use practices to help develop a unified approach to local management of land &amp; coastal resources (Baseline study conducted by WRISCS &amp; funded by the EU and Raleigh</p>  |

| Habitats & species | Proximate Threats  | Impact   | Underlying Cause (institutional & socioeconomic determinants)  | Necessary Actions  |
|--------------------|--|--|--|--|
|                    |  |  |  | International, UK).<br>Management of industrial effluents, including direct regulation & monitoring of effluent levels (Baseline program of the DoE).<br>Appropriate siting of industrial developments through the EIA process (Baseline program of the Department of Environment).<br>Activities of the WB-GEF Wider Caribbean Initiative for Ship-Generated Waste. |
|                    | Petrochemical spills   | Damage to coral reefs from chemical contamination & degradation of ecosystem functioning.  | Poor enforcement of legislation regulating fishing & navigation.   | Approve Oil spill contingency management plan<br>Strengthen capacity within CZM Authority to improve coordination between relevant agencies.   |
| Seagrass           | Direct destruction of seagrass beds due to dredging & trawling operations.             | Seagrass beds provide an important grazing ground for sea turtles, manatees, fish & invertebrates, & nursing areas for coral reef species; stabilize bottom sediments that could otherwise damage corals. Their destruction has a direct impact on the health of the coral reef ecosystem.                     | Insufficient technical capacity within Geology Unit charged with regulating & controlling dredging operations; & poor enforcement around MPAs.   | Strengthen capacity within the Geology Unit to apply guidelines on dredging equipment, methods, timing, reconditioning of sites, environmental monitoring & compliance (Component 3).<br>Checking of illegal dredging operations near MPAs (particularly in the Caye Caulker area) through the improved design & enforcement of management plans (Component 2).      |
|                    | Sediment deposition due to deforestation & vegetation clearance in coastal watersheds. | Seagrass beds provide an important grazing ground for sea turtles, manatees, fish & invertebrates, & nursing areas for coral reef species. They also stabilize bottom sediments that could otherwise damage corals. Their destruction therefore has a direct impact on the health of the coral reef ecosystem. | Lack of technical assistance to farmers in sustainable agricultural practices.<br>Legislation relevant to environmental protection not observed. For example, National Lands Act mandates a 66 feet buffer zone to be left undisturbed along | Same as actions identified above to check sedimentation threat to the coral reef.  |

| Habitats & species | Proximate Threats   | Impact   | Underlying Cause (institutional & socioeconomic determinants)   | Necessary Actions   |
|--------------------|---|--|---|---|
| Mangroves          | Illegal clearance for housing projects, tourist development, waste disposal, & infrastructure.  | Destruction of mangroves has an impact on avifauna & on marine species that use the mangroves as a nursery. Mangroves also act as a buffer preventing leaching of nutrients to the coral reefs, & prevent shoreline erosion.   | waterways.<br>Poor enforcement of & compliance with legislation protecting mangroves due to a gross mismatch between number of personnel & area of mangroves in Belize. Illegal clearance of mangroves within & near MPAs.              | Ensure protection of mangroves within MPAs through revised & updated management plans & better enforcement (Component 2). Integrate relevant aspects of the Mangroves Policy with management plans of MPAs (Component 2). Through the strengthened CZM Authority ensure that Department of Forestry's policy on mangroves reflects their importance in the ecological balance of the coastal & marine ecosystem (Component 1).                |
| Littoral forest    | Clearance for tourism & residential development. The developmental pressure is particularly pronounced because littoral forests occur on higher ground & these areas are more sought after. | Littoral forests constitute an important habitat for birds, particularly migratory species of birds & are rare in Belize. These forests are important habitats for threatened species such as Sula sula which nests in only one littoral forest location in Belize (Half Moon Caye), & endemics such as Black catbird, & migrants. | No specific legislation regarding use or protection of littoral forest.   | Proper siting of developments within & near MPAs that take into account the vulnerability of littoral forests (Component 2).  |
| Crocodiles         | Opportunistic killing. Loss of nesting & foraging habitat, mainly beach ridges & caye littoral forest. Incidental drowning in monofilament gill nets.                                       |  | Crocodiles considered a threat to dogs, livestock & humans. Limited appreciation of the role of crocodiles in maintaining the ecological balance. No protection of littoral forests. Poor control of the use of monofilament gill nets. | Improve public education of the ecological importance of crocodiles, & that killing is unnecessary & illegal (Component 5). Preservation of known & potential nesting & foraging habitat (Bacalar Chico, Turneffe) through improved management & operations of MPAs (Component 2). Restrict use of monofilament gill nets in MPAs (Component 2). Test the potential for crocodile-watching as a tourist attraction within MPAs (Component 2). |

| <b>Habitats &amp; species</b> | <b>Proximate Threats</b>  | <b>Impact</b> | <b>Underlying Cause (institutional &amp; socioeconomic determinants)</b>  | <b>Necessary Actions</b>  |
|-------------------------------|---|---------------|---|---|
| Sea Turtles                   | Harvesting & hunting for meat & curios, even though trade in tortoise shell is illegal. |               | Lack of enforcement of regulations, limited surveillance.<br>Insufficient appreciation of the ecological importance & conservation values of the species. | Improved management & operations of MPAs will ensure that regulations are observed at least in certain critical areas so that populations can be maintained (Component 2).<br>Public awareness program will encourage voluntary compliance & reporting of illegal activity (Component 5). |
| Manatees                      | Harvesting & hunting for meat & manatee bones for curios.                               |               | Same as above   | Same as above.  |
|                               | Collisions with watercrafts   |               | Limited navigational support & awareness among ship operators.  | Installation & maintenance of buoys through implementation of revised management plans as markers for shallow waters (Component 2)<br>Management plans will enforce appropriate boat speeds (Component 2).  |
|                               | Visitor disturbance   |               | Limited awareness among tour guides & tourists of codes of conduct for manatee watching.  | Widespread dissemination of information material on codes of conduct for manatee watching targeted to guides & tourists.  |

## ANNEX VII

### BIODIVERSITY SIGNIFICANCE OF SITES

All of the following project sites, with the exception of Turneffe Atoll and Caye Caulker, have been designated as a multi-cluster World Heritage Site. A brief description of the major habitats and important marine fauna follows.

#### **Sapodilla Cayes Marine Reserve (127 km<sup>2</sup>)**

This Marine Reserve, designated in August 1996, is located on the extreme southern end of the barrier reef, which forms a J-shaped hook. Fourteen sand and mangrove cayes are dotted along the sides of the “hook”. These cayes are surrounded by fringing reefs with extensive spur-and-groove formations extending eastwards. The central basin within the “hook” has scattered coral patches. These reefs are considered representative of the discontinuous reefs of the southern province of the barrier reef. An important hawksbill turtle (*Eretmochelys imbricata*) nesting beach is located on Hunting Caye, where a total of 30-40 nests are laid yearly. The hawksbill turtle is listed as an endangered species in the IUCN Red List. It is the most endangered turtle species found regularly in Belize. Belize’s coral reefs and seagrass beds could potentially harbor a large hawksbill population.

#### **Laughing Bird Caye National Park (43 km<sup>2</sup>)**

Laughing Bird Caye lies on the rim of a steep-sided faro, enclosing a central lagoon which is spectacularly pinnacled. It is located within the barrier reef lagoon, bordered to the east by the deep Victoria Channel. The National Park includes both the caye and the entire faro formation. The caye is named after the Laughing Gull, *Larus atricilla*, which used to breed on the island, but which now nests on adjacent cayes.

#### **South Water Caye Marine Reserve (298 km<sup>2</sup>)**

South Water Caye Marine Reserve, which was established in August 1996, is located in the central province of the barrier reef and contains both representative and unique habitat types. In this region, the barrier reef is well developed, with Tobacco Reef extending in an unbroken segment for 9 km. The reserve also includes patch reefs, faros, sand bores, seagrass beds and over 20 sand and mangrove cayes. Of special mention are the Pelican Cayes that are noted for their very high diversity of sessile organisms such as sponges and tunicates, and the close association of coral and mangrove communities.

The reserve provides habitat for endangered species such as sea turtles and the American crocodile. Man O’War Caye is a nesting site for the Brown Booby *Sula leucogaster* and the Magnificent Frigatebird *Fregata magnificens*.

#### **Glover’s Reef Marine Reserve (308 km<sup>2</sup>)**

Glover’s Reef is the southernmost of Belize’s atolls, and one of the best developed in the Caribbean. It is approximately 32 by 12 km and lies 45 km east of the mainland coast. It is surrounded by a fringing reef that has only 3 channels, all on the windward side. The windward reefs are better developed than the leeward reefs. The clear oceanic waters have permitted coral growth to depths of 100 meters or more. Its central

lagoon is studded by over 700 patch reefs. Six cayes lie on the southeast side of the atoll, and all are privately owned. The reserve, established in 1993, encompasses the entire atoll and is the largest of the country's marine protected areas. The current reserve headquarters are located on Middle Caye. Also located on Middle Caye is the research station that is operated by Wildlife Conservation Society. Research underway includes a study on the role of marine refugia in fisheries production.

Glover's reef has small nesting sites for the hawksbill, loggerhead, and green turtle. In terms of avifauna, the area provides an important nesting area for the brown noddy.

**Turneffe Atoll** (proposed)

Turneffe atoll is located approximately 9 to 23 kilometers from the barrier reef and is 48 kilometers long, 16 kilometers wide, and is the largest of three atolls. It consists primarily of mangrove islands surrounding a large shallow lagoon.

This area is an important nesting site for the American crocodile (*C. acutus*). *C. acutus* is found from Central Mexico, through parts of central America to northern South America, and is also present in extreme southern Florida, Cuba, Jamaica, Haiti, and the Dominican Republic. Despite its fairly wide distribution it has been listed as a vulnerable species by IUCN, as it has declined over its entire range. The largest population in Belize is found in Turneffe atoll, and this population appears to play a vital role in regional metapopulation dynamics. The status of this population remains tenuous, as the atoll is inhabited by only 200 to 300 non-hatchling crocodiles, with perhaps 20-30 breeding females. Reproduction is dependent on two major sites (Northern Lagoon and Blackbird Caye), which are currently unprotected and remain vulnerable to development. The countrywide population is thought to number less than 1000 individuals, and unless appropriate conservation measures are taken, the species could be locally extinct early in the next century.

Turneffe atoll is also an important nesting site for the threatened Roseate Tern, a colonial water bird believed to nest in very few locations in Belize. It also provides important habitat for the threatened Antillean manatee (*T. m. manatus*). Historical accounts indicate that populations of this species have declined throughout its range, and are now fragmented (Lefevre et al, 1989). Aerial surveys conducted over most of its range found Belize to have the largest known concentration in the Caribbean, Central, or South America. The "expert" estimate for Belize is 300-700 individuals (O'Shea and Salisbury, 1989).

**Caye Caulker** (proposed)

Caye Caulker is located 21 miles north east of Belize City and 1 mile west of the barrier reef. The island was split by a hurricane in 1961, thus the northern and southern parts of the island are separated by a shallow waterway.

The Caye Caulker Barrier Reef segment is placed in what is described as the northern reef province, an area which contains 46 km. of shallow water reef. With the exception of Ambergris caye the reef in this region is discontinuous. The reef zonation is distinctly different from that found in the central province of the Belize Barrier Reef. The outer forereef consists of a large spur and groove system rather than the sand gully and ridge

components found further south. Much of the Scleractinian coral growth is found at depths between 15 and 40 m. The shallower section of the reef is dominated by gorgonians and the reef crest consists of scattered outcrops of live Elkhorn coral. The area has five distinct lagoonal habitats: Manatee seagrass, Mixed seagrass, Mixed seagrass and algae, Patch reef, and Holophytic zone. This habitat is important for the survival of the Antillean manatee.

Caye Caulker plays a very important role in providing habitat for neotropical migrant bird species. As many as 132 bird species are believed to inhabit the area at some time of the year. Of these, the Black Catbird (*Melanoptila glabrirostris*) which is found sparsely along coastal mangroves and island cayes appears to be declining. The species is facing fragmentation and loss due to development on the island, however the Caye Caulker population appears to be the largest in the country. The Black Catbird has a limited distribution and therefore is a species of concern for conservation. With the loss of habitat by the completion of the airstrip and the continued clearing of mangroves and associated littoral thicket, the Black Catbird is being squeezed out of Southern Caye Caulker, hence Northern Caye Caulker is one of the last remaining habitats for this species and other migratory species. Other notable Yucatan endemics that are present on the island are the Red-vented Woodpecker (*Centurus pygmaeus*), Yucatan Jay (*Cyanocorax yucatanicus*), and the Yucatan Vireo (*Vireosylva magister decolorata*) the distribution of which is not fully known, but appears to be restricted to islands of Belize.

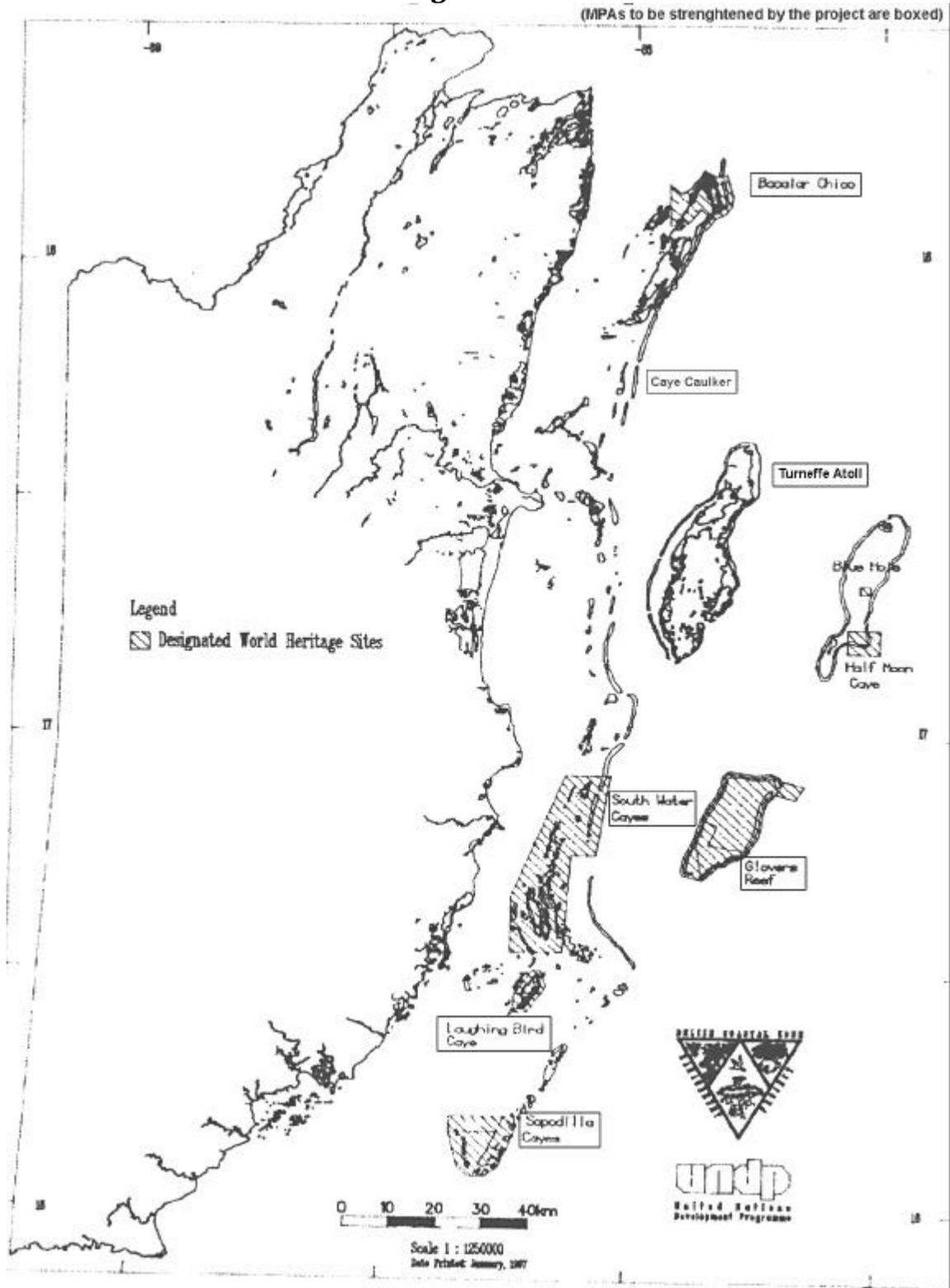
Caye Caulker is home to at least 11 species of reptilia, which are typical of an island this size, including *C. acutus*, Boa constrictor, Drymarchon corais, anolis and a pronounced population of geckos.

### **Bacalar Chico National Park and Marine Reserve (107 km<sup>2</sup>)**

The Bacalar Chico protected area is located on the northern portion of Ambergris Caye, with its associated reef tract on the east and an area of Chetumal Bay on the west, bordering Mexico. The barrier reef lies close to the shore, and at Rocky Point it meets the coastline. The Marine Reserve is characterized by a reef with high relief spur-and-groove formations, a double reef crest in the north, patch reefs, and seagrass beds. It is noted for its deepwater conch population, and spawning ground at Rocky Point for Nassau and yellowfin grouper.

The National Park covers the terrestrial area that includes wetlands of lagoons, salt marsh and mangroves, littoral forest, and other unusual vegetation types. Outcrops of Pleistocene fossilized reefs are found near Rocky Pt. and are of particular geological interest. The East Coast is bordered by a long sandy beach that provides habitat for nesting loggerhead turtles (*Caretta caretta*) listed as vulnerable by IUCN. Other wildlife includes waders and colonial waterbirds, crocodiles, and many mammals including several species of wild cat. Manatees have also been sighted in small numbers in this area.

### Belize: World Heritage Sites and Protected Areas



## **ANNEX VIII**

### **PUBLIC PARTICIPATION PLAN**

The proposed project will involve communities residing and working in the coastal zone, both in the preparation of regional coastal zone management plans and also in the design of management plans for marine protected areas. The composition of committees is critical to ensuring full participation and nurturing a sense of ownership within the community. It must be truly representative of the “community” and must not be restricted to the village council alone.

#### **Composition**

The project will work with Coastal Advisory Committees (CAC) and Marine Protected Area Advisory Committees (MPAAC). The committees will include representatives of the following organizations or interest groups:

- i) Local Town Board/ Village Council/ Planning Committees
- ii) Relevant fishermen’s cooperatives
- iii) Belize Tourism Industry Association Chapter/ Tourist Guide Association/ Local Tourism Operators
- iv) Coastal Zone Management Authority
- v) Forest Department
- vi) Protected Area Manager
- vii) Funding Agencies
- viii) Relevant NGOs
- ix) Academic/Educational institutions involved
- x) Other enforcement agencies as necessary

#### **Tasks**

An indicative, though not exhaustive, list of tasks for the Advisory Committees is provided below.

- i) Assist in the development of management plans and ensure regular revision and review of plans.
- ii) Comment on and recommend legislation and regulations.
- iii) Maintain an overview of and, where necessary, provide advice on applications for permits relating to site and subdivisions, and development on private land adjacent to the site.
- iv) Report on matters impacting the site and liaise with government enforcement agencies.

- v) Assist with enforcement activities.
- vi) Assist in the development of sustainable financing mechanisms for the site.
- vii) Advise on and, where appropriate, assist with administrative matters, publicity, educational and interpretive programs, and decisions relating to research to be carried out in the site.

**ANNEX IX**  
**KEY RECOMMENDATIONS AND LESSONS LEARNED FROM THE INDEPENDENT**  
**EVALUATION OF THE PILOT-PHASE PROJECT**

The table below lists the main recommendations made by the evaluators of the pilot-phase project in terms of a Phase II project.

| <b>Key recommendations</b>   | <b>Impact on design</b>   |
|--|---|
| Inclusion of stakeholders, within and outside the government, in planning a Phase II effort.   | The draft concept paper and project brief has been circulated among stakeholders and their recommendations included.  |
| Demonstration project in participatory management linking planning with implementation, management adjoining areas of land and sea, governance at the community and central government levels. | The project will integrate development plans on Caye Caulker with marine biodiversity conservation concerns in the adjoining protected area. The preferred management modality is of co-management with the Caye Caulker community. The MPA to be established near this caye will include land and sea. |
| CZM Plan as a national policy framework.   | The evaluators' recommendation to seek enactment of a national <i>Coastal Zone Policy Framework</i> is reflected in Component 1.  |
| Financing scheme for sustained implementation.   | Component 4 will look specifically at this issue.   |
| Issue and area-specific monitoring of more immediate usefulness to an ongoing management program.  | Monitoring efforts under Component 1 will focus on sites within MPAs and those outside that are identified as "hot spots".  |
| Periodic self-assessment of progress towards effective management.   | The execution and implementation arrangements of the project will ensure that stakeholders meet periodically to assess progress.  |
| State-of-the-coast reports.  | Annual reports will be prepared under Component 1.  |
| Strategically targeted awareness.  | The project has identified key issues and the dissemination of these will be tailored to the specific audience identified by the evaluators.  |
| Targeted training and education.   | Training will be focused on government officials, and representatives of the Advisory Committees in leadership, planning, conflict resolution, consensus building.  |
| Study tours.   | The project will use study tours in training targeted to government officials and representatives on the Advisory Committees. Study tours will also be used   |

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|                                  | to disseminate results of the Caye Caulker demonstration of integrated development in the wider landscape with conservation within MPAs. Component 6 will also use study tours and exchange visits as means to develop regional experience with coastal and marine resource management. |
| Explicit timeline of activities. | The Project Document will contain a detailed time line and appropriate sequencing of activities.  |

In addition, several evaluations were conducted of the pilot-phase project including the final evaluation study, a review by STAP, and a “lessons learned” study commissioned as part of a study to identify particularly features of GEF pilot-phase projects that contribute to global environmental objectives. The phase II project has taken in to account the results of all these evaluations and this is summarized below.

Based on the management capacity in the country, the project has been designed accordingly, ensuring that the activities identified fit in with the national objectives, can be realistically implemented, and with funds allocated for on-the-ground management.

Specific activities, such as the demonstration project in Caye Caulker, are geared towards encouraging more community involvement in management, thus promoting the concept of "co-management" and encouraging the decentralization of authority to the local level.

Although the project is ultimately one of biodiversity protection and management of ecosystems, it also has to address social, economic and political dimensions. This makes it complex and requires that the project design be inherently flexible and adaptive.

The project is based on sound science but also addresses a range of socio-economic and management issues, requiring a broad range of stakeholder support. It aims to build capacity of non-traditional players, that is those from within the private sector, politicians, community leaders, general public,

The Project aims to contribute within the framework of a national coastal management program that is implemented by a clearly defined Authority. Thus, from the outset, the Project will be "nationally owned".

Finally, the Project recognizes the value of learning from the experience of others, specifically other similar projects in the region.

**ANNEX X**  
**BELIZE CZMP FINAL EVALUATION REPORT**  
**EXECUTIVE SUMMARY**

Coastal management in Belize has made major advances since an initial workshop in San Pedro in 1989 and the initiation of this GEF-sponsored project in 1993. According to the coastal management cycle described by GESAMP (1996), Belize had completed many of the essential actions called for by Steps (1) and (2) and the Belize Legislature has recently made an initial formal commitment to a national coastal management program. This legislation is an important first step in the process of formalizing governance policies, management procedures and financial commitments called for by Step (3). Experience in policy implementation has been gained in the marine reserves and through the implementation of environmental impact assessments and permitting programs administered independently by various ministries.

- (1) A primary output of the pilot GEF project is the Coastal Zone Management (CZM) Authority that was formally enacted in March 1998. This creates a Statutory Instrument that for the first time provides Belize with a permanent formal institutional structure for conserving coastal biodiversity and managing coastal issues through a multi-institutional Board of Directors, an Advisory Council and a CZM Institute based at the University College of Belize. The responsibilities of the Authority, however, are limited to coordination and advising the Minister of Agriculture and Fisheries, the principal ministry entrusted with coastal resource management and conservation. The coastal zone is defined in the legislation to encompass territorial marine waters below the mean high water mark. It therefore does not link the management of resources and activities on coastal waters with resources and activities on coastal lands. The project recognizes this shortcoming and it has worked closely with the Forestry and Land Departments of the Ministry of Natural Resources to ensure that strong links are maintained between land-based activities and coastal management efforts.
- (2) The new legislation provides the CZM program with core funding from a fee levied on catch and release sport fisheries, and potentially, other user fees yet to be determined. In addition, the government of Belize has allocated B\$100,000 for FY 1998 and has committed to a similar sum for FY 1999. These two sources provide for a portion of the estimated annual costs of administering the program.
- (3) In 1996, and with the support of this project, seven of the Marine Reserves were designated as a World Heritage Site and thus received international recognition for their importance and their status as reserves.
- (4) As a result of project activities, many ingredients for an integrated set of policies and plans for the coastal region have been prepared. However, only Marine Reserves and Coastal Protected Areas have been formally enacted. Most of

these nine protected areas have formally adopted management plans but on-site management and compliance with the regulations is weak or absent in several of these sites. Proposed policies and recommendations on such topics as dredging and development in the Cayes have not proceeded beyond the Project's Steering Committee (now the Board of the CZM Authority) but have been informally applied as guidelines.

- (5) Among the planning tools developed by the project is a GIS system is now operational in the Project offices. It contains a detailed map of subtidal habitat types and incorporates baseline information on some elements of the region's biodiversity including coral reef surveys and a baseline of the manatee population.
- (6) Among its capacity building efforts, the project has supported four Belizeans who have now earned Bachelor of Science degrees, one a Master's degree, and one who is currently completing a Ph.D. Six others have received specialized training in coastal resource management conservation. All of these individuals have returned, or expected to return, to government posts.
- (7) There is great concern both within government and the private sector representatives contacted during this evaluation over the pressures that threaten the qualities of coastal ecosystems in Belize. There is strong consensus over the urgent need for an integrated, internally consistent and well-implemented governance processes.

On the basis of this evaluation of the GEF project as well as discussions with many of those most involved in coastal management in Belize, we recommend a Phase II GEF-supported Project with the following characteristics:

- A stronger emphasis on the participation of communities and stakeholders in all phases of issue analysis, planning, implementation and evaluation. We support the proposed strategy of initially focusing such a co-management approach on a demonstration project in the Caye Caulker vicinity.
- We recommend redefining the goal of the national CZM Plan that has been called for since 1989 as a National Policy for the Management of the Coastal Region that would subsequently be implemented through a sequence of area- and issue-specific policies, plans and actions. Formal enactment of such a Management Policy by the legislature should be a primary goal for a Phase II GEF Project. It should clearly differentiate between national policies and goals and the individual projects that can contribute to specific elements of that policy. A Phase II GEF Project should be seen as one contribution to the realization of the national goals and policies for the Belize coastal region.
- We recommend that during a Phase II GEF intervention baseline related information and monitoring activities are refocused on issues and specific sites where information on short-term change (one to five years) in the condition and use of the coastal region is most urgently needed to inform the management

process and to conserve biodiversity. This more focused and targeted approach would facilitate the identification of success indicators, enable a more precise assessment of the most viable and effective measures for long-term conservation management, and promote the future replication of best practices based on measurable and quantifiable results and impact.

- ◆ We recommend periodic self-assessments in which all of those involved in the CZM program participate. These stakeholder assessments would be designed to encourage an incremental, learning-based approach to coastal management.
- ◆ We recommend periodic widely distributed state-of-the-coast reports that summarize information on trends, disseminate best practices and progress achieved, and examine the broad implications of selected issues being addressed by the program.
- ◆ We recommend that training and public education be strategically targeted upon specific audiences and specific messages rather than promoting public “awareness” for the coast and its biodiversity.

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