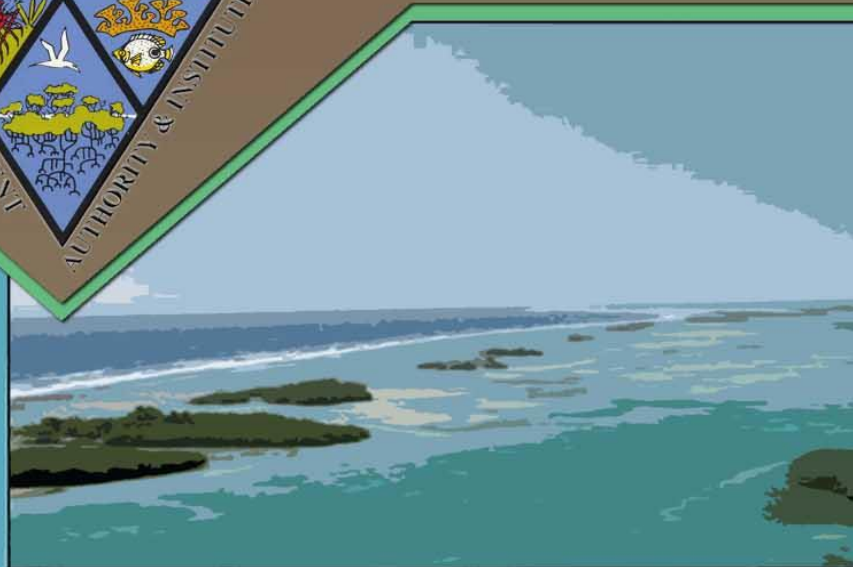


# TURNEFFE ATOLL COASTAL ZONE MANAGEMENT GUIDELINES





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## ACKNOWLEDGEMENTS

The Belize Coastal Zone Management Authority and Institute (CZMAI) extends its sincere gratitude to all those individuals and organizations who participated in the development of the Turneffe Atoll Coastal Zone Management Guidelines. The process began in the early 1990's with the Turneffe Islands Committee (TIC), which was established to help protect the atoll's fragile environment and the rights of customary users, the commercial fishermen. The Turneffe Islands Committee intended to allot parts of the atoll for different uses; however, this process was never initiated and TIC ceased to exist in 1992.

In 1994, the need for effective management and protection of Turneffe was emphasized by the three ministries principally responsible for Belize's coastal zone: The Ministries of Agriculture and Fisheries, Environment and Tourism. In 1996, John Gill *et al* drafted the Turneffe Islands Development Guidelines (TIDG) with the aim of achieving sustainable development of the atoll. This process evolved through an extensive study of the region, and consultation with the following stakeholders:

1. Richards, Gilbert 1994 Frame Survey Report (Fisheries Department)
2. Zisman, S; Minty, C; Murray, M 1995 Turneffe Terrestrial Resource Reconnaissance: Report to CCC Ltd, Department of Geography, University of Edinburgh
3. Turneffe Island Committee (courtesy Earl Young, Coastal Zone Management Unit, Fisheries Department., and Clinton Gardiner,
4. DCLS, Lands & Surveys Dept.
5. Ray Lightburn, Blackbird Caye Resort, Turneffe Islands
6. Jonathan Ridley, Marjo Vierros, and Kevin Coye; Coral Caye Conservation
7. Gayle Bradley Miller, Marine Research Centre, University College of Belize
8. Susan Wells, Coastal Zone Management Project
9. Carmen Cawich, Coastal Zone Management Project
10. Rory Solis, Coastal Zone Management Project
11. Turneffe Island Lodge, Turneffe Islands
12. Hopeton Westby, Fisherman
13. Morrel Young, Fisherman
14. Amigos del Mar, San Pedro
15. Alison Saunders, Oceanic Society Expeditions, Turneffe Islands
16. Lands and Survey Department, Ministry of Natural Resources
17. The Planning Section, Housing and Planning Department, Ministry of Housing, Urban
18. Development & Co-operatives
19. The Inventory of the Cayes, Coastal Zone Management Unit, 1992
20. Department of Archaeology
21. Lighthawk

In 2001, several factors prompted the need for further planning and revision of the Gill TIDG. One was the establishment of the Government of Belize/University of Belize Institute of Marine Studies (IMS) (originally the Marine Research Centre) on Calabash Caye; another was a proposal that the Turneffe Island Development Guidelines act as a model for future planning in the coastal zone. Thus, in August 2001, the Turneffe Islands Coastal Advisory Committee (TICAC) held an initial meeting and over the following two and one-half years the Turneffe Island Development Guidelines (TIDG) were re-drafted and adopted by TICAC. Special acknowledgment for those efforts goes to World Wildlife Fund's Mesoamerican Caribbean Reef Conservation Program for funding the land tenure consultancy, and for supporting Melanie McField, PhD in editing the 2003 development guidelines document

With the revitalization of the CZMAI in 2008, the TICAC was reformed in October 2010 and renamed the Turneffe Atoll Coastal Advisory Committee (TACAC). The TACAC deemed the name change as necessary to reflect the fact that Turneffe is an atoll and not merely a group of islands. The initial order of business of TACAC was to review the 2003 development guidelines for the cayes at Turneffe Atoll. The TACAC Committee is acknowledged for its hard work in revising, updating and expanding these Guidelines.

**Turneffe Atoll Coastal Advisory Committee membership (2010-2012):**

<b>NAME</b>	<b>ORGANIZATION/AFFILIATION</b>
1. Craig Hayes	Turneffe Atoll Trust (Chairperson)
2. George Myvett	Fisheries Department (Vice-chairperson)
3. Lindsay Garbutt	Fisheries Advisory Board
4. K. Mustafa Toure	Consultant
5. Melanie McField, PhD/Roberto Pott	Healthy Reefs Initiative
6. Lt JG Gregory Soberanis	Belize National Coast Guard
7. Leandra Cho-Ricketts, PhD/Celso Cawich	University of Belize
8. Thomas Blanco	Belize Tourism and Industry Association
9. Ralna Lamb	APAMO
10. Birgit Winning	Oceanic Society
11. Vanda Hall	Turneffe Island Resort
12. Nadine Nembhard/Dwight Neal	Belize Fishermen Cooperative Association
13. Marion Usher	Land Owner
14. Chantalle Clarke	CZMAI
15. Samir Rosado	CZMAI
16. Maritza Canto	CZMAI

CZMAI held a series of consultation meetings that were open to the general public during the mandatory 60-day public review period following the completion of the first comprehensive draft of the Belize Integrated Coastal Zone Management Plan document. A joint meeting for stakeholders of the Central, Lighthouse Reef Atoll and Turneffe Atoll Regions was held in Belize City on Thursday May 16, 2013, and had participation from the following individuals:

<b>NAME</b>	<b>ORGANIZATION/AFFILIATION</b>
Cornally Canto	University of Belize
Matthew James	CONCH
Rochelle Reneau	Belize Coalition to Save Our Natural Heritage
Nadia Bood	World Wildlife Fund
John Oliver	Belize Sailing Association
Julio Maaz	Wildlife Conservation Society
Arreini Palacio-Morgan	Belize Audubon Society
Shane Young	Belize Audubon Society
Julie Robinson	The Nature Conservancy
Leandra Cho-Rickett, PhD	Environmental Research Institute/University of Belize
Angeline Valentine	OAK Foundation
Nataly Castelblanco	Oceanic Society
Jackson Edwards	Long Caye, Lighthouse Reef Atoll
Jamal Galvez	CZMAI/Sea to Shore Alliance

A final round of consultations was held July 7<sup>th</sup> 2015-September 7<sup>th</sup> 2015 as-the re-constituted CZMA Board of 2014 directed a re-opening of the public comment period.

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## LIST OF ACRONYMS

<b>APAMO</b>	Association of Protected Areas Management Organization
<b>BFCA</b>	Belize Fishermen Cooperative Association
<b>BTB</b>	Belize Tourism Board
<b>CAC</b>	Coastal Advisory Committee
<b>CBA</b>	Central Building Authority
<b>CZAC</b>	Coastal Zone Advisory Council
<b>CZM</b>	Coastal Zone Management
<b>CZMAI</b>	Coastal Zone Management Authority and Institute
<b>DOE</b>	Department of the Environment
<b>GPS</b>	Global Positioning System
<b>HRA</b>	Habitat Risk Assessment
<b>InVEST</b>	Integrated Valuation of Ecosystem Services and Trade-offs
<b>ICZM</b>	Integrated Coastal Zone Management
<b>IMS</b>	Institute of Marine Studies
<b>NEAC</b>	National Environmental Appraisal Committee
<b>NGO</b>	Non-governmental Organization
<b>SIB</b>	Statistical Institute of Belize
<b>STP</b>	National Sustainable Tourism Master Plan of Belize
<b>TACAC</b>	Turneffe Atoll Coastal Advisory Committee
<b>TICAC</b>	Turneffe Islands Committee
<b>TICAC</b>	Turneffe Islands Coastal Advisory Committee
<b>TIDG</b>	Turneffe Islands Development Guidelines

## GLOSSARY OF TERMS

Certain technical terms have been used in the text of these guidelines. The following represents an explanation of such terms where they have not provided within the text.

**Artisanal/Subsistence Fishing** means traditional fisheries involving fishing households (as opposed to commercial companies), using relatively small amount of capital and energy, relatively small fishing vessels (if any), making short fishing trips, close to shore, mainly for local consumption

**Building Height** means the recommended maximum building height allowed for each building to be measured from ground level to roof

**Building Setback** means the recommended minimum distance between buildings or between buildings and site boundaries

**Commerce** means the storage and retail of consumer goods

**Commercial Development** means land use involving the construction of a building or buildings that are used solely for commerce and business activities by the owners or others to the exclusion of all other uses within the density requirements of these guidelines

**Commercial Fishing** means the harvesting of fish, either in whole or in part, for sale, barter or trade

**Conservation** means the retention of the natural features but with allowance of limited non-disruptive development

**Conservation Area** means areas including the 66ft reserve and other reserves, canal buffers, water bodies, flood prone lands; areas with ecological significance such as mangrove wetlands

**Community Facilities** means spaces set aside in large residential or commercial subdivisions for public purposes. They may include facilities such as public parking lots, schools, cemeteries, churches, public sporting areas, youth centers, police stations or health facilities

**Coverage** means any building, including balconies and verandas, and expressed as a percentage of total lot size

**Density** means a level of development within a site, as measured by the number of lots per acre, number of dwelling units per acre, or maximum site coverage

**Development** means any activity which involves mining, engineering, building operations or change of use of land or building in, under, over or on land

**Dwelling Unit** means a living area consisting of contiguous rooms intended for convenient, long-term occupancy by one family and providing complete, independent facilities for living, eating, cooking, sleeping and sanitation

**First aid** means a facility that is readily available for the provision of first aid to all who can prove they require it

**Fish camp** means a building that is permanently or temporarily used for ancillary housing, trap-making and storage, boat repair and docking by full or part time commercial fishermen as licensed by the Fisheries Department

**Habitable Room** means any room except that used for a kitchen or bathroom

**Land** means all incorporeal hereditaments of every tenure or description that are either permanently or temporarily above the surface of the sea, whether through natural or man-made activity. The seabed, while not 'physical' land, is defined as National Land

**Liquid Waste** means grey water from bath, basin and sink and sewage waste that consist mainly from discharge of body waste

**Low-Density Development** means development of a site that does not exceed 20 dwelling units per acre, 6 lots per acre and a maximum site coverage of 50 percent

**Low-Impact Development** means an ecologically-friendly approach to site development and storm water management that mitigates development impacts to land, water and air; through conserving natural systems and hydrologic functions of the site. Site development includes residential dwelling units and community facilities and impervious surface cover is a maximum of 30 percent of total cover

**Marina** means a mooring facility for four or more recreational vessels

**Maximum Human Carrying Capacity** means the maximum population size of humans in an area that the local environment can sustain indefinitely, given accessibility to the food, habitat, water, and other necessities

**Maximum Number of Floors** means the recommended maximum number of floors a building will be allowed to have including attics or roof space designed for habitation

**Maximum Number of Lots** means the recommended maximum number of lots in which an acre of land can be subdivided and alienated

**Maximum Habitable Rooms** means the recommended maximum number of rooms to be allowed and measured per acre of land

**Maximum Building Coverage** means the recommended maximum ground coverage of any building including balconies and verandahs and expressed as a percentage of total lot size

**Maximum Site Clearance** means the recommended maximum amount of land that will be allowed to be cleared expressed as a percentage of the total site area

**Medium-Density Development** means development of a site that does not exceed 40 dwelling units per acre, 8 lots per acre and a maximum site coverage of 66 percent

**Medium-Impact Development** means an ecologically-friendly approach to site development and storm water management that mitigates development impacts to land, water and air; through conserving natural systems and hydrologic functions of the site. Site development includes a combination of residential dwelling units, community facilities and commercial activities, and impervious surface cover is a maximum of 50 percent of total cover

**Minimum Lot Size** means the recommended smallest size a parcel will be allowed to be alienated

**National Land** means all lands, including cayes and parts thereof not already located or granted, and any lands which have been, or may hereafter become, escheated to, leased by, or otherwise acquired by the Government

**Piers per Site** means the recommended number of piers that will be allowed to be constructed on any site

**Primary Land Use** means the recommended preferred use for the site

**Residential Development** means land use that involves the construction of a building or buildings that are used solely for permanent or temporary domiciles by the owners or others on a non-commercial basis to the exclusion of all other uses within the density requirements of these guidelines

**Resort** means a building, buildings or site which offers accommodation and general amenities to visitors with other uses such as bars, restaurants, general storage and repair facilities and docking

**Secondary Land** means the recommended next preferred use to be applied to the site either in conjunction with the primary land use or as an alternative to the primary land use if that is not applicable

**Solid Waste** means any unwanted material that is useless and thrown away or, discarded

**Swamp** means an area of very shallow lagoon with mud, savannah or very low vegetation

**Utility** means the service and infrastructure used for the supply of energy, water, communication and waste disposal

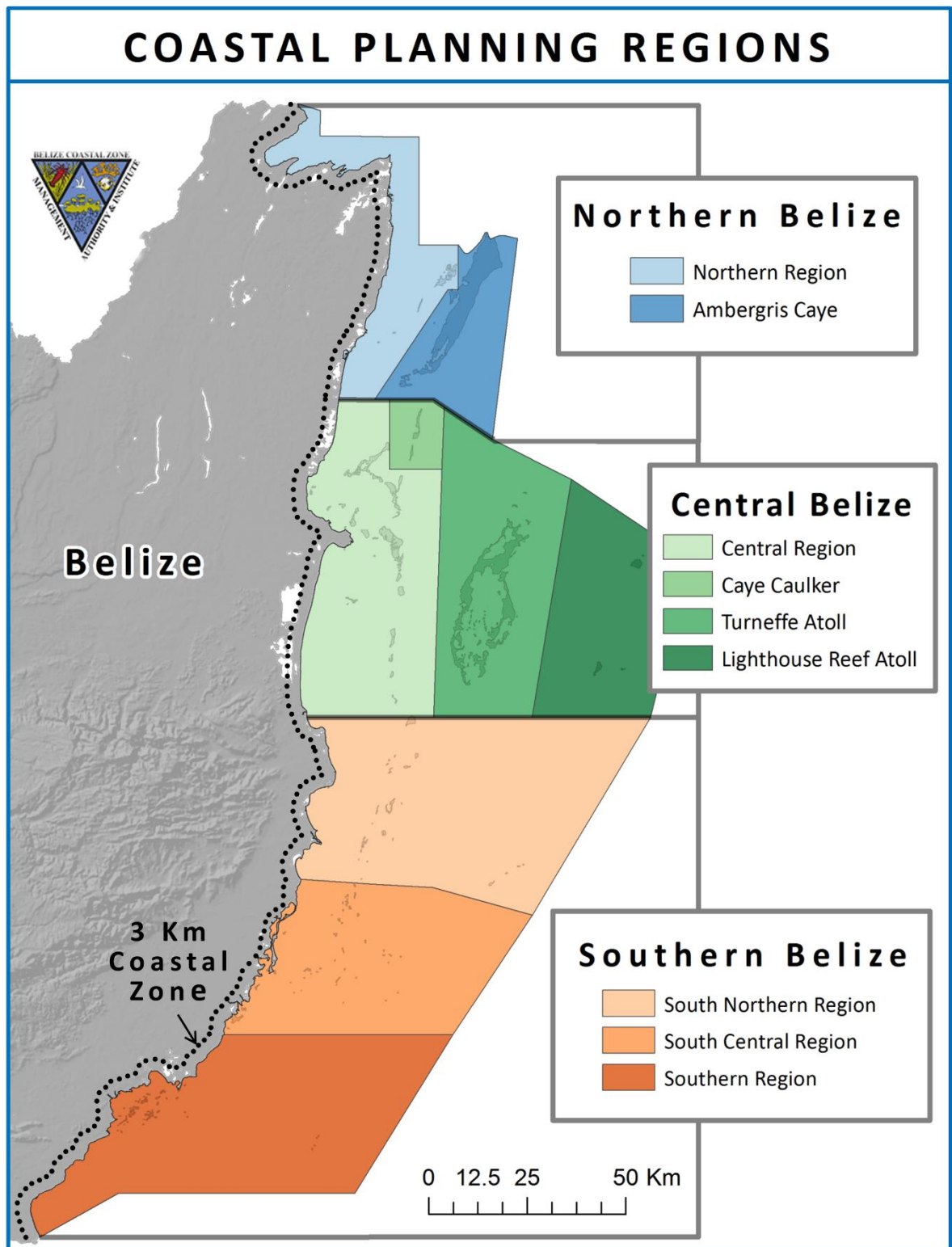
## **PREAMBLE**

The Belize Coastal Zone Management Authority and Institute (CZMAI), a statutory body established by the Coastal Zone Management (CZM) Act of 1998, is tasked with the broad responsibility of assisting with the development of policies, strategies and guidelines for the improved management and sustainable use of the country's coastal resources at a national level. In keeping with its mandate to prepare an integrated coastal zone management plan, CZMAI has developed regional coastal zone management guidelines to provide support for planned development and resource management along the coastline and offshore areas of the entire country. These guidelines have been prepared for nine (9) coastal planning regions (**Map 1**), which were demarcated based on commonalities, geographic definition and regional characteristics. The coastal zone management guidelines will help to integrate management efforts across the land-sea interface.

The Turneffe Atoll Coastal Zone Management Guidelines were developed in conjunction with the stakeholder groups of the region. Turneffe Atoll, the largest of three offshore atolls within Belize's territorial waters, has limited anthropogenic threats and high marine biodiversity. Using the expert subjective information from stakeholders in addition to the best available objective data, CZMAI was able to produce this guideline with the following goals:

1. Encourage and promote the sustainable development of Turneffe Atoll that will sustain the economic, social and ecological value of the atoll while simultaneously ensuring ecosystem integrity and the efficient delivery of ecosystem services.
2. Ensure that Turneffe Atoll's valuable commercial fishery is managed sustainably through the implementation of modern fisheries management strategies, and its tourism industry is managed by facilitating low-impact, nature-based tourism capitalizing on its unique natural assets.
3. Ensure sustainability of coastal resources by identifying unique and environmentally sensitive areas that are in need of conservation, and reducing user conflicts

These goals are informed, and rooted, where possible, on sound science and local knowledge. These guidelines represent the views and recommendations of the stakeholders of the Turneffe Atoll coastal planning region. They are also a response towards addressing the management gaps identified by stakeholder communities through an extensive consultation process. The coastal zone management guidelines will ensure that human use of the coastal region occurs in consideration of the carrying capacity of the environment in addition to other ecological, cultural, social and economic development priorities of the region. These guidelines will aid policy development for integrated coastal zone management. They will be implemented by all those agencies that have legal mandates and/or permitting powers that impact resource utilization in the coastal zone of Belize, in partnership with this region's stakeholder groups.



**Map 1: Coastal Planning Regions of Belize**

## 1.0 INTRODUCTION

Located 25 miles east of Belize City, Turneffe Atoll is the largest and most biologically diverse atoll in the Caribbean. Approximately 48 kilometers long and 16 kilometers wide, Turneffe is a self-contained coastal marine ecosystem made up of a complex pattern of coral reef, back-reef flats, cayes, channels and lagoons. The atoll supports a number of threatened and endangered species, including the American saltwater crocodile (*Crocodylus acutus*), Antillean manatee (*Trichechus manatus*), Hawksbill turtle (*Eretmochelys imbricata*), goliath grouper (*Epinephelus itajara*), and Nassau grouper (*Epinephelus stiiatus*).

There are no settlements on the atoll; however, there are a number of developments, including three high-end resorts (Turneffe Flats, Turneffe Island Resort, and Blackbird Caye Resort) and two educational/research facilities, focused on the marine environment. These facilities are namely the University of Belize’s Environmental Research Institute at Calabash Caye and The Oceanic Society located at Blackbird Caye. There are also an estimated twenty five semi-permanent fishing camps, scattered across the atoll (Wildtracks 2011). The Belize National Coast Guard maintains a manned station on Calabash Caye, while the Belize Port Authority has lighthouses on Mauger Caye and Caye Bokel. There are approximately 38 substantive cayes on high lands, and several mangrove islands at Turneffe Atoll (**Table 1**).

**Table 1: Cayes within the Turneffe Atoll Region**

Balloon Cayes	Big Caye Bokel
Little Caye Bokel	Blackbird Caye
Calabash Caye	Little Calabash (Garfield’s) Caye
Crawl Caye	Cray Fish Caye Range
Cock Roach Caye	Cockroach Caye Range
Crickozeen Creek Area	Coco Tree (Fabian’s) Caye
Cross Caye (1)	Cross Caye (2)
Deadman’s Caye	Dog Flea Caye
Douglas Caye	Grand Bogue Creek Area
Grassy Caye Range	Harry Jones Point
Joe’s Hole	Little Joe’s Hole
Mauger Caye	Northern Bogue
Pelican Caye	Pigeon (Pelican) Caye
Rendezvous Caye	Rendezvous Point
Ropewalk Caye	Shag Caye
Snake Point	Soldier Caye
Rivas Caye	Three Corner Caye
Western Four Cayes	



For decades, Turneffe has been a major contributor to Belize's commercial harvest of lobster, conch and finfish. Additionally, the atoll is known worldwide as a sport fishing and scuba diving destination, and it is also an important center for marine research. Over the past decade, development pressures have increased enormously. Since 2000, the transfer of property from national ownership to private ownership has skyrocketed with large stands of mangroves cleared and critically important marine areas dredged and destroyed. Reversing this ominous trend will be difficult, if not impossible, without sustainable management of the atoll. There have been several attempts over that past two decades to develop a management structure for Turneffe. It was not until November 2012 that the atoll was officially declared the Turneffe Atoll Marine Reserve, now the largest marine reserve in the country.

The coastal zone management guidelines have been prepared with a view to guiding current and future sustainable development activities on Turneffe Atoll and all the cayes that lie in the region. The guidelines are based on provisions set out in the National Integrated Coastal Zone Management Strategy for Belize 2003 for sustainable coastal area use and management. The policy recommendations include, but are not limited to, the following: fishing and tourism development, land use planning and development management, land tenure, conservation of natural resources, mineral extraction, waste disposal, and national strategic consideration.

## 2.0 REGION BOUNDARIES

### Location and Geographic Definition

The Turneffe Atoll coastal planning region, for which these coastal zone management guidelines have been prepared, is one of nine regions into which the coastal zone has been demarcated (**Map 1**). The atoll itself is located 20 miles east of Belize City. The entire Turneffe Atoll coastal planning region has approximately 2016 square kilometers (**Map 2**), while the marine protected encompasses an area of 1317 square kilometers. It is comprised of all that area enclosed by the lines joining points that have the following UTM 16 coordinates (**Map 2**):

Point 1: (1968025 N, 397695 E)

Point 2: (1950417 N, 429682 E)

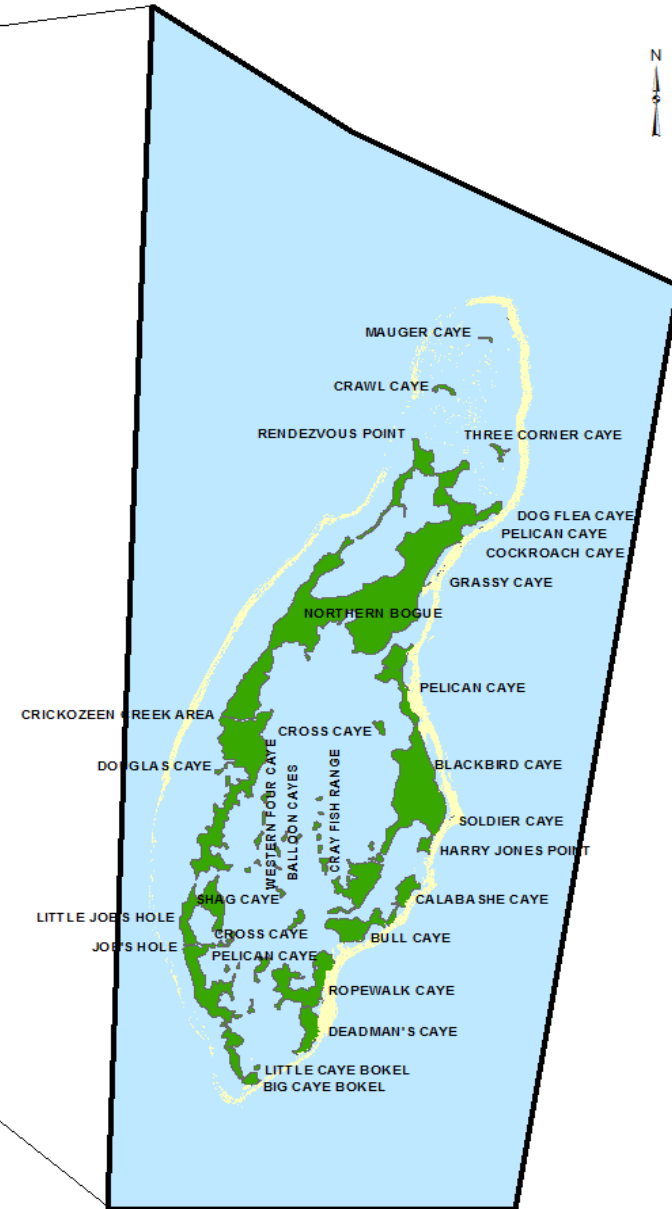
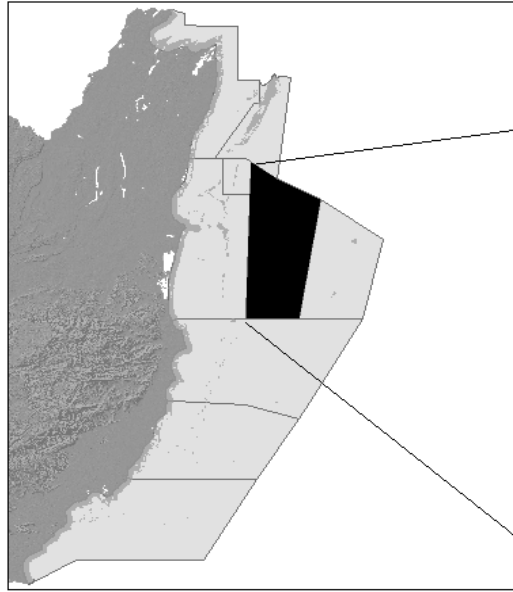
Point 3: (1890259 N, 419998 E)

Point 4: (1889965 N, 395054 E)

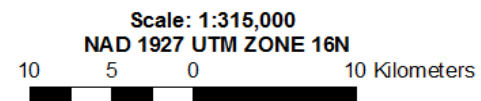
### Regional Context

Turneffe Atoll is approximately 48 kilometers long and 16 kilometers wide. It is bordered by the Lighthouse Reef Atoll planning region to the east, and the Central and Caye Caulker planning regions to the west. It is surrounded by very deep oceanic waters, extending from a depth of 200m and deeper. Terrestrial habitats account for approximately 115 square kilometers. There are also approximately 38 cayes and several mangrove islands (**Maps 3, 4, 5**)

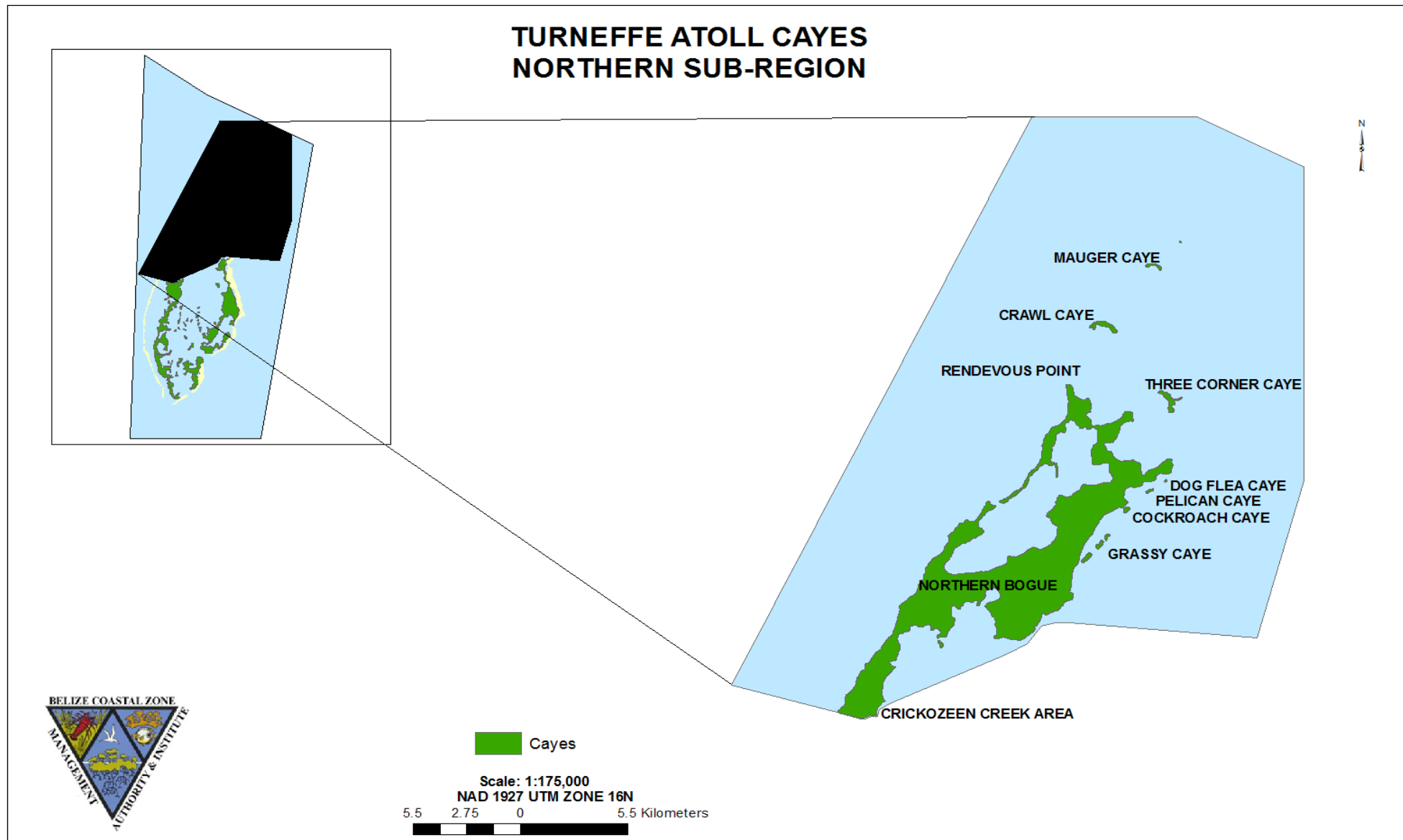
# TURNEFFE ATOLL COASTAL ZONE PLANNING REGION



 Cayes

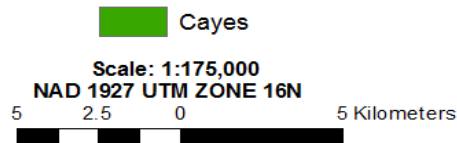
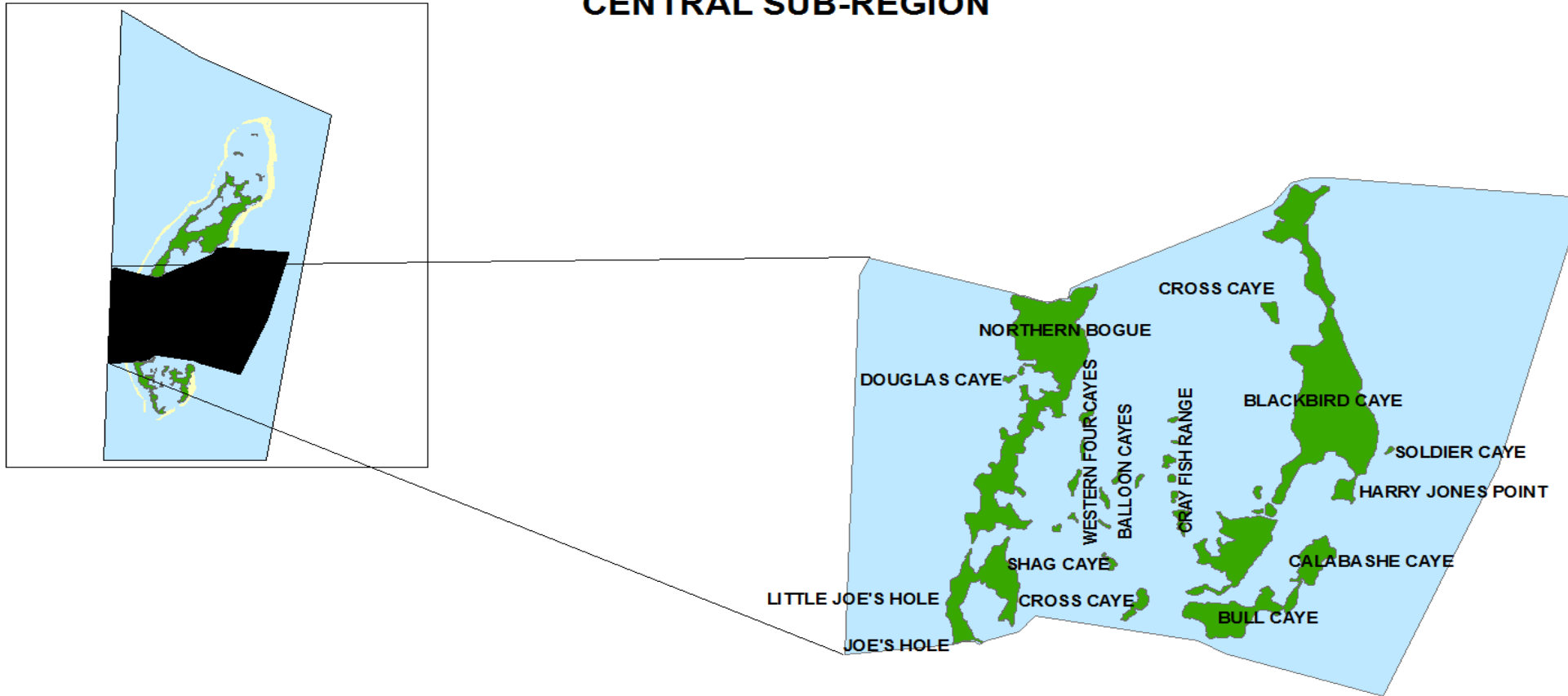


Map 2: Turneffe Atoll Coastal Zone Planning Region

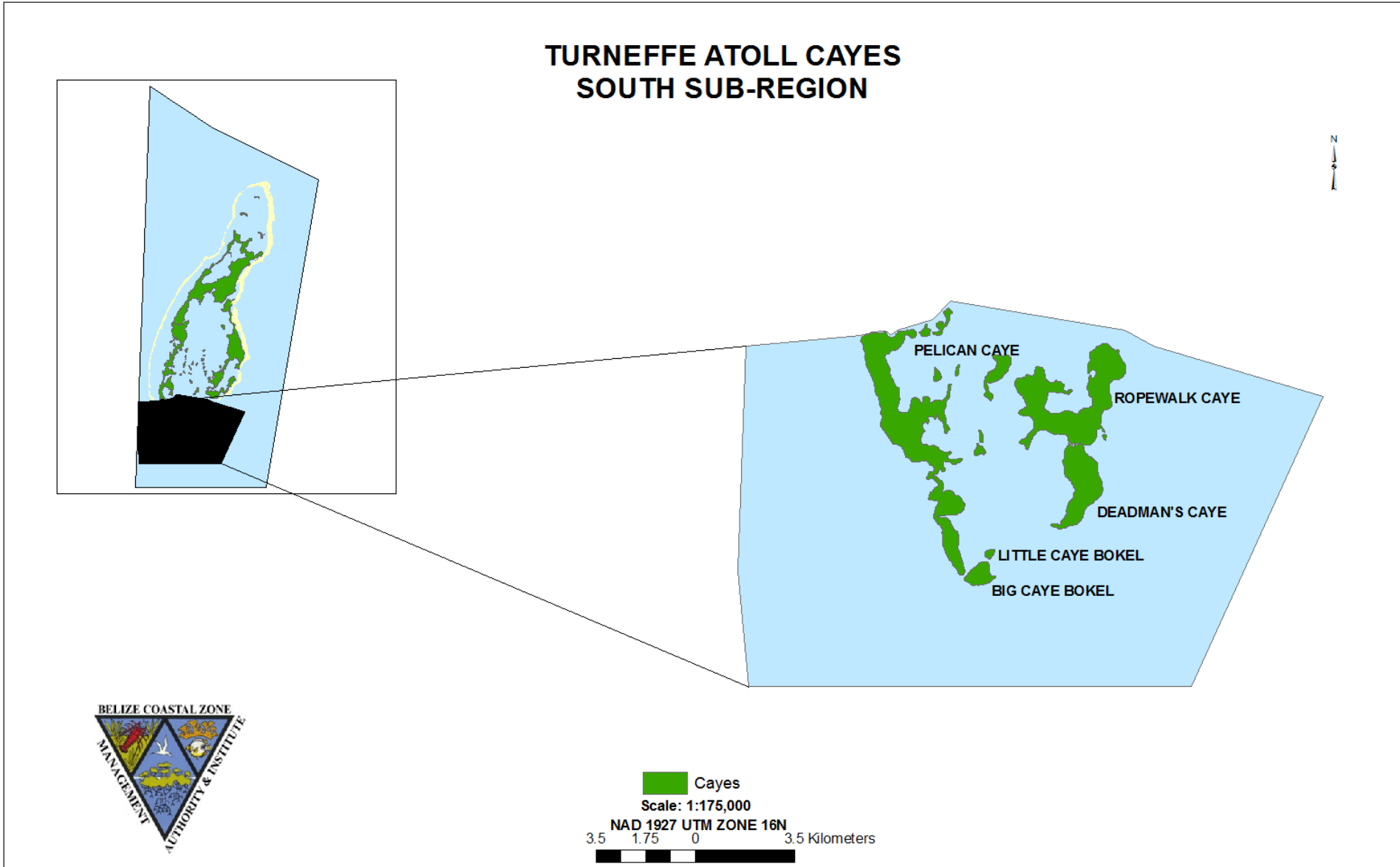


Map 3: Turneffe Atoll Cayes (Northern Sub-region)

# TURNEFFE ATOLL CAYES CENTRAL SUB-REGION



Map 4: Turneffe Atoll Cayes (Central Sub-region)



Map 5: Turneffe Atoll Cayes (Southern Sub-region)

### **3.0 OBJECTIVES**

The management of Turneffe Atoll's coastal zone must be linked to the goals and aspirations of the people of Belize, particularly the key stakeholders of the atoll. Consequently, it must be intrinsically tied to the socio-economic, cultural and other basic needs of the Turneffe Atoll stakeholder individuals and groups, and their use and demand for land and marine resources. In order to ensure the continued protection of nationally significant species, biotic communities and physical features and the continued delivery of ecosystem services to the several thriving communities within the region, the objectives of these coastal zone management guidelines include:

1. Protecting the fishing resources and fishing rights especially for the fisherfolk from the communities of Belize City, Sarteneja, Chunox and Copper Bank
2. Promoting orderly and sustainable development, based on suitable land use planning, and with effective development guidelines that will meet the needs of current and future generations
3. Maintaining and protecting ongoing and future conservation, recreational and tourism areas and uses
4. Preventing inappropriate high-impact, unsustainable developments that are incompatible with community needs
5. Protecting and preserving significant national and international natural features and ecological biodiversity of special interest or uniqueness that define the character and scientific importance of the Turneffe Atoll
6. Preserving the social and cultural values of the people and communities of the region that are connected to the environment
7. Fostering and supporting a continued partnership among stakeholders for managing the coastal resources
8. Establishing a framework for regulating the development and use of resource of the region through the continuation of CZMAI's coastal planning program activities and coastal advisory committee process

#### **4.0 LEGISLATIVE AND INSTITUTIONAL FRAMEWORK FOR INTEGRATED COASTAL ZONE MANAGEMENT IN BELIZE**

The Coastal Zone Management Act, hereinafter referred to as “the Act”, was enacted in 1998 and has been described as reflective of the trend in legislation in Belize towards more accountability and transparency for government actions, and more direct participation by the public in decision making, particularly public resources. The intent of the Act is to promote the sustainable development of coastal and ocean areas through coordination of existing legislation affecting coastal resources and through building capacity and expertise to manage coastal resources. The main purpose of the Act is to:

- Provide for the improvement of coastal zone management in Belize through the establishment of a Coastal Zone Management Authority and a Coastal Zone Management Institute;
- Provide for the establishment of a Board of Directors to control and manage the affairs of the Authority;
- Provide for the preparation of a Coastal Zone Management (CZM) Plan;
- Provide for the establishment of mechanisms to improve monitoring of various activities within the coastal zone;
- Provide for the payment of fees and charges related to the use of the coastal zone and
- Provide for matters connected therewith and incidental thereto

The Coastal Zone Management Authority is the policy making and planning institution for coastal zone management. Its functions are primarily in the realm of planning, advising, cooperating, collaborating and monitoring. It is given no jurisdiction to permit or regulate activities which may affect the sustainable development of the coastal zone. The Coastal Zone Management Institute is the research and technical arm of the Authority. As is indicated above, the Coastal Zone Management Authority is mandated to develop a comprehensive Coastal Zone Management (CZM) Plan for Belize. The CZM Plan is to be developed by the Chief Executive Officer (CEO) of the Authority through consultation with all affected government agencies, non-governmental agencies, statutory bodies and the private sector. The Act mandates that the plan address certain areas. These include:



- Guidelines to be used in determining the suitability of particular development activities in the coastal zone;
- Guidelines for the general monitoring of the coastal zone, including its biological species, communities and habitats;
- Proposals, including existing proposals from Government agencies, relating to the coastal zone that deal with the following subjects:
  - Land use
  - Planning for the establishment of marine protected areas and for the conservation of threatened or potentially threatened or endangered species;
  - Preservation and management of the scenic, cultural and other natural resources;
  - Recreation and tourism;
  - Monitoring of the environment and natural resources, mineral extraction, living resources, human settlements, agriculture, aquaculture, and industry
- Proposals for the reservation of land or water in the coastal zone for certain uses, or for the prohibition of certain activities in certain areas of the coastal zone;
- Recommendation for the improvement of public education as well as public participation in the management of coastal resources;
- Recommendations for strengthening governmental policies and powers and the conduct of research for the purposes of coastal resources conservation and management

The process for approval of the CZM Plan is as follows: The Act requires the CEO of the Authority to submit the CZM Plan to the Board of the Authority, who has sixty days to make modifications. Thereafter, the Board is to notify the public of the availability of the CZM Plan by an order published in the Gazette. Any member of the public may submit comments within sixty days. Upon completion of the sixty days, the Board may approve the CZM Plan, subject to modifications, if they deem it fit in regard to the comments submitted, and then submit the same to the Minister for approval. The Minister, after approving the CZM Plan, shall table it in the House of Representatives for approval by the House by affirmative resolution. Subsequent to approval by the House, the CZM Plan must be published in three consecutive issues of the Gazette. The CZM Plan is to come into operation on the date of the last publication or such later date as may be specified therein. The Act requires the CZM Plan to be revised during the four year period after it comes into operation.

It was agreed by the CZMAI that the CZM Plan would be developed in phases, with the first phase being the development of an Integrated Coastal Zone Management Strategy document, which underwent extensive public consultation. It was endorsed by the cabinet in 2003, and is an official policy document of CZMAI. The second phase involved the formulation of cayes development guidelines for eight of the nine coastal planning regions into which the coastal zone has been sub-divided by the CZMAI. This subdivision was based on geographical, biological, administrative and economic similarities. The Ambergris Caye Development Master Plan serves as a guide for regulating the use and development of land in the Ambergris Caye Planning Region. See **Map 1** for the definition of the nine coastal planning regions.

The development guidelines were formulated using the Cayes Development Policy (2001) as a framework. During 2010-2012, the cayes development guidelines were updated to include new information on the cayes, but also to include human use of the coastline and marine waters. As such, the development guidelines have been renamed the coastal zone management guidelines. Thus, the Integrated Coastal Zone Management Strategy (2003), together with the coastal zone management guidelines for the nine coastal planning regions, contributes to the development of the comprehensive Integrated Coastal Zone Management Plan.

## 5.0 GUIDING PRINCIPLES

It is important that the coastal zone management guidelines for the region be formulated as a part of a sustainable plan geared towards contributing to national, regional and local development policies, goals and aspirations. They must therefore be holistic and pragmatic, yet underpinned by certain fundamental principles. These can be detailed as follows:

**Principle 1:-** *Recognition that the Turneffe Atoll Region needs special protection and management because of its physical, economic, scientific, cultural and aesthetic attributes*

**Principle 2:-** *Recognition of the need to avoid placing undue strain on the terrestrial and aquatic environment of the region by ensuring that proposed development activities do not exceed the carrying capacity of the region*

**Principle 3:-** *Recognition of the rights and interests of traditional users and stakeholders while acknowledging the national development policy which promotes tourism and job creation*

**Principle 4:-** *Recognition that environmental concerns are best handled with the participation of all concerned stakeholders at all levels and from all sectors*

**Principle 5:-** *Recognition that planning guidelines represent a preventative and precautionary approach to environmental degradation and a tool for pursuing sustainable development of the region*

## 6.0 SECTORAL POLICIES

These policies are organized into ten sectors which address current and potential issues at Turneffe Atoll and provide recommendations from Turneffe Atoll stakeholders. They include: Fishing, Marine Tourism and Recreation, Land-Use, Marine Dredging, Sensitive Habitats, Utilities, Pollution Control, Social Amenities, Conservation, and Research & Education. They were developed by the Turneffe Atoll Coastal Advisory Committee (TACAC), and the Coastal Zone Management Authority and Institute.

### 6.1 *Fishing*

Turneffe Atoll and its surrounding waters have provided a productive commercial and subsistence fishery for centuries beginning with the ancient Maya. For decades, Turneffe has been one of Belize's largest producers of lobster, conch, grouper and snapper while bonefish, permit, tarpon and snook are important species for sport fishing. As one of the more important sport fishing areas in Belize, Turneffe Atoll contributes significantly, and in a sustainable manner, to the economic advantages generated by sport fishing for Belize.

Turneffe Atoll's extensive mangroves, seagrass and back-reef flats are critical breeding grounds for many fish species, and also provide important juvenile and adult habitats. These guidelines seek to ensure that the valuable fishing resources of Turneffe Atoll are not damaged and that critical habitats are vigorously protected. A 2010 analysis of Belize's sports fishing habitat by Green Reef recommended that the seagrass beds and back-reef flats at Turneffe Atoll be carefully protected (Paz & Grimshaw 2010).

Traditional fishermen, mostly from Belize City, utilize fishing camps which are either permanently or semi-permanently occupied. The number of camps decreased from 44 in 1996 to 34 in 2000 and to approximately 25 in 2011. Over the past 5 years, commercial fishing effort along the reefs and on the back-reef flats has increased dramatically due to a marked increase in itinerant sailboat fishermen, mostly from Copper Bank and Sarteneja. Grouper and snapper populations have declined appreciably over the past two decades with the most precipitous decline over the past five years. Although good data is not available for other species, local fishermen indicate that their catches of other finfish and lobster have declined as well.

Using the InVEST Spiny Lobster model, the total spiny lobster coverage at Turneffe Atoll was determined to be approximately 305 km<sup>2</sup>. The model results estimate lobster tail catch for the current lobster fishing activity to be 63,084 lbs; and generating revenue of approximately BZ \$1.7 million (**Fig. 4, Appendix**). The results suggest that under a Conservation Zoning Scheme, the lobster catch could increase to 80,965 lbs; and generating an annual revenue of BZ \$2.1 million by 2025. A development future would decrease the catch significantly to 2,456 lbs. Exports under the Development Zoning Scheme would only be to 2,687 lbs, and the revenue generated would be BZ \$0.07 million by 2025. However, the model results indicate that under

the proposed Informed Management Zoning Scheme (**Map 6**) for lobster catch could increase to 72,001 lbs. The revenue generated would equate to BZ \$1.9 million by 2025.

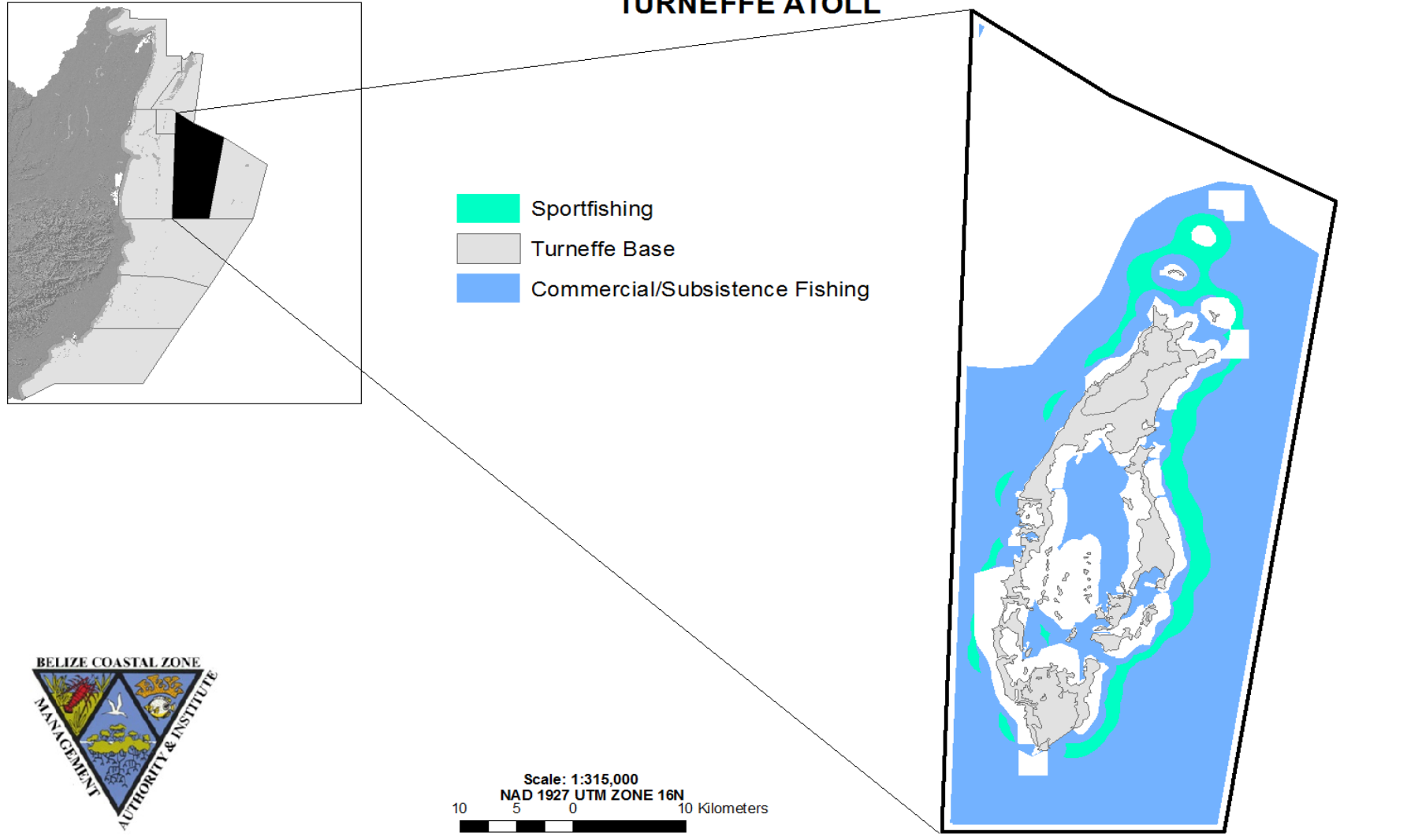
Compared to the Informed Management Zoning Scheme (**Map 6**), the Conservation Zoning Scheme is the better option for maintaining increased lobster catch and revenue through to 2025. This is mainly attributed to the fact that under the Conservation Zoning Scheme, habitats that support the lobster fishery are under relatively less stress from human activity than in the Informed Management scheme. However, while the zoning scheme under a Conservation Scenario is good for habitats and the provision of important ecosystem services, such as protein from lobster, significantly less human activities occur in this zoning scheme. Although there may be some loss to habitat quality and lobster production, the Informed Management zoning scheme represents a balance between managing the resources of the coastal zone and the continued allocation of areas for human use through to 2025.

In discussing the results of the InVEST ecosystem models, and in particular the lobster fishery model, there is the need to consider limitations of the model, which are highlighted below:

- Population growth parameters are nationwide, not region-specific
- Habitat dependencies are obligatory (e.g., habitat substitutability is not explicit represented).
- The population responds to change in habitat quantity (i.e., areal extent of mangrove, seagrass, and coral reef), not quality of those habitats.
- The fishery is assumed to take place at the start of the year, before natural mortality
- The model assumes near knife-edge selectivity in harvest function
- Harvest selectivity (and catchability) is invariant, such that technological improvements to gear or changes in fishing practices are not modeled.
- Market operations are fixed, such that they do not vary in response to amount of harvest, shifts in market or consumer preference, or technological changes.
- Climate change impacts are not directly accounted for in model

Additional information on how this model works can be found in **Appendix B.4** of the Belize Integrated Coastal Zone Management Plan.

# INFORMED MANAGEMENT ZONING SCHEME FOR FISHING: TURNEFFE ATOLL



Map 6: Informed Management Zoning Scheme for Fishing in the Turneffe Atoll Region

In the 1970's and early 1980's, gill and seine net fishing on, and around, Turneffe's backreef flats seriously diminished the atoll's sport fishery. Attempts to stop the netting lead to some violence but then a prolonged period without significant netting activity. Over the past 2 - 3 years netting has been re-initiated on, and adjacent to, the ocean-side bonefish flats, on the seagrass flats in the central lagoon and in creeks frequented by tarpon. These activities are once again having a significant impact on Turneffe's sports fishing sector with areas now notably devoid of resident schools of sport fish.

In 2009, Belize passed landmark legislation protecting bonefish, permit and tarpon based on verification that these three species sustainably generate nearly \$60 million dollars per year for Belize and provide more than 1800 jobs. Net fishing, if left unchecked, could easily negate Turneffe Atoll's considerable financial contribution to Belize's sport fishing sector.

The 2008 Fisheries Act, Chapter 10, Section 8 (1) indicates "In all areas outside the barrier reef and within the radius of two miles of the mouth of the Belize River, Haulover Creek and Sibun River, no person shall take fish by means of any beach seine, traps or as weir or stop net." Although this has not been literally interpreted or strictly enforced by the Fisheries Department to date, doing so is a viable option for addressing this problem.

Due to limited resources and the remote location of Turneffe Atoll, it is widely acknowledged that fisheries enforcement is not adequate and that unlawful fishing activities such as illegal netting, poaching of protected aggregation sites, and harvesting of undersized conch and lobster are commonplace. Turneffe's commercial fishing sector, represented by the Belize Fishermen Cooperative Association (BFCA), recognizes this as a major problem and they have asked that enforcement be enhanced.

Personal security is a concern for the occupants of Turneffe Atoll including fishermen, tourists and residential property owners. Security has clearly improved with the establishment of the Calabash Coast Guard Station; however, the Coast Guard's ability to patrol and respond to all areas of the atoll is limited. In May, 2011, the Fisheries Department, Belize National Coast Guard and Turneffe Atoll Trust signed an accord initiating regular patrols at Turneffe Atoll. This represents a very positive step forward and the atoll's three major resorts have committed substantial resources for the effort.

The Fisheries Act, administered under the Fisheries Department, is the principal governing legislation to regulate the fishing industry (**Table 2**), and is directly concerned with maintaining sustainable fish stocks and protecting the marine and freshwater environments. In order to protect the fisheries resources of the Turneffe Atoll and the traditional fishing rights of fishing communities of the region, the following action steps are recommended, to complement the existing Fisheries regulations and to enhance regional management of the fisheries resources.

**Table 2: Framework for Implementing Informed Fisheries Management at Turneffe Atoll**

ZONE	CHARACTERISTICS OF ZONE	SCHEDULE OF PERMITTED USES			SCHEDULE OF RESTRICTED USES	SUPPORTING NATIONAL POLICIES	IMPLEMENTING AGENCY
		Dominant	Compatible	Regulated			
<b>Fishing</b>	Marine area defined for the extraction of fish for food and commercial trade, except for sport fishing which only involves the catch and release of fish	1. Sportfishing (bonefish, tarpon, permit); 2. Wild capture of commercial fish species using only permitted fishing gear 3. Sustenance fishing using traditional fishing gear 3. Wild capture of invasive species	Marine recreation and eco-tourism Passage/entry of fishing vessels Research and Education within marine reserves Establishment of fish pots and traps Seaweed culture	Sport fishing Commercial fishing Research and Education	1. Illegal extraction of catch and release species, endangered marine species and organisms under seasonal management regime; 2. Extraction within legally specified “no-take”/replenishment zones 3. Dredging 4. Use of prohibited fishing gear 5. Trawling 6. Shipping and navigation 7. Dumping of solid and liquid wastes 8. Oil exploration and extraction	Fisheries Act Coastal Zone Management Act	Fisheries Department Coastal Zone Management Authority



### **Recommended Actions:**

1. Manage Turneffe Atoll's commercial fishery through the institution of modern ecologically-based fisheries management techniques that sustain its economic, social and ecological advantages of this fishery for future generations
2. Manage Turneffe Atoll's sport fishery to sustain its economic, social, and job-related advantages for Belize
3. Improve fisheries enforcement for the Atoll
4. Prevent development practices that damage commercial fishing and sport fishing habitats, particularly the back-reef flats and sea grass beds
5. Disallow net fishing at Turneffe Atoll in compliance with enforcement of The Fisheries Act, Chapter 10, Section 8 (1) and/or by other means
6. Provide traditional fishermen with security of tenure (leases) for existing fishing camps
7. Explore further cooperative public/private efforts to enhance enforcement and security at Turneffe Atoll.
8. Improve the ability for fishing camps, resorts and other Turneffe Atoll locations to communicate with the Belize Coast Guard for security purposes should be a priority.
9. Enhance the ability of the Belize Coast Guard to easily travel to all areas of Turneffe Atoll, particularly the remote areas of the lagoon, should be enhanced.
10. Enlist local fishermen and resorts to help with monitoring and surveillance should be promoted to enhance security.

## 6.2 *Marine Tourism and Recreation*

With a relatively healthy reef system, world-renowned back-reef flats and healthy seagrass beds, in addition to a plethora of marine creatures, sport fish, marine mammals and reptiles, Turneffe Atoll offers many attractions for nature-based tourism. The atoll's tourism industry is highly dependent upon healthy, intact marine and terrestrial environments. Turneffe Atoll's tourism industry should be directed towards low-impact, environmentally sensitive tourism while cautiously avoiding destructive practices which would compromise the source of the atoll's attraction as a tourism destination. One such low impact activity includes nautical tourism. However, proper in-depth planning and monitoring must take place before this are can be used to further attract this type of tourism. This would include improvements in navigational charts and demarcation of navigational routes.

There are currently three operational resorts that cater to sport fishing, Scuba diving, snorkeling, and other ecotourism activities. Tours originating from Belize City, Ambergris Caye, Caye Caulker and other locations also utilize Turneffe Atoll for sports fishing, diving and snorkeling. Some cruise ship visitors also access the atoll. Some traditional fishermen have expressed a desire to develop their fishing camps into small, guest houses offering the eco-cultural experience of the fishermen. These guidelines support this type of development.

Results from InVEST's Recreation and Tourism ecosystem service model suggest this region will have a moderate tourist visitation by 2025 (**Fig. 5, Appendix**). Based on model results, in 2010 approximately 106 thousand people currently visit this region, which generated an annual revenue of BZ \$12.3 million (**Fig. 6, Appendix**). In a Conservation Zoning Scheme, In VEST results suggest that there would be a significant increase in tourist visits to approximately 139 thousand, generating annual revenue of BZ \$15.4 million. In a Development Zoning Scheme, there would also be a significant increase in tourist visits to approximately 273 thousand generating annual revenue of BZ \$30.2 million. In the proposed Informed Management Zoning Scheme (**Map 7**), there model results again suggest that there would be a significant increase in tourist visitation to Turneffe Atoll to approximately 177 thousand generating annual revenue of BZ \$30.4 million. The supporting framework for implementing the Informed Management Zoning Scheme for marine recreation and tourism is outlined in **Table 3**.

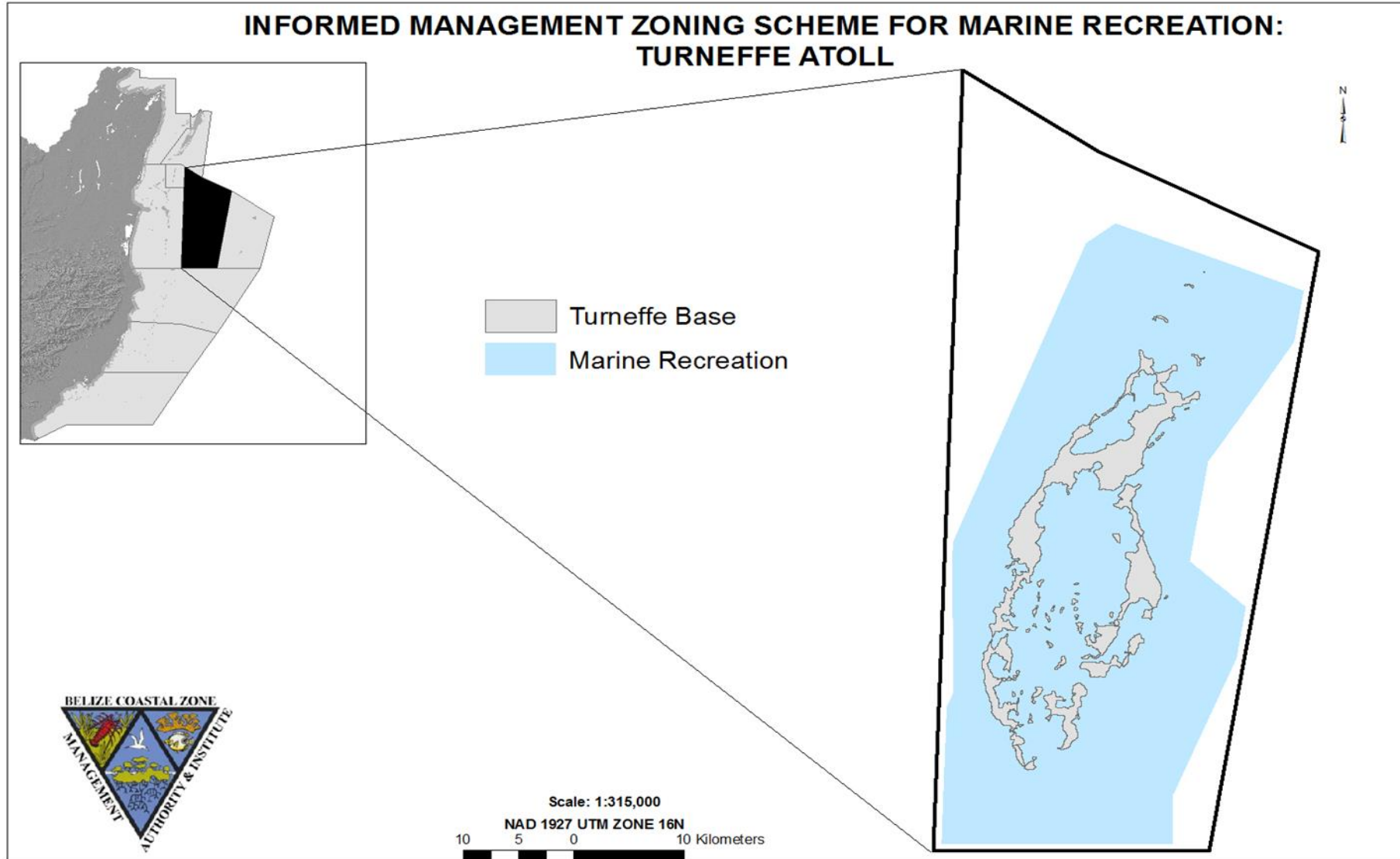
In discussing the results of the InVEST ecosystem models, and in particular the recreation model, there is the need to consider limitations of the model, which are highlighted below:

- The model assumes that people will respond similarly in the future to the attributes that serve as predictors in the model. In other words, the assumption is that people in the future will continue to be drawn to or repelled by a given attributes to the same degree as currently.
- Some of the attributes that are used as predictors of visitation are representations of areas managed for particular human use (e.g. transportation). The model assumes that future

management of the zones and the type of activities that they represent are similar to current.

- Since there are no fine-scale data on the distribution of visitors to Belize, we use photo-person-days as a proxy for the relative density of actual person-days of recreation across the coastal zone.
- Climate change impacts are not directly accounted for in model

Additional information on how this model works can be found in **Appendix B.3** of the Belize Integrated Coastal Zone Management Plan.



**Map 7: Informed Management Zoning Scheme for Marine Recreation in the Turneffe Atoll Region**

**Table 3: Framework for Implementing Informed Marine Recreation in the Turneffe Atoll Region**

ZONE	CHARACTERISTICS OF ZONE	SCHEDULE OF PERMITTED USES			SCHEDULE OF RESTRICTED USES	SUPPORTING NATIONAL POLICIES	IMPLEMENTING AGENCY
		Dominant	Compatible	Regulated			
<b>Marine Recreation</b>	Marine areas especially suited to swimming, snorkeling, diving, kayaking, surfing, jet skiing, kite boarding, and other water sports	<ol style="list-style-type: none"> <li>1. Swimming</li> <li>2. Snorkeling</li> <li>3. Diving</li> <li>4. Kayaking</li> <li>5. Surfing,</li> <li>6. Jet skiing,</li> <li>7. Kite boarding</li> <li>8. Other water sports</li> </ol>	<p>Passage/entry of water taxis, tour boats, cruise vessels</p> <p>Research and education within marine protected areas</p> <p>Sport fishing</p>	<p>Research and Education</p> <p>Eco-tourism activities within marine protected areas</p> <p>Sport fishing</p>	<ol style="list-style-type: none"> <li>1. Commercial fishing</li> <li>2. Establishment of fish pens/cages, mariculture</li> <li>3. Oil exploration and extraction</li> <li>4. Dredging</li> <li>5. Passage of commercial fishing vessels</li> <li>6. Shipping and navigation</li> <li>7. Trawling</li> <li>8. Dumping of solid and liquid wastes from ships and boats</li> </ol>	<p>Belize Tourism Board Act</p> <p>Fisheries Act</p> <p>Coastal Zone Management Act</p> <p>Hotel and Tourist Accommodation Act</p> <p>National Sustainable Tourism Master Plan</p>	<p>Belize Tourism Board</p> <p>Fisheries Department</p> <p>Coastal Zone Management Authority</p>

While the tourism industry generates much needed economic development, on both local and national levels, it has been identified as also leading to reef damage, illegal camping, and litter. It is also noticeable that it has had the effect of generating speculative, though not always well-informed, development. The National Sustainable Tourism Master Plan (STP) recognizes that Belize’s barrier reef, three atolls, and chain of reef islands are renowned internationally and form the basis of the marine-based, nature tourism product of the country. As such, conservation of the Belize Barrier Reef is key. The long-term objective for sustainable tourism development in area along the reef system, including Turneffe Atoll, is to limit growth, allowing for only necessary improvements and small enlargements for exiting homes, resorts, lodges and other tourism facilities. Preservation of the reef system, marine habitats and ecosystem shall be the primary concern when assessing the need to make improvements to the above-mentioned existing facilities.

**Recommended Actions:**

1. Promote low-impact, environmentally-sensitive, nature-based tourism with care to avoid practices that destroy Turneffe Atoll’s sensitive and valuable habitats
2. Avoid high-impact, environmentally-destructive tourism development
3. All tourism facilities should meet BTB’s minimum standards, including disaster preparedness and evacuation plans; and also meet the *“Tourism and Recreation Best Practices Guidelines for Coastal Areas in Belize”* produced by CZMAI
4. BTB and/or DOE should not recommend or approve tourism facilities that do not conform to these coastal zone management guidelines.
5. Tourism operators should assist Coast Guard and the Fisheries Department by providing monitoring and communications assistance related to security and fisheries enforcement
6. Zoning schemes should give fishing camps the option to develop ‘guest houses’; promoting opportunities for traditional users to benefit from tourism
7. The recommendations of the National Sustainable Tourism Master Plan for this region are to be supported in order to encourage a long-term sustainable tourism future
8. Implement the Recreation informed management zoning scheme for this region (**Map 7**)

### 6.3 *Land-Use*

The land use component of these management guidelines for the Turneffe Atoll region are based on the carrying capacity of the environment, combined with the existing and projected types of land tenure patterns and use activities. The development suitability, current and future development trends, existing land use and property rights, socio-economic and other relevant data are a critical for determining the land-use classification within the Belize coastal zone. It is also important that these coastal zone management guidelines maintain some flexibility to enable a response to the ever changing socio-economic and physical environment.

The Turneffe Atoll consists of approximately 115 square kilometers which is made up of a mix of inundated mangrove swamp and low-lying land with an elevation up to a few feet above sea level. The cayes, some of them larger than 20 square kilometers, fringe an expansive lagoon system reaching a width of 8 kilometers and a length of 21 kilometers. Turneffe Atoll's cayes are characterized by approximately 77 vegetation types, reflecting the topography of the land. The higher land is generally covered by littoral forest, palmetto, broken palmetto thicket and some coconut; the inundated areas with high, medium and low mangrove.

The location of significant structures (lodging quarters, restaurants and bars) over the water is inherently adverse to the aesthetics of Turneffe Atoll. Moreover, it causes navigational hazards and sets an alarming precedent, which would likely become very difficult to control. For these reasons, many coastal villages with local planning authority have disallowed this practice. Additionally, waste management is difficult to control with over-the-water development; and, although 'cleaner technologies' may initially be permitted, any leak or malfunction could cause immediate detrimental effects to the marine environment. Furthermore, Turneffe Atoll is exceptionally vulnerable to hurricanes making over-the-water construction infeasible.

The National Sustainable Tourism Master Plan for Belize (STP) 2030 recognizes that the Turneffe Atoll is one of those key areas along the Belize Barrier Reef that contain highly sensitive natural ecosystems, whose ecological integrity needs to be maintained. As such, the Plan recommends a model of development for Turneffe Atoll region that constrains and consolidates growth, only allowing for necessary improvements and small enlargements for existing homes, resorts, lodges and other tourism facilities. These small enlargements on existing facilities will contribute to a maximum growth allocation of a total of 37 new hotel rooms for areas along the entire reef system by 2030. The density proposed for the extension of exiting resorts is "**very low density**", which includes 4 units/acre-10 units/hectare. This model should help achieve the long-term objective for sustainable tourism development along the reef system. Improvement and expansion to the above-mentioned existing facilities at Turneffe Atoll will be subject to the environmental clearance process coordinated by the Department of the Environment and National Environmental Appraisal Committee (NEAC).-

In the case of privately held undeveloped lands, the development standards presented within these guidelines presents the most sustainable and appropriate future land use. Although the CZMAI recognizes the right of the landowner to develop their land in any matter they see fit there must be measures in place to steer future development in order to ensure sustained ecosystem services. Therefore, in the case of these lands, if there

is no development activity within the first five (5) years of the passage of this planning document then all future development activities, after the time period, **MUST** follow development standards as outlined within this coastal development guideline.



### 6.3.1 Cayes Development Standards

Development on cayes and atolls require specific building standards since these areas are in close proximity to important sensitive habitats such as sea grass beds, mangroves and coral reefs. Ad hoc or uncontrolled development in these areas can have severe negative effects on surrounding ecosystems. For example the construction and proliferation of piers can cause destruction of the beach, sea grass bed and seabed and sedimentation, particularly if they are positioned on the windward side. Furthermore, the movement of debris during storms from buildings constructed on piers can be dangerous. Sustainable development is crucial in maintaining our natural resources and the benefits that Belizeans receive from them. Proper planning is required for this to be achieved.

By 2004, CZMAI had produced a set of Cayes Development Guidelines for the cayes within nine coastal planning regions (**Map 1**). These development guidelines were produced in consultation with stakeholders from each planning region along with technical input from government relevant agencies. Within each guidelines document, land use classes were developed along with accompanying standards for the varying degrees of development that can occur on each caye. Use classes were also assigned to each caye based on development suitability assessments. The use class categories developed ranged from residential to conservation, and commercial to research and education, representing the various degrees of allowable development intensities on cayes.

The original cayes development guidelines for this region identified 94 ‘development sites’ and specified the type of land use, lot size, building density, means of utility supply and other relevant performance standards for each site. Most of these are expressed as minimum or maximum requirements, allowing for flexibility between these margins. It is intended that development should take place only on these sites; the remainder of the land, whether it is high or low, should be kept, at least until further review, in reserve. A presumption against development should be exercised on all areas outside the development sites.

Each development site is given a series of performance standards, ranging from the size of the site to the means of waste disposal. However, it should be noticed that the great majority of sites are given two ‘land use’ options: the primary being the most recommended, the secondary being considered as suitable as a development option, but only so long as the primary ‘land use’ is utilized. The primary land uses identified for the cayes on the atoll include fish camps, conservation, research and education, residential and resort/guesthouses. These standards are found in the development sites table below (**Table 4**) and correspond with the proposed land use maps for the cayes (**Maps 8, 9, 10**).

**Table 4: Land Use Development Standards for Cayes Development Sites at Turneffe Atoll**

Site Number	<b>1</b>
Name / location	<b>MAUGER CAYE</b>
Primary land use	Conservation / lighthouse / research & education
Secondary land use	None
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	2
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	4
Maximum guest capacity	n/a
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Well / roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non-Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	2
Other	The natural vegetation to the east and west of the existing camp should be left undisturbed.

Site Number	<b>2</b>
Name / location	<b>CRAWL CAYE</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Well / roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non-Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	2
Other	The natural vegetation to the east and west of the existing camp should be left undisturbed.

Site Number	<b>3</b>
Name / location	<b>THREE CORNER CAYE</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	6
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Well / roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non-Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	2
Other	The whole of main caye, to west of caye with camp, to be left undisturbed. The vegetation to the west of camp also to be left undisturbed

Site Number	<b>4</b>
Name / location	<b>COCKROACH / BABYROACH CAYES</b>
Primary land use	Conservation / wildlife sanctuary/ research & education
Secondary land use	None
Maximum lot size	n/a
Minimum lot size	n/a
Maximum No of lots per site	n/a
Minimum No of lots per site	n/a
Net site housing density	n/a
Maximum hab-room density	n/a
Maximum guest capacity	n/a
Maximum building coverage	n/a
Building set backs	n/a
Building height	n/a
Maximum No of floors	n/a
Water	n/a
Electricity	n/a
Solid waste	n/a
Liquid waste	n/a
Piers per site	n/a
Other	The natural vegetation should be left undisturbed.

Site Number	<b>5</b>
Name / location	<b>COCKROACH CAYE BAY</b>
Primary land use	Conservation / wildlife sanctuary /research & education
Secondary land use	None
Maximum lot size	n/a
Minimum lot size	n/a
Maximum No of lots per site	n/a
Minimum No of lots per site	n/a
Net site housing density	n/a
Maximum hab-room density	n/a
Maximum guest capacity	n/a
Maximum building coverage	n/a
Building set backs	n/a
Building height	n/a
Maximum No of floors	n/a
Water	n/a
Electricity	n/a
Solid waste	n/a
Liquid waste	n/a
Piers per site	n/a
Other	No dredging; no hunting.

Site Number	<b>6</b>
Name / location	<b>MIDDLE GRASSY CAYE RANGE</b>
Primary land use	Conservation / wildlife sanctuary/ research & education
Secondary land use	None (except the 1 fishing camp currently in existence)
Maximum lot size	2 acres - for the existing fish camp only
Minimum lot size	2 acres - for the existing fish camp only
Maximum No of lots per site	1- for the existing fish camp only
Minimum No of lots per site	n/a
Net site housing density	1- for the existing fish camp only
Maximum hab-room density	4- for the existing fish camp only
Maximum guest capacity	n/a
Maximum building coverage	600 sq. ft.-for existing fish camp only
Building set backs	n/a
Building height	14 ft - for the existing fish camp only
Maximum No of floors	1 - for the existing fish camp only
Water	Well / roof- for the existing fish camp only
Electricity	Generator- for the existing fish camp only
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non-Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	1- for the existing fish camp only
Other	The natural vegetation should not to be disturbed; no dredging; strict control of domestic animals.

Site Number	<b>7</b>
Name / location	<b>SOUTHERN GRASSY CAYE RANGE</b>
Primary land use	Conservation / wildlife sanctuary / research & education
Secondary land use	None
Maximum lot size	n/a
Minimum lot size	n/a
Maximum No of lots per site	n/a
Minimum No of lots per site	n/a
Net site housing density	n/a
Maximum hab-room density	n/a
Maximum guest capacity	n/a
Maximum building coverage	n/a
Building set backs	n/a
Building height	n/a
Maximum No of floors	n/a
Water	n/a
Electricity	n/a
Solid waste	n/a
Liquid waste	n/a
Piers per site	n/a
Other	

Site Number	<b>8</b>
Name / location	<b>NORTHERN BOGUE, MID CHANNEL</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	500 sq ft
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	1
Maximum hab-room density	4
Maximum guest capacity	4
Maximum building coverage	500 sq ft
Building set backs	n/a
Building height	14 ft
Maximum No of floors	1
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non-Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	1
Other	No dredging or filling.

Site Number	<b>9</b>
Name / location	<b>NORTHERN BOGUE, EAST BANK, NORTH</b>
Primary land use	Conservation / wildlife sanctuary / research & education
Secondary land use	None
Maximum lot size	n/a
Minimum lot size	n/a
Maximum No of lots per site	n/a
Minimum No of lots per site	n/a
Net site housing density	n/a
Maximum hab-room density	n/a
Maximum guest capacity	n/a
Maximum building coverage	n/a
Building set backs	n/a
Building height	n/a
Maximum No of floors	n/a
Water	n/a
Electricity	n/a
Solid waste	n/a
Liquid waste	n/a
Piers per site	n/a
Other	

Site Number	<b>10</b>
Name / location	<b>NORTHERN BOGUE, EAST BANK, NORTH</b>
Primary land use	Conservation / wildlife sanctuary / research & education
Secondary land use	None
Maximum lot size	n/a
Minimum lot size	n/a
Maximum No of lots per site	n/a
Minimum No of lots per site	n/a
Net site housing density	n/a
Maximum hab-room density	n/a
Maximum guest capacity	n/a
Maximum building coverage	n/a
Building set backs	n/a
Building height	n/a
Maximum No of floors	n/a
Water	n/a
Electricity	n/a
Solid waste	n/a
Liquid waste	n/a
Piers per site	n/a
Other	

Site Number	<b>11</b>
Name / location	<b>TURNEFFE FLATS RESORT</b>
Primary land use	Resort
Secondary land use	First aid
Maximum lot size	25.88 acres
Minimum lot size	25.88 acres
Maximum No of lots per site	1
Minimum No of lots per site	1
Net site housing density	n/a
Maximum hab-room density	16
Maximum guest capacity	20
Maximum building coverage	Main building = 1,200 sq ft; all others = 600 sq ft
Building set backs	Front = 66 ft; side & rear = n/a
Building height	30 ft
Maximum No of floors	2
Water	Well /roof / reverse osmosis under approval from the relevant authorities
Electricity	Solar / wind / generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non-Hazardous Waste at least 30 ft from water
Liquid waste	Liquid Waste Management System / Above Ground Septic Tank with Drain field under approval from the relevant authorities
Piers per site	2
Other	Blackbird Caye has been identified as an important nesting site for the American Crocodile

Site Number	<b>12</b>
Name / location	<b>BLACKBIRD MAIN, EAST COAST, SOUTH OF TURNEFFE FLATS RESORT</b>
Primary land use	Conservation / wildlife sanctuary / research & education
Secondary land use	None
Maximum lot size	n/a
Minimum lot size	n/a
Maximum No of lots per site	n/a
Minimum No of lots per site	n/a
Net site housing density	n/a
Maximum hab-room density	n/a
Maximum guest capacity	n/a
Maximum building coverage	n/a
Building set backs	n/a
Building height	n/a
Maximum No of floors	n/a
Water	n/a
Electricity	n/a
Solid waste	n/a
Liquid waste	n/a
Piers per site	n/a
Other	Blackbird Caye has been identified as an important nesting site for the American Crocodiles, and this site has no high land.

Site Number	<b>13</b>
Name / location	<b>NORTHERN BOGUE, EAST BANK, SOUTH</b>
Primary land use	Conservation / wildlife sanctuary / research & education
Secondary land use	None
Maximum lot size	n/a
Minimum lot size	n/a
Maximum No of lots per site	n/a
Minimum No of lots per site	n/a
Net site housing density	n/a
Maximum hab-room density	n/a
Maximum guest capacity	n/a
Maximum building coverage	n/a
Building set backs	n/a
Building height	n/a
Maximum No of floors	n/a
Water	n/a
Electricity	n/a
Solid waste	n/a
Liquid waste	n/a
Piers per site	n/a
Other	The land is low and swampy and the area was badly damaged by Hurricane Keith. This area has been identified as an important nesting site for the American Crocodile.

Site Number	<b>14</b>
Name / location	<b>BLACKBIRD MAIN, OFF WEST COAST, NORTH OF SHEG CAYE (CROSS)</b>
Primary land use	Conservation / wildlife sanctuary / research & education
Secondary land use	None
Maximum lot size	n/a
Minimum lot size	n/a
Maximum No of lots per site	n/a
Minimum No of lots per site	n/a
Net site housing density	n/a
Maximum hab-room density	n/a
Maximum guest capacity	n/a
Maximum building coverage	n/a
Building set backs	n/a
Building height	n/a
Maximum No of floors	n/a
Water	n/a
Electricity	n/a
Solid waste	n/a
Liquid waste	n/a
Piers per site	n/a
Other	

Site Number	<b>15</b>
Name / location	<b>PELICAN CAYE</b>
Primary land use	Conservation / wildlife sanctuary / research & education
Secondary land use	None
Maximum lot size	n/a
Minimum lot size	n/a
Maximum No of lots per site	n/a
Minimum No of lots per site	n/a
Net site housing density	n/a
Maximum hab-room density	n/a
Maximum guest capacity	n/a
Maximum building coverage	n/a
Building set backs	n/a
Building height	n/a
Maximum No of floors	n/a
Water	n/a
Electricity	n/a
Solid waste	n/a
Liquid waste	n/a
Piers per site	n/a
Other	Attention should be paid to the maximized retention of vegetation.

Site Number	<b>16</b>
Name / location	<b>BLACKBIRD MAIN, EAST COAST, HAULOVER AREA</b>
Primary land use	Conservation / wildlife sanctuary / research & education
Secondary land use	None
Maximum lot size	n/a
Minimum lot size	n/a
Maximum No of lots per site	n/a
Minimum No of lots per site	n/a
Net site housing density	n/a
Maximum hab-room density	n/a
Maximum guest capacity	n/a
Maximum building coverage	n/a
Building set backs	n/a
Building height	n/a
Maximum No of floors	n/a
Water	n/a
Electricity	n/a
Solid waste	n/a
Liquid waste	n/a
Piers per site	n/a
Other	There is no high land at this particular site. Blackbird Caye has been identified as an important nesting site for the American

Site Number	<b>17</b>
Name / location	<b>BLACKBIRD MAIN, HAULOVER (SPRAT HOLE)</b>
Primary land use	Conservation / wildlife sanctuary / research & education
Secondary land use	None
Maximum lot size	n/a
Minimum lot size	n/a
Maximum No of lots per site	n/a
Minimum No of lots per site	n/a
Net site housing density	n/a
Maximum hab-room density	n/a
Maximum guest capacity	n/a
Maximum building coverage	n/a
Building set backs	n/a
Building height	n/a
Maximum No of floors	n/a
Water	n/a
Electricity	n/a
Solid waste	n/a
Liquid waste	n/a
Piers per site	n/a
Other	The Haulover area is sometimes used as a means of access between the Central Lagoon and the sea. Blackbird Caye has been identified as an important nesting site for the American Crocodile.

Site Number	<b>18</b>
Name / location	<b>SHAG CAYE</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non-Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	2
Other	The natural vegetation on the rest of the caye should not be disturbed.

Site Number	<b>19</b>
Name / location	<b>BLACKBIRD MAIN, WEST SIDE</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non-Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	2
Other	The developed camp at this site consists of 5 acres. The land is only marginally high and is considered as being able to support only a 2 acre camp without endangering the local environment.

Site Number	<b>20</b>
Name / location	<b>BLACKBIRD MAIN, EAST COAST, MIDDLE</b>
Primary land use	Conservation / wildlife sanctuary / research & education
Secondary land use	None
Maximum lot size	n/a
Minimum lot size	n/a
Maximum No of lots per site	n/a
Minimum No of lots per site	n/a
Net site housing density	n/a
Maximum hab-room density	n/a
Maximum guest capacity	n/a
Maximum building coverage	n/a
Building set backs	n/a
Building height	n/a
Maximum No of floors	n/a
Water	n/a
Electricity	n/a
Solid waste	n/a
Liquid waste	n/a
Piers per site	n/a
Other	Blackbird Caye has been identified as an important nesting site for the American Crocodile.

Site Number	<b>21</b>
Name / location	<b>BLACKBIRD MAIN, EAST COAST, UPPER RIDGE</b>
Primary land use	Residential
Secondary land use	Tourism
Maximum lot size	40 acres
Minimum lot size	9 acres
Maximum No of lots per site	15
Minimum No of lots per site	n/a
Net site housing density	1 per lot
Maximum hab-room density	8 per lot
Maximum guest capacity	0
Maximum building coverage	1000 sq ft
Building set backs	front = 66 ft; side & rear = 30 ft
Building height	28 ft
Maximum No of floors	2
Water	Well / roof
Electricity	Solar / wind / generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non-Hazardous Waste at least 30 ft from water.
Liquid waste	Liquid Waste Management System / Above Ground Septic Tank with Drain field under approval from the relevant authorities
Piers per site	5 at minimum intervals of 1000 ft
Other	



Site Number	<b>22</b>
Name / location	<b>SOLDIER CAYE</b>
Primary land use	Conservation / wildlife sanctuary / research & education
Secondary land use	None
Maximum lot size	n/a
Minimum lot size	n/a
Maximum No of lots per site	n/a
Minimum No of lots per site	n/a
Net site housing density	n/a
Maximum hab-room density	n/a
Maximum guest capacity	n/a
Maximum building coverage	n/a
Building set backs	n/a
Building height	n/a
Maximum No of floors	n/a
Water	n/a
Electricity	n/a
Solid waste	n/a
Liquid waste	n/a
Piers per site	n/a
Other	This caye has been identified as an important nesting site for the roseate tern and white crowned pigeon

Site Number	<b>23</b>
Name / location	<b>BLACKBIRD MAIN, EAST COAST, LOWER RIDGE</b>
Primary land use	Conservation / wildlife sanctuary / research & education
Secondary land use	none
Maximum lot size	n/a
Minimum lot size	n/a
Maximum No of lots per site	n/a
Minimum No of lots per site	n/a
Net site housing density	n/a
Maximum hab-room density	n/a
Maximum guest capacity	n/a
Maximum building coverage	n/a
Building set backs	n/a
Building height	n/a
Maximum No of floors	n/a
Water	n/a
Electricity	n/a
Solid waste	n/a
Liquid waste	n/a
Piers per site	n/a
Other	This site has been identified as being particularly rich in local biodiversity. It is also separated from the sea by a large area of mangrove. Considering these factors, it is recommended that this area be used as a wildlife sanctuary which could add an attraction to the Blackbird Caye Resort and give ambulatory access to the upper coastal ridge.

Site Number	<b>24</b>
Name / location	<b>BLACKBIRD CAYE RESORT</b>
Primary land use	Resort
Secondary land use	First aid / research & education / marina ( on west coast / Soldier Bight side)
Maximum lot size	43.5 acres
Minimum lot size	43.5 acres
Maximum No of lots per site	1
Minimum No of lots per site	1
Net site housing density	n/a
Maximum hab-room density	30
Maximum guest capacity	35
Maximum building coverage	Main building = 1200 sq ft; all others 600 sq ft
Building set backs	Front = 66 ft; side = n/a; rear = 66 ft (from lagoon)
Building height	28 ft
Maximum No. of floors	2
Water	Well / roof / reverse osmosis with approval from the relevant authorities
Electricity	Solar / wind / generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non-Hazardous Waste at least 30 ft from water.
Liquid waste	Liquid Waste Management System / Above Ground Septic Tank with Drain field under approval from the relevant authorities
Piers per site	2 (1 at front and 1 into Soldier Bight);
Other	

Site Number	<b>25</b>
Name / location	<b>HARRY JONES POINT, EASTERN POINT</b>
Primary land use	Research & educational facility
Secondary land use	Residential
Maximum lot size	11.2 acres
Minimum lot size	11.2 acres
Maximum No of lots per site	1
Minimum No of lots per site	1
Net site housing density	3
Maximum hab-room density	12
Maximum guest capacity	12 (plus capacity of 2 dorms in the main building)
Maximum building coverage	600 sq ft per building
Building set backs	Front = 66 ft; side & rear = n/a
Building height	28 ft
Maximum No of floors	2
Water	Well / roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non-Hazardous Waste at least 30 ft from water
Liquid waste	Above Ground Septic Tank with Drain field under approval from the relevant authorities; Compost toilet
Piers per site	2
Other	This site has been designated as a research facility. The high sand bar, generally 32 meters wide, extends down to the point with mangroves behind. No other coastal structures are recommended.

Site Number	<b>26</b>
Name / location	<b>HARRY JONES POINT, WESTERN POINT</b>
Primary land use	Fishing
Secondary land use	Guest house
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non-Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	2
Other	

Site Number	<b>27</b>
Name / location	<b>HARRY JONES AREA, EAST SIDE OF CAYE FACING TOWARDS HARRY JONES</b>
Primary land use	Fishing
Secondary land use	None
Maximum lot size	1 acre
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	4
Maximum guest capacity	n/a
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non-Hazardous Waste at least 30 ft from water
Liquid waste	Compost Toilet
Piers per site	2
Other	

Site Number	<b>28</b>
Name / location	<b>LITTLE CALABASH CAYE (GARFIELD'S)</b>
Primary land use	Fishing/residential
Secondary land use	Conservation/wildlife sanctuary/research and education
Maximum lot size	484 square yards
Minimum lot size	484 square yards
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	1
Maximum hab-room density	4
Maximum guest capacity	n/a
Maximum building coverage	600 sq ft
Building set backs	25 ft from water
Building height	28 feet
Maximum No of floors	2
Water	Roof/well
Electricity	Solar/wind/generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non-Hazardous Waste at least 30 ft from water
Liquid waste	Liquid Waste Management System /Above Ground Septic Tank with Drainfield under approval from relevant agencies
Piers per site	1 (on west side only)
Other	Any generators should be sited to avoid any fuel, noise, or smoke pollution; no other coastal structures; no dredging; no hunting; Strict control of domestic animals; no external lights. The Calabash Caye area has been identified as an important site for the American crocodile, and also as a turtle nesting area. It has also been registered as a site of archaeological interest

Site Number	<b>29</b>
Name / location	<b>CALABASH CAYE NORTH: FRONT</b>
Primary land use	Recreation (public beach)
Secondary land use	Conservation
Maximum lot size	n/a
Minimum lot size	n/a
Maximum No of lots per site	n/a
Minimum No of lots per site	n/a
Maximum housing density	n/a
Maximum hab-room density	n/a
Maximum guest capacity	n/a
Maximum building coverage	n/a
Building set backs	n/a
Building height	n/a
Maximum No of floors	n/a
Water	n/a
Electricity	n/a
Solid waste	n/a
Liquid waste	n/a
Piers per site	n/a
Other	The Calabash Caye area has been identified as an important site for the American crocodile, and also as a turtle nesting area. It has also been registered as a site of archaeological interest. This 4 acre site contains high sand bar covers the site and extends behind into the littoral forest.

Site Number	<b>30a</b>
Name / location	<b>CALABASH CAYE: PLANETARY CORAL REEF FOUNDATION</b>
Primary land use	Research & education / wildlife sanctuary/conservation
Secondary land use	none
Maximum lot size	n/a
Minimum lot size	n/a
Maximum No of lots per site	n/a
Minimum No of lots per site	n/a
Maximum housing density	n/a
Maximum hab-room density	n/a
Maximum guest capacity	n/a
Maximum building coverage	n/a
Building set backs	n/a
Building height	n/a
Maximum No of floors	n/a
Water	n/a
Electricity	n/a
Solid waste	n/a
Liquid waste	n/a
Piers per site	n/a
Other	Calabash Caye has been identified as an important site for the American crocodile, and also as a turtle nesting area. It has also been registered as a site of archaeological interest and no development has taken place. The land consists of a high sand bar.

Site Number	<b>30b</b>
Name / location	<b>CALABASH CAYE: INSTITUTE OF MARINE STUDIES (UNIVERSITY OF BELIZE)</b>
Primary land use	Research & education / administration facility
Secondary land use	Residential
Maximum lot size	12 acres
Minimum lot size	7 acres
Maximum No of lots per site	2
Minimum No of lots per site	1
Maximum housing density	6
Maximum hab-room density	30
Maximum guest capacity	40 per site
Maximum building coverage	1200 sq ft
Building set backs	Front = 66 ft; side & rear = n/a
Building height	28 ft
Maximum No of floors	2
Water	Well / roof
Electricity	Solar / wind / generator / sites 30/32/33
Solid waste	Removal to Belize City or Waste Control Point / incineration of Non Hazardous Waste under approval from relevant authorities
Liquid waste	Liquid Waste Management System / Above Ground Septic Tank & Drain field under approval from relevant authorities
Piers per site	1
Other	Any generators should be sited to avoid any fuel, noise or smoke pollution. No other coastal structures, no dredging, no hunting, strict control of domestic animals, no external lights. The Calabash Caye area has been identified as an important site for the American crocodile, and also as a turtle nesting area. It has also been registered as a site of archaeological interest. The land is a high sand bar that extends into the littoral forest at the back.

Site Number	<b>31</b>
Name / location	<b>CALABASH CAYE CENTRAL, FRONT</b>
Primary land use	Residential / residential tourism /resort (one only on a lot larger than 5 acres)
Secondary land use	Fish camp
Maximum lot size	15 acres
Minimum lot size	15 acres
Maximum No of lots per site	10
Minimum No of lots per site	5
Maximum housing density	Lot with 5 acres or more = 2 per lot or 1 per lot with 4 cabanas; lot with less than 5 acres = 1 per lot with 1 cabana
Maximum hab-room density	10 (resort only)
Maximum guest capacity	600 sq ft
Building set backs	front = 66 ft; side = 30 ft; rear = n/a
Building height	28 ft
Maximum No of floors	2
Water	Well / roof
Electricity	Generator / solar / wind
Solid waste	Removal to Belize City or Waste Control Point / incineration of Non Hazardous Waste under approval from relevant authorities
Liquid waste	Liquid Waste Management System / Above Ground Septic Tank and Drain field under approval from relevant authorities
Piers per site	1 though lots less than 5 acres should share 1 per between them
Other	Access to the lagoon should be kept to 10 ft wide paths; only one resort per site; no dredging Any generators should be sited to avoid any fuel, noise or smoke pollution. No other coastal structures, dredging, or hunting. Strict control of domestic animals and no external lights. The Calabash Caye area has been identified as an important site for the American crocodile, and also as a turtle nesting area. The land is fronted by a high sand bar that extends further back into littoral forest. Towards the back on the lagoon side, the land becomes a mangrove swamp. Towards the south the sand bar decreases. Sea access is constrained by reef on the south.. The site could support a low density development with one low impact resort provided that adequate provisions were made for waste disposal and the extraction of ground water. Attention should be paid to retaining littoral forest and mangroves, especially around the lagoon and in clumps along the seafront on the southern side. The lagoon at the back is occasionally used for the safe harboring of boats in times of bad weather. It is recommended that this practice be continued, though there should be no fuel storage by the lagoon which has been identified as having a unique environment and should be maintained.

Site Number	<b>32</b>
Name / location	<b>CALABASH CAYE NORTH, SOUTH PART</b>
Primary land use	Research & education // wildlife sanctuary
Secondary land use	None
Maximum lot size	n/a
Minimum lot size	n/a
Maximum No of lots per site	n/a
Minimum No of lots per site	n/a
Net site housing density	n/a
Maximum hab-room density	n/a
Maximum guest capacity	n/a
Maximum building coverage	n/a
Building set backs	n/a
Building height	n/a
Maximum No of floors	n/a
Water	n/a
Electricity	n/a
Solid waste	n/a
Liquid waste	n/a
Piers per site	n/a
Other	The Calabash Caye area has been identified as an important site for the American Crocodile, and also as a turtle nesting area. It has also been registered as a site of archaeological interest

Site Number	<b>33</b>
Name / location	<b>CALABASH CAYE, HALFMOON BAY (CUTFINGER CREEK)</b>
Primary land use	Fish camp
Secondary land use	None
Maximum lot size	6307 sq yds
Minimum lot size	2480 sq yds
Maximum No of lots per site	2
Minimum No of lots per site	1
Net site housing density	1 per lot
Maximum hab-room density	4 per lot
Maximum guest capacity	n/a
Maximum building coverage	600 sq ft per lot
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof / well
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Above Ground Septic Tank and Drain field
Piers per site	1 per lot
Other	Any generators should be sited to avoid any fuel, noise or smoke pollution. No other coastal structures, dredging or hunting. Strict control of domestic animals and no external lights.

Site Number	<b>34</b>
Name / location	<b>CALABASH CAYE, HALFMOON BAY</b>
Primary land use	Fish camp
Secondary land use	Guest house / resort (one) / docking facility
Maximum lot size	5 acres
Minimum lot size	5 acres
Maximum No of lots per site	8
Minimum No of lots per site	8
Net site housing density	2 per lot; 1 per lot with 4 cabanas
Maximum hab-room density	8 per lot
Maximum guest capacity	10
Maximum building coverage	600 sq ft per building
Building set backs	Front = 66 ft; rear = 66 ft; side = 20 ft
Building height	28 ft
Maximum No of floors	2
Water	Well / roof;
Electricity	Solar / wind / generator
Solid waste	Removal to Belize City or Waste Control Point / incineration of Non Hazardous Waste under approval from relevant authorities
Liquid waste	Liquid Waste Management System / Above Ground Septic Tank and Drain field under approval from relevant authorities
Piers per site	2 (1 into sea & 1 into lagoon); docking facility on lagoon side, maximum number of boats = 5 / all less than 30 ft long; requires approval from GOP and Environmental Screening from DOE in order to proceed. (No docking facility if significant dredging is necessary). Any generators should be sited to avoid any fuel, noise or smoke pollution. No other coastal structures, dredging or hunting. Strict control of domestic animals and no external lights. This is a large block of high land that extends from the sea to the lagoon. It is relatively free from the reef, which lies a short distance out. The fact that the high land reaches, more or less, all the way to the lagoon side may allow for the possible construction of a small docking facility in the lagoon. A full assessment of the site would, however, be required before any such scheme proceeded.
Other	

Site Number	<b>35</b>
Name / location	<b>CALABASH CAYE SOUTH</b>
Primary land use	Residential
Secondary land use	Fish camp
Maximum lot size	13 acres
Minimum lot size	5 acres
Maximum No of lots per site	5
Minimum No of lots per site	2
Net site housing density	2 per lot
Maximum hab-room density	7 per lot
Maximum guest capacity	n/a
Maximum building coverage	600 sq ft per building
Building set backs	front = 66 ft; rear = 66 ft; side = 20 ft
Building height	28 ft
Maximum No of floors	2
Water	Well / roof;
Electricity	Solar / wind / generator;
Solid waste	removal to Belize City or Waste Control Point / incineration of Non Hazardous Waste under approval from relevant authorities
Liquid waste	Liquid Waste Management System / Above Ground Septic Tank and Drain field under approval from relevant authorities
Piers per site	0
Other	All lots to have equal sea frontage; any generators should be sited to avoid any fuel, noise or smoke pollution. No other coastal structures, dredging or hunting. Strict control of domestic animals and no external lights. This site constitutes the southern part of the high land, yet this part is constrained on the sea side by the reef which comes right up to the shore. This constraint effectively shuts of access to the sea, which in turn requires that the land use not be based on sea access.

Site Number	<b>36</b>
Name / location	<b>CALABASH CAYE SOUTH, LAMBEY BAY</b>
Primary land use	Residential
Secondary land use	Residential tourism /fish camp
Maximum lot size	8 acres
Minimum lot size	4 acres
Maximum No of lots per site	3
Minimum No of lots per site	2
Net site housing density	2 per lot
Maximum hab-room density	5 per lot
Maximum guest capacity	0
Maximum building coverage	600 sq ft
Building set backs	Front = 66 ft; rear = 66 ft (from lagoon); side = 20 ft
Building height	28 ft
Maximum No of floors	2
Water	Well / roof;
Electricity	solar / wind / generator;
Solid waste	Removal to Belize City or Waste Control Point / incineration of Non Hazardous Waste under approval from relevant authorities
Liquid waste	Liquid Waste Management System / Above Ground Septic Tank and Drain field under approval from relevant authorities
Piers per site	2 (1 into sea & 1 into lagoon)
Other	All/any lots should extend from beachfront to back of site. Any generators should be sited to avoid any fuel, noise or smoke pollution. No other coastal structures, dredging or hunting. Strict control of domestic animals and no external lights. The land at this bay is high, narrowing to the south, and it extends to the lagoon in the west; moreover it has access through the reef to the sea, though the access is confined.

Site Number	<b>37</b>
Name / location	<b>CALABASH CAYE SOUTH, HEADLAND BETWEEN LAMBEY BAY AND BULL BAY</b>
Primary land use	Recreation
Secondary land use	Conservation
Maximum lot size	6 acres
Minimum lot size	6 acres
Maximum No of lots per site	1
Minimum No of lots per site	1
Net site housing density	0
Maximum hab-room density	n/a
Maximum guest capacity	n/a
Maximum building coverage	n/a
Building set backs	n/a
Building height	n/a
Maximum No of floors	n/a
Water	n/a
Electricity	n/a
Solid waste	Removal to sites 36 / 38
Liquid waste	n/a / sites 36 / 38
Piers per site	0
Other	Here the high sand bar narrows to the point of being inadequate to support development without presenting a threat to the surroundings. Furthermore, the headland is closely constrained by the reef. Considering these factors, it is recommended that this site is reserved for low impact recreation or conservation if that use is not feasible.

Site Number	<b>38</b>
Name / location	<b>CALABASH CAYE SOUTH, BULL BAY</b>
Primary land use	Residential
Secondary land use	Residential tourism / fish camp / resort (one)
Maximum lot size	57 acres
Minimum lot size	5 acres
Maximum No of lots per site	11
Minimum No of lots per site	2
Net site housing density	2 per lot; 1 per lot with 4 cabanas
Maximum hab-room density	8 per lot
Maximum guest capacity	10
Maximum building coverage	600 sq ft per building
Building set backs	Front = 66 ft; side = 20 ft; rear = 20 ft
Building height	28 ft
Maximum No of floors	2
Water	Well / roof
Electricity	Solar / wind / generator;
Solid waste	Removal to Belize City or Waste Control Point / incineration of Non Hazardous Waste under approval from relevant authorities
Liquid waste	Liquid Waste Management System / Above Ground Septic Tank and Drain field under approval from relevant authorities
Piers per site	5 (4 on seafront at minimum intervals of 1000 ft, 1 into lagoon)
Other	Any generators should be sited to avoid any fuel, noise or smoke pollution. No other coastal structures, dredging, or hunting. Strict control of domestic animals and no external lights. Maximized retention of mangroves along southern part of seafront. This bay offers good sea access onto a stretch of high land (about 325 meters at its widest) which narrows to the north and south. Also, to the south some large stands of mangrove come between the land and the sea.

Site Number	<b>39</b>
Name / location	<b>CALABASH CAYE SOUTH, GRAND BOGUE</b>
Primary land use	Fish camp
Secondary land use	None
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	4
Maximum guest capacity	n/a
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	1
Other	Any generators should be sited to avoid any fuel, noise or smoke pollution. No other coastal structures, dredging or hunting. Strict control of domestic animals and no external lights.

Site Number	<b>40</b>
Name / location	<b>SOUTHEAST BIGHT, WEST SIDE</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	500 sq ft
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	1
Maximum hab-room density	4
Maximum guest capacity	4
Maximum building coverage	400 sq ft per building
Building set backs	n/a
Building height	12 ft
Maximum No of floors	1
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at neighboring sites
Liquid waste	Compost toilet
Piers per site	1
Other	

Site Number	<b>41</b>
Name / location	<b>SOUTHEAST BIGHT, EAST SIDE</b>
Primary land use	Fish camp
Secondary land use	None
Maximum lot size	0.50 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	1
Maximum hab-room density	4
Maximum guest capacity	n/a
Maximum building coverage	500 sq ft
Building set backs	n/a
Building height	14 ft
Maximum No of floors	1
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at neighboring sites
Liquid waste	Compost toilet
Piers per site	1
Other	

Site Number	<b>42</b>
Name / location	<b>ROPEWALK CAYE NORTH, GRAND BOGUE</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	1
Other	Tall mangroves front onto the sea and the land is low, yet not permanently inundated. Grand Bogue Point is registered by the Department of Archaeology as a historic settlement area

Site Number	<b>43</b>
Name / location	<b>ROPEWALK CAYE NORTH, GRAND BOGUE</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Well / roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Above Ground Septic Tank and Drain field
Piers per site	1
Other	The northern extremity of a coastal bar extends into this site and the reef impedes access to the south. It is recommended that one camp could be accommodated here. The caye has been identified as an important nesting site for the American Crocodile. It is also surrounded by valuable bonefish habitats



Site Number	<b>44</b>
Name / location	<b>ROPEWALK CAYE NORTH</b>
Primary land use	Fish camp / residential
Secondary land use	Guest house (only if primary use is a fish camp)
Maximum lot size	5 acres
Minimum lot size	fishing use = 2 acres; other use = 5 acres
Maximum No of lots per site	5
Minimum No of lots per site	2
Net site housing density	2 per lot
Maximum hab-room density	7 per lot
Maximum guest capacity	Fishing use = 4; other use = 0
Maximum building coverage	600 sq ft per building
Building set backs	Front = 66 ft; side = 20 ft; rear = n/a
Building height	28 ft
Maximum No of floors	2
Water	Well / roof; Connection with site 45
Electricity	Solar / wind / generator; 1 shared generator with site 45
Solid waste	Removal to Belize City or Waste Control Point/ incineration of Non Hazardous Waste under approval from relevant authorities
Liquid waste	Liquid Waste Management System / Above Ground Septic Tank and Drain field under approval from relevant authorities
Piers per site	1
Other	Any generators should be sited to avoid any fuel, noise or smoke pollution. No other coastal structures, dredging or hunting. Strict control of domestic animal and no external lights. Here the coastal bar is formed in a bay with a shallow opening through the reef to the sea. There is high land up to approximately 40 meters wide. The shallowness of the sea prohibits access to it except in high tide with boats with a shallow draft. Development at this site may result in proposals for dredging, and development should, therefore, be discouraged. The caye has been identified as important nesting sites for the American Crocodile. It is also surrounded by valuable bonefish habitats.

Site Number	<b>45</b>
Name / location	<b>ROPEWALK CAYE NORTH</b>
Primary land use	Residential / fish camp
Secondary land use	Guest house (only if primary use is a fish camp)
Maximum lot size	10 acres
Minimum lot size	5 acres
Maximum No of lots per site	5
Minimum No of lots per site	2
Net site housing density	2 per lot
Maximum hab-room density	7 per lot
Maximum guest capacity	Fishing use = 4; other use = 0
Maximum building coverage	600 sq ft per building
Maximum site clearance	% to be determined in the Management Plan
Building set backs	front = 66 ft; side = 20 ft; rear = n/a
Building height	28 ft
Maximum No of floors	2
Water	Well / roof; Connection with sites 44 & 46
Electricity	Solar / wind / generator; 1 shared generator with sites 44 & 46
Solid waste	Removal to Belize City or Waste Control Point/ incineration of Non Hazardous Waste under approval from relevant authorities
Liquid waste	Liquid Waste Management System / Above Ground Septic Tank and Drain field under approval from relevant authorities
Piers per site	0
Other	Access from neighboring sites. Any generators should be sited to avoid any fuel, noise or smoke pollution; no other coastal structures; no dredging; no hunting; strict control of domestic animals; no external lights. Here the coastal bar widens significantly to about 250 meters at its broadest; however, access to the sea is cut off by the reef. The confinement by the reef calls for development that will have low impact, and will not require ready sea access. The caye has been identified as an important nesting site for the American Crocodile, it is also surrounded by valuable bonefish habitats.

Site Number	<b>46</b>
Name / location	<b>ROPEWALK CAYE NORTH</b>
Primary land use	Fish camp / residential / resort (one)
Secondary land use	Guest house (only if primary use is fish camp)
Maximum lot size	10 acres
Minimum lot size	5 acres
Maximum No of lots per site	4
Minimum No of lots per site	2
Net site housing density	2 per lot; 2 per lot with 4 cabanas
Maximum hab-room density	7 per lot; resort = 8
Maximum guest capacity	Guest house = 4; resort = 10
Maximum building coverage	600 sq ft
Building set backs	Front = 66 ft; side = 20 ft; rear = n/a
Building height	28 ft
Maximum No of floors	2
Water	Well / roof; Connection with site 45
Electricity	Solar / wind / generator; 1 shared generator with site 45
Solid waste	Removal to Belize City or Waste Control Point/ incineration of Non Hazardous Waste under approval from relevant authorities
Liquid waste	Liquid Waste Management System / Above Ground Septic Tank and Drain field under approval from relevant authorities
Piers per site	1 (with a minimum interval of 1000 ft)
Other	All lots to have equal sea frontage. Any generators should be sited to avoid any fuel, noise or smoke pollution. No other coastal structures, dredging or hunting. Strict control of domestic animals and no external lights. The caye has been identified as an important nesting site for the American Crocodile. It is also surrounded by valuable bonefish habitats. It is recommended that this site should support no more than one small resort.

Site Number	<b>47</b>
Name / location	<b>CAYE, EAST OF ROPEWALK CREEK</b>
Primary land use	Fish camp / residential
Secondary land use	Guest house (only if primary use is a fish camp)
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4 (only if primary use is fishing)
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof; connection to site 46
Electricity	Generator shared with site 46
Solid waste	removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Above Ground Septic Tank and Drain field
Piers per site	1
Other	Retention of mangroves on north side is necessary. Any generators should be sited to avoid any fuel, noise or smoke pollution. No other coastal structures, dredging or hunting. Strict control of domestic animals and no external lights. The caye is generally high, though closed in by the reef on its eastern side. The caye is generally high though closed in by the reef on its eastern side

Site Number	<b>48</b>
Name / location	<b>ROPEWALK CAYE SOUTH</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	1
Other	Any generators should be sited to avoid any fuel, noise or smoke pollution. No other coastal structures, dredging or hunting. Strict control of domestic animals and no external lights. Access to the sea is north of site 47, though a channel gives access to the Southern Lagoon behind. It is recommended that this site should support only one camp. The caye has been identified as an important nesting site for the American Crocodile. It is also surrounded by valuable bonefish habitat.

Site Number	<b>49</b>
Name / location	<b>DEADMAN'S CAYES</b>
Primary land use	Conservation/wildlife sanctuary/research & education
Secondary land use	None
Maximum lot size	n/a
Minimum lot size	n/a
Maximum No of lots per site	n/a
Minimum No of lots per site	n/a
Net site housing density	n/a
Maximum hab-room density	n/a
Maximum guest capacity	n/a
Maximum building coverage	n/a
Building set backs	n/a
Building height	n/a
Maximum No of floors	n/a
Water	n/a
Electricity	n/a
Solid Waste	n/a
Liquid Waste	n/a
Piers per site	n/a
Other	These cayes have been identified as important nesting sites for the American Crocodile. They are also surrounded by valuable bonefish habitats. They are entirely confined by the reef, and therefore offer limited scope in use.

Site Number	<b>50</b>
Name / location	<b>ROPEWALK CAYE SOUTH</b>
Primary land use	Fish camp / residential
Secondary land use	Guest house (only if primary use is fish camp)
Maximum lot size	4 acres
Minimum lot size	4 acres
Maximum No of lots per site	2
Minimum No of lots per site	2
Net site housing density	2 per lot
Maximum hab-room density	7 per lot
Maximum guest capacity	4 (only if primary use is fishing)
Maximum building coverage	600 sq ft per building
Building set backs	Front = 66 ft; side = 20 ft, rear = n/a
Building height	28 ft
Maximum No of floors	2
Water	Well / roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point / incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Liquid Waste Management System / Above Ground Septic Tank and Drain field
Piers per site	1
Other	Each lot to have equal sea frontage. Any generators should be sited to avoid any fuel, noise or smoke pollution. No other coastal structures, dredging or hunting. Strict control of domestic animals and no external lights. The reef opens onto a generally narrow bay of high land, only 25 meters wide at its narrowest, allowing for low density use only. The caye has been identified as an important nesting site for the American Crocodile, and is also surrounded by valuable bonefish habitat.

Site Number	<b>51</b>
Name / location	<b>ROPEWALK CAYE SOUTH</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof / site 50
Electricity	Generator / site 50
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	1
Other	Any generators should be sited to avoid any fuel, noise or smoke pollution. No other coastal structures, dredging or hunting. Strict control of domestic animals and no external lights. The caye has been identified as an important nesting site for the American for the American Crocodile and is also surrounded by valuable bonefish habitat.

Site Number	<b>52</b>
Name / location	<b>COCO TREE CAYE (FABIAN'S)</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	3 acres
Minimum lot size	n/a
Maximum No of lots per site	3
Minimum No of lots per site	n/a
Net site housing density	2 per lot or 1 house and 3 cabanas
Maximum hab-room density	7 per lot
Maximum guest capacity	10
Maximum building coverage	600 sq ft per building
Building set backs	Resort development = 66ft from sea and 20 ft from lagoon
Building height	28 ft
Maximum No of floors	2
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	2 (1 into sea & 1 into lagoon)
Other	

Site Number	<b>53</b>
Name / location	<b>LITTLE CAYE BOKEL (TURNEFFE ISLAND LODGE)</b>
Primary land use	Resort
Secondary land use	First aid
Maximum lot size	11 acres
Minimum lot size	11 acres
Maximum No of lots per site	1
Minimum No of lots per site	1
Net site housing density	n/a
Maximum hab-room density	30
Maximum guest capacity	30
Maximum building coverage	Main building = 1200 sq. ft, all others = 600 sq. feet
Building set backs	Front = 66 ft; side & rear = n/a
Building height	28 ft
Maximum No of floors	2
Water	Well / roof / reverse osmosis under approval from the relevant authorities
Electricity	Solar / wind / generator
Solid waste	Removal to Belize City or Waste Control Point / incineration of Non Hazardous Waste under approval from relevant authorities
Liquid waste	Liquid Waste Management System / Above Ground Septic Tank and Drain field under approval from the relevant authorities
Piers per site	2
Other	Maximized retention of vegetation on west of the caye / no dredging or filling.

Site Number	<b>54</b>
Name / location	<b>BIG CAYE BOKEL, EAST</b>
Primary land use	Residential/ fish camp
Secondary land use	Residential tourism / guest house (only if primary use is a fish camp)
Maximum lot size	5 acres
Minimum lot size	3 acres
Maximum No of lots per site	2
Minimum No of lots per site	2
Net site housing density	2 per lot
Maximum hab-room density	7 per lot
Maximum guest capacity	4 (only if primary use is fishing)
Maximum building coverage	600 sq ft per building
Building set backs	Front = 30 ft; side & rear = n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof / well /connected to site 53
Electricity	Solar / wind / generator; 2 permanently occupied houses = 1 shared generator; connection with site 53
Solid waste	Removal to Belize City or Waste Control Point / incineration of Non Hazardous Waste under approval from relevant authorities
Liquid waste	Liquid Waste Management System / Above Ground Septic Tank and Drain field under approval from relevant authorities
Piers per site	1
Other	The narrow strip of higher land which runs along the coast should be able to accommodate some low density residential use. The remainder of the land lying on the west, in both properties, is low and should not be developed.

Site Number	<b>55</b>
Name / location	<b>BIG CAYE BOKEL, SOUTH</b>
Primary land use	Residential / fish camp
Secondary land use	Residential tourism / guest house (only if primary use is a fish camp)
Maximum lot size	18 acres
Minimum lot size	6 acres
Maximum No of lots per site	4
Minimum No of lots per site	2
Net site housing density	2 per lot
Maximum hab-room density	7 per lot
Maximum guest capacity	4 (only if primary use is fishing)
Maximum building coverage	600 sq ft per building
Building set backs	Front = 66 ft; side & rear = n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof / well /connected to site 53
Electricity	Solar / wind / generator; 2 permanently occupied houses = 1 shared generator; connection with site 54
Solid waste	Removal to Belize City or Waste Control Point / incineration of Non Hazardous Waste under approval from relevant authorities
Liquid waste	Liquid Waste Management System / Above Ground Septic Tank and Drain field under approval from relevant authorities
Piers per site	1 (only at extreme east away from reef)
Other	The site contains a more pronounced coastal ridge than site No 54 though the development prospects are the same as with No 54. The site is completely surrounded by reef, which will impede sea traffic. The remainder of the land to the north and the west, in both properties, is low and should not be developed.

Site Number	<b>56</b>
Name / location	<b>BIG CAYE BOKEL, WEST</b>
Primary land use	Residential / fish camp
Secondary land use	Residential tourism
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	1
Maximum hab-room density	5
Maximum guest capacity	0
Maximum building coverage	600 sq ft
Building set backs	Front = 66 ft; side & rear = n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof
Electricity	Solar / wind / generator
Solid waste	removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	1
Comment	The land at this site has a slight elevation in comparison with its surroundings, and therefore offers a possible opportunity for use.

Site Number	<b>57</b>
Name / location	<b>CAYE, WEST OF BIG CAYE BOKEL</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	1.89 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	2
Other	

Site Number	<b>58</b>
Name / location	<b>GRAND POINT, WEST COAST, SOUTH</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	1 acre
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	1
Maximum hab-room density	6
Maximum guest capacity	4
Maximum building coverage	600 sq ft
Building set backs	n/a
Building height	14 ft
Maximum No of floors	1
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	1
Other	The land, having no height, offers little scope for meaningful use. It is recommended that only one camp be established here in addition to the one at site 59

Site Number	<b>59</b>
Name / location	<b>GRAND POINT, WEST COAST, MIDDLE</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	1 acre
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	1
Maximum hab-room density	6
Maximum guest capacity	4
Maximum building coverage	600 sq ft
Building set backs	n/a
Building height	14 ft
Maximum No of floors	1
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	1
Other	

Site Number	<b>60</b>
Name / location	<b>GRAND POINT, WEST COAST, NORTH</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	2
Other	

Site Number	<b>61</b>
Name / location	<b>SOUTHERN LAGOON, SOUTH WEST SIDE</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	2
Other	

Site Number	<b>62</b>
Name / location	<b>SOUTH OF BLUE CREEK, WEST COAST</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2 and 3 cabanas
Maximum hab-room density	7
Maximum guest capacity	4
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	2
Other	

Site Number	<b>63</b>
Name / location	<b>RIVAS CAYE</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	2
Other	The caye is generally low and should not be developed further than is necessary for a fish camp.

Site Number	<b>64</b>
Name / location	<b>CAYE NORTH OF RIVAS CAYE</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	2
Other	The whole of the caye is low and the southern part should be left undeveloped

Site Number	<b>65</b>
Name / location	<b>PIGEON CAYE (PELICAN CAYE), NORTH EAST</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	1 acre
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	1
Other	The land is low and the remainder of the caye should be left undeveloped

Site Number	<b>66</b>
Name / location	<b>NORTH OF JOE'S HOLE, WEST COAST</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	2
Other	The land is low and it is recommended that the site not be used as it is essentially a mangrove overwash and quite unsuitable for development.

Site number	<b>67</b>
Name / location	<b>NORTH OF JOE'S HOLE, LAGOON SIDE</b>
Primary land use	Fish camp
Secondary land use	Residential / guest house (only if primary use is a fish camp)
Maximum lot size	4 acres
Minimum lot size	n/a
Maximum No of lots per site	2
Minimum No of lots per site	n/a
Net site housing density	2 per lot
Maximum hab-room density	7 per lot
Maximum guest capacity	4 per guest house (only if primary use is fishing)
Maximum building coverage	600 sq ft per building
Building set backs	Front = 66 ft; side = 20 ft; rear = n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof / well;
Electricity	Solar / wind / generator; 3 or more permanently occupied houses = 1 shared generator
Solid waste	Removal to Belize City or Waste Control Point / incineration of Non Hazardous Waste under approval from relevant authorities
Liquid waste	Liquid Waste Management System / Above Ground Septic Tank and Drain field under approval from relevant authorities
Piers per site	2
Other	A ridge of high land reaches down to the lagoon at this point offering the potential for some fishing related use. The high interior land should be left in its natural state and not be used to deposit waste.



Site number	<b>68</b>
Name / location	<b>CAYE IN SOUTHERN LAGOON, WEST OF PIGEON (PELICAN) CAYE</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4
Maximum building coverage	600 sq ft
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	2
Other	

Site number	<b>69</b>
Name / location	<b>CAYE IN SOUTHERN LAGOON, WEST OF PIGEON (PELICAN) CAYE</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4
Maximum building coverage	600 sq ft
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	2
Other	The caye is low and narrow and unsuitable for further development

Site number	<b>70</b>
Name / location	<b>NORTH OF LITTLE JOE'S HOLE, WEST COAST</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	1 acre
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	1
Maximum hab-room density	6
Maximum guest capacity	4
Maximum building coverage	600 sq ft
Building set backs	n/a
Building height	14 ft
Maximum No of floors	1
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	1
Other	The site is low and has very limited potential for development

Site number	<b>71</b>
Name / location	<b>LONG RIDGE, WEST FRONT</b>
Primary land use	Fish camp
Secondary land use	Guest house (only if primary use is a fish camp) / residential
Maximum lot size	4.5 acres
Minimum lot size	4.5 acres
Maximum No of lots per site	4
Minimum No of lots per site	4
Net site housing density	2 per lot
Maximum hab-room density	7 per lot
Maximum guest capacity	4 per guest house (only if primary use is fishing)
Maximum building coverage	600 sq ft per lot
Building set backs	Front = 66 ft; side = 20 ft; rear = n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof / well
Electricity	Wind / solar / generator
Solid waste	removal to Belize City or Waste Control Point / incineration of Non Hazardous Waste under approval from relevant authorities
Liquid waste	Liquid Waste Management System / Above Ground Septic Tank and Drain field under approval from relevant authorities;
Piers per site	1 per lot
Other	A large ridge of high land extends to the lagoon at this site offering a good potential for fishing related occupation. The interior of the high land should be left undisturbed and not used for the disposal of waste.

Site number	<b>72</b>
Name / location	<b>LONG RIDGE, EASTERN SIDE</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	1 acre
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	1
Maximum hab-room density	6
Maximum guest capacity	4
Maximum building coverage	600 sq ft
Building set backs	n/a
Building height	n/a
Maximum No of floors	14 ft
Water	1
Electricity	Roof
Solid waste	Generator
Liquid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Piers per site	Compost toilet
Other	

Site number	<b>73</b>
Name / location	<b>WESTERN FOUR CAYES, SOUTHERN</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	1.15 acres
Minimum lot size	1.15 acres
Maximum No of lots per site	1
Minimum No of lots per site	1
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof / well
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	2
Other	

Site number	<b>74</b>
Name / location	<b>WESTERN FOUR CAYES, SOUTHERN PART OF SOUTH MIDDLE CAYE</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	2
Other	The caye is very low and unsuitable for further development.

Site number	<b>75</b>
Name / location	<b>GRAND BOGUE CREEK, SOUTH SIDE OF WESTERN MOUTH</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	1 acre
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	1
Maximum hab-room density	6
Maximum guest capacity	4
Maximum building coverage	600 sq ft
Building set backs	n/a
Building height	14 ft
Maximum No of floors	1
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	1
Other	

Site number	<b>76</b>
Name / location	<b>SOUTH OF TARPON CREEK, WEST COAST</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	1 acre
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	1
Maximum hab-room density	6
Maximum guest capacity	4
Maximum building coverage	600 sq ft
Building set backs	n/a
Building height	14 ft
Maximum No of floors	1
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	1
Other	

Site number	<b>77</b>
Name / location	<b>CRAYFISH RANGE, THIRD CAYE FROM THE SOUTHERNMOST</b>
Primary land use	Conservation / wildlife sanctuary / research & education
Secondary land use	none
Maximum lot size	n/a
Minimum lot size	n/a
Maximum No of lots per site	n/a
Minimum No of lots per site	n/a
Net site housing density	n/a
Maximum hab-room density	n/a
Maximum guest capacity	n/a
Maximum building coverage	n/a
Building set backs	n/a
Building height	n/a
Maximum No of floors	n/a
Water	n/a
Electricity	n/a
Solid waste	n/a
Liquid waste	n/a
Piers per site	n/a
Other	Maximized retention of vegetation; minimal interference with fringing mangroves and surrounding waters. The Crayfish Range has been identified as a prime breeding area for the spiny lobster and, as such, they are recommended for conservation. The site is very low and should not be further developed.

Site number	<b>78</b>
Name / location	<b>WESTERN FOUR CAYES, NORTH PART OF NORTHERN CAYE (ABALON CAYE)</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	1 acre
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	1
Maximum hab-room density	6
Maximum guest capacity	4
Maximum building coverage	600 sq ft
Building set backs	n/a
Building height	14 ft
Maximum No of floors	1
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	1
Other	

Site number	<b>79</b>
Name / location	<b>CRAYFISH RANGE, NORTHERNMOST CAYE</b>
Primary land use	Conservation / wildlife sanctuary / research & education
Secondary land use	none
Maximum lot size	n/a
Minimum lot size	n/a
Maximum No of lots per site	n/a
Minimum No of lots per site	n/a
Net site housing density	n/a
Maximum hab-room density	n/a
Maximum guest capacity	n/a
Maximum building coverage	n/a
Building set backs	n/a
Building height	n/a
Maximum No of floors	n/a
Water	n/a
Electricity	n/a
Solid waste	n/a
Liquid waste	n/a
Piers per site	n/a
Other	Maximized retention of vegetation; minimal interference with fringing mangroves and surrounding waters. The Crayfish Range has been identified as a prime breeding area for the spiny lobster. As such, this area is recommended for conservation. In addition, no further development should take place on any of these cayes

Site number	<b>80</b>
Name / location	<b>DOUGLAS CAYE</b>
Primary land use	Conservation / wildlife sanctuary / research & education
Secondary land use	none
Maximum lot size	n/a
Minimum lot size	n/a
Maximum No of lots per site	n/a
Minimum No of lots per site	n/a
Net site housing density	n/a
Maximum hab-room density	n/a
Maximum guest capacity	n/a
Maximum building coverage	n/a
Building set backs	n/a
Building height	n/a
Maximum No of floors	n/a
Water	n/a
Electricity	n/a
Solid waste	n/a
Liquid waste	n/a
Piers per site	n/a
Other	The caye has been identified for conservation, and as such should be left undeveloped.

Site number	<b>81</b>
Name / location	<b>CRIKOZEEN CREEK, LAGOON SIDE</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	1 acre
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	1
Maximum hab-room density	6
Maximum guest capacity	4
Maximum building coverage	600 sq f
Building set backs	n/a
Building height	14 ft
Maximum No of floors	1
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	1
Other	The camp at this site is on a thin spit of overwash mangrove which offers very limited potential for further development.

Site number	<b>82</b>
Name / location	<b>NORTH OF CRIKOZEEN CREEK, WEST COAST</b>
Primary land use	Fish camp
Secondary land use	Guest house (only if primary use is fishing) / residential
Maximum lot size	4 acres
Minimum lot size	4 acres
Maximum No of lots per site	3
Minimum No of lots per site	3
Net site housing density	2 per lot
Maximum hab-room density	7 per lot
Maximum guest capacity	4 per guest house (only if primary use is fishing)
Maximum building coverage	600 sq ft per building
Building set backs	Front = 66 ft; side = 20 ft; rear = n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof / water
Electricity	Solar / wind / generator
Solid waste	Removal to Belize City or Waste Control Point / incineration of Non Hazardous Waste under approval from relevant authorities
Liquid waste	Above Ground Septic Tank and Drain field under approval from relevant authorities / Compost toilet
Piers per site	1 per lot
Other	All lots should have equal sea frontage. No dredging. A narrow ridge of high land, generally only 75 meters wide, runs along the coast coast at this site. This ridge offers the potential for an additional two camps

Site number	<b>83</b>
Name / location	<b>SNAKE POINT</b>
Primary land use	Fish camp / residential / access to site 84
Secondary land use	Guest house (only if a fish camp is the primary use)
Maximum lot size	4 acres
Minimum lot size	4 acres
Maximum No of lots per site	10
Minimum No of lots per site	10
Net site housing density	2 per lot
Maximum hab-room density	7 per lot
Maximum guest capacity	4 per lot (only if fishing is primary use)
Maximum building coverage	600 sq ft per building
Building set backs	front = 66 ft; side = 20 ft; rear = n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof / well / connect to site 84
Electricity	Solar / wind / generator
Solid waste	Removal to Belize City or Waste Control Point / incineration of Non Hazardous Waste under approval from relevant authorities
Liquid waste	Liquid Waste Management System / Above Ground Septic Tank and Drain field under approval from relevant authorities
Piers per site	5 or more lots = 1 per 2 lots; 4 or less lots = 1 per lot
Other	All lots should have equal sea frontage; no dredging. The large area of high land that occupies the center of the caye extends to the coast at this site offering the possibility of accommodating a relatively large number of fishing camps(10), which may not be feasible at other locations. It could also offer access to the waste collection site, as described for site 85

Site number	<b>84</b>
Name / location	<b>SNAKE POINT, NORTH</b>
Primary land use	Fish camp / residential
Secondary land use	Guest house (only if primary use is a fishing camp)
Maximum lot size	4 acres
Minimum lot size	4 acres
Maximum No of lots per site	3
Minimum No of lots per site	3
Net site housing density	2 per lot
Maximum hab-room density	7 per lot
Maximum guest capacity	4 per lot (only if primary use is fishing)
Maximum building site clearance	600 sq ft per building
Building set backs	Front = 66 ft; side = 20 ft; rear = n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof / well
Electricity	Solar / wind / generator;
Solid waste	Removal to Belize City or Waste Control Point / incineration of Non Hazardous Waste under approval from relevant authorities
Liquid waste	Liquid Waste Management System / Compost toilet
Piers per site	2
Other	All lots should have equal sea frontage. No dredging. A stretch of low land separates this site, a small coastal ridge, from site 83.

Site number	<b>85</b>
Name / location	<b>SNAKE POINT, INLAND BLOCK</b>
Primary land use	Waste Collection Point / storage facilities
Secondary land use	Residential
Maximum lot size	50 acres
Minimum lot size	10 acres
Maximum No of lots per site	4
Minimum No of lots per site	1
Net site housing density	3 per parcel
Maximum hab-room density	7 per parcel
Maximum guest capacity	0
Maximum building coverage	1 main storage building = 1500 sq ft; all others = 600 sq ft
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof / well
Electricity	Solar / wind / generator (sufficient for sites ( 81, 82 , 83, 84 & 85)
Solid waste	Collection in specially constructed containers for transport to mainland and/or partial incineration and/or re-cycling; requires approval from Public Health and Environmental Screening from DOE before proceeding
Liquid waste	Liquid Waste Management System / Above Ground Septic Tank and Drain field / Compost toilet
Piers per site	n/a
Other	The development of the Waste Collection Point should be fully approved by the DOE and Public Health before it can proceed. The clearing of any area in excess of three acres also requires the approval of the DOE. This is a large area of high palmetto and thicket which has a frontage to the west coast but not to the Central Lagoon, and, as such, it offers the opportunity to act as a collection point for the solid waste of the whole of the atoll. Waste disposal is problematic in any circumstance yet in the coastal zone this problem becomes extreme. The option proposed here is that all developments on the islands are, according to size, either required or recommended to deposit their waste at this site where it will be safely stored until it can be taken to the mainland. Various factors must be considered: it is probable that a certain critical mass will be required before a private agency would be interested in managing this facility, and that critical mass can only be achieved through increased development. In the interim, the facility will still have to be managed / supervised. This could be undertaken as part of the National Solid Waste Management Authority. On-site management could be undertaken through a voluntary arrangement among the islands' occupants, NGO, Belize Waste Control Ltd, or some other contracted company. The possibility exists for incineration or compaction of some waste. The site, due to its western location, also has potential as a storage facility though guidelines would have to be established on what could be stored and how. Attention should be paid to the maintenance of a buffer of high land between the uses mentioned above and all surrounding low land.

Site number	<b>86</b>
Name / location	<b>SNAKE POINT, LAGOON SIDE</b>

Primary land use	Access to waste collection point / fish camp
Secondary land use	Guest house (only if primary use is a fish camp) / residential
Maximum lot size	2 acres
Minimum lot size	2 acres
Maximum No of lots per site	1
Minimum No of lots per site	1
Net site housing density	1
Maximum hab-room density	6
Maximum guest capacity	4 (only if primary use is fishing)
Maximum building coverage	600 sq ft
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof /Connect to site 85
Electricity	Solar / wind / generator at site 85
Solid waste	Removal to Belize City or Waste Control Point / incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet / Above Ground Septic Tank and Drain field
Piers per site	2
Comment	It is considered necessary for the feasibility of the Waste Collection Point to have an access on the Central Lagoon side, and this site is, approximately, at the closest point between the lagoon and the high interior land. The site could also accommodate other fish camp related uses

Site number	<b>87</b>
Name / location	<b>SOUTH PART OF CRIKOZEEN CAYE</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	2
Other	The undeveloped portions of the caye should be left in its natural state.

Site number	<b>88</b>
Name / location	<b>WEST COAST, NORTH OF SNAKE POINT</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	1 acre
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	1
Maximum hab-room density	6
Maximum guest capacity	4
Maximum building coverage	600 sq ft
Building set backs	n/a
Building height	14 ft
Maximum No of floors	1
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	1
Other	

Site Number	<b>89</b>
Name / location	<b>NORTHERN LAGOON AREA, WEST COAST, SOUTH (VINCENTE)</b>
Primary land use	Conservation / wildlife sanctuary / research & education
Secondary land use	none
Maximum lot size	n/a
Minimum lot size	n/a
Maximum No of lots per site	n/a
Minimum No of lots per site	n/a
Net site housing density	n/a
Maximum hab-room density	n/a
Maximum guest capacity	n/a
Maximum building coverage	n/a
Building set backs	n/a
Building height	n/a
Maximum No of floors	n/a
Water	n/a
Electricity	n/a
Solid waste	n/a
Liquid waste	n/a
Piers per site	n/a
Other	This is low land and not suitable for development., and is recommended for conservation

Site number	<b>90</b>
Name / location	<b>NORTHERN LAGOON AREA, WEST COAST, MIDDLE</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	1 acre
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4
Maximum building coverage	600 sq ft per building
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	1
Other	

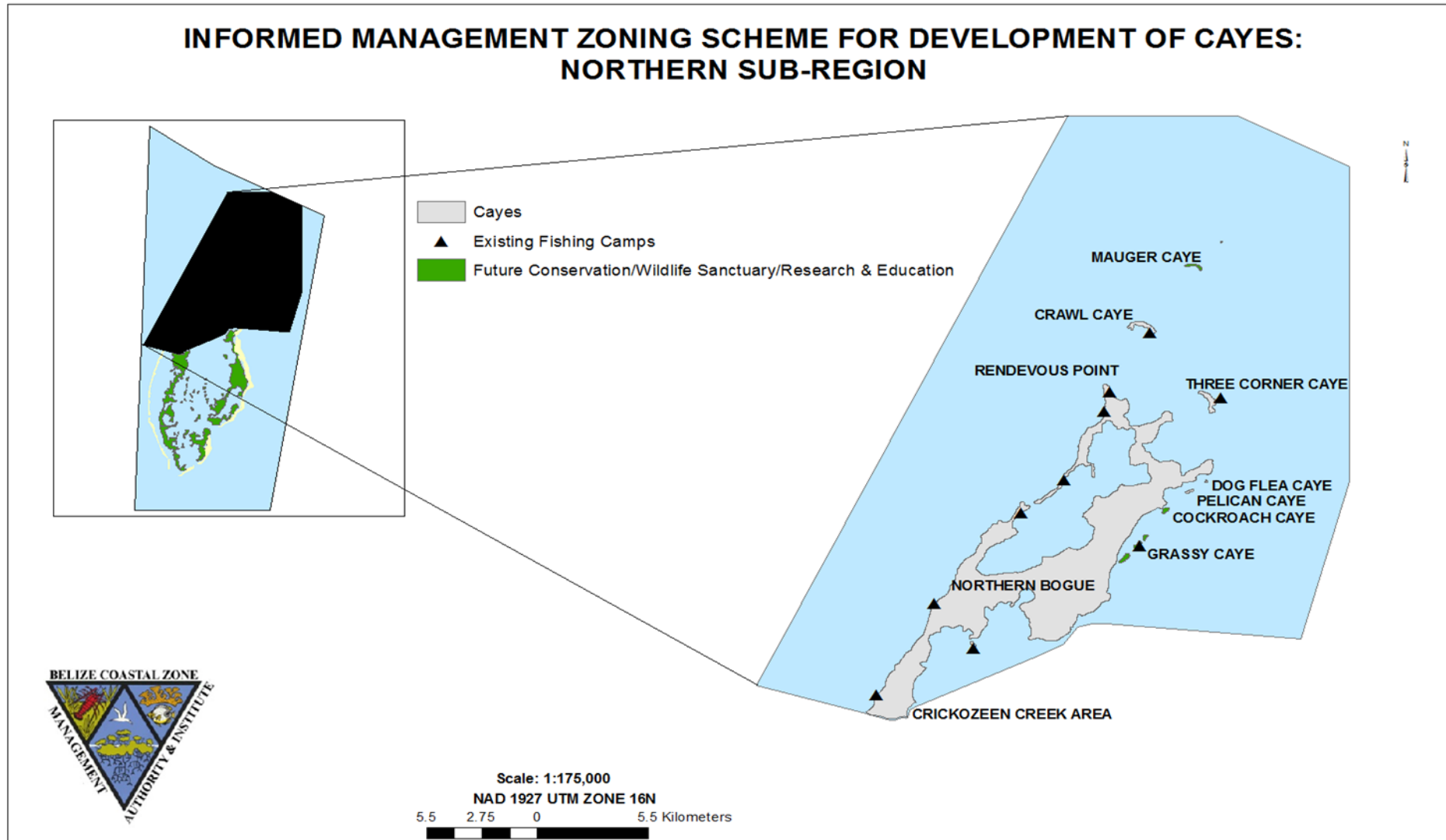
Site number	<b>91</b>
Name / location	<b>NORTHERN LAGOON AREA, WEST COAST, MIDDLE</b>
Primary land use	Fish camp
Secondary land use	Guest house
Maximum lot size	2 acres
Minimum lot size	n/a
Maximum No of lots per site	1
Minimum No of lots per site	n/a
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4
Maximum building coverage	600 sq ft
Building set backs	n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof
Electricity	Generator
Solid waste	Removal to Belize City or Waste Control Point; incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Compost toilet
Piers per site	2
Other	



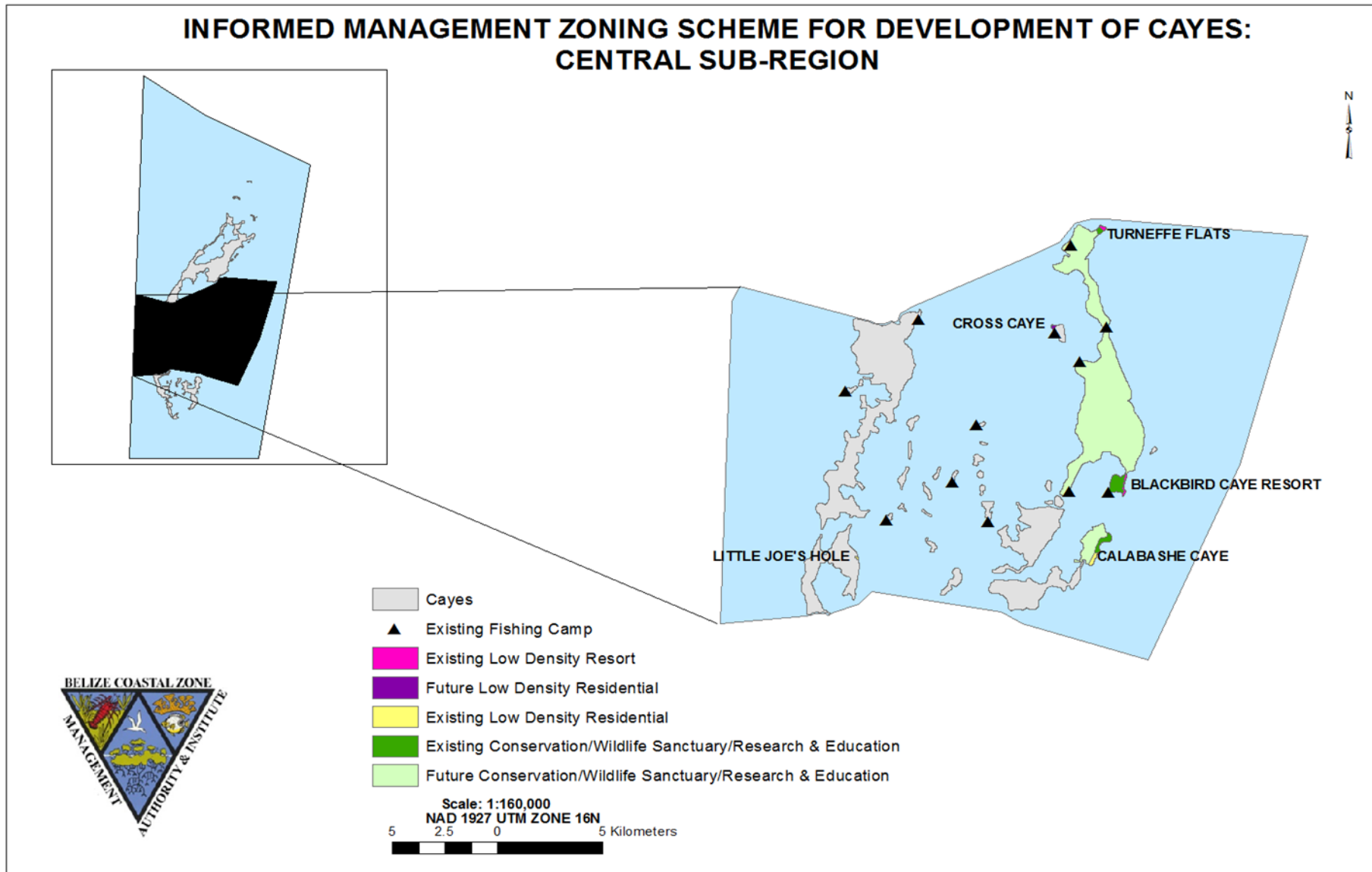
Site number	<b>92</b>
Name / location	<b>RENDEZVOUS POINT, SOUTH</b>
Primary land use	Fish camp / residential
Secondary land use	Guest house (only if a fish camp is the primary use)
Maximum lot size	10.5 acres
Minimum lot size	10.5 acres
Maximum No of lots per site	1
Minimum No of lots per site	1
Net site housing density	2
Maximum hab-room density	7
Maximum guest capacity	4 (only if fishing is primary use)
Maximum building coverage	600 sq ft per building
Building set backs	front = 66 ft; side = 20 ft; rear = n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof / well;
Electricity	Solar / wind / generator
Solid waste	Removal to Belize City or Waste Control Point / incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Liquid Waste Management System / Above Ground Septic Tank and Drain field / Compost toilet
Piers per site	1
Other	The mangroves on the lagoon side should not be disturbed. A relatively long coastal ridge offers the potential for a maximum of two lots. Though the parcel extends almost to Vincent's Lagoon, the ridge does not, and it is recommended that this side of the land is left undeveloped and untouched.

Site number	<b>93</b>
Name / location	<b>RENDEZVOUS POINT, CENTRAL</b>
Primary land use	Fish camp
Secondary land use	Residential
Maximum lot size	1 acre
Minimum lot size	1 acre
Maximum No of lots per site	1
Minimum No of lots per site	1
Net site housing density	1
Maximum hab-room density	4
Maximum guest capacity	n/a
Maximum building coverage	600 sq ft per building
Building set backs	front = 66 ft; side = 20 ft; rear = n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof / well
Electricity	Solar / wind / generator
Solid waste	Removal to Belize City or Waste Control Point / incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Liquid Waste Management System / Above Ground Septic Tank and Drain field /Compost toilet
Piers per site	1
Other	The mangroves on the lagoon side should not be disturbed.

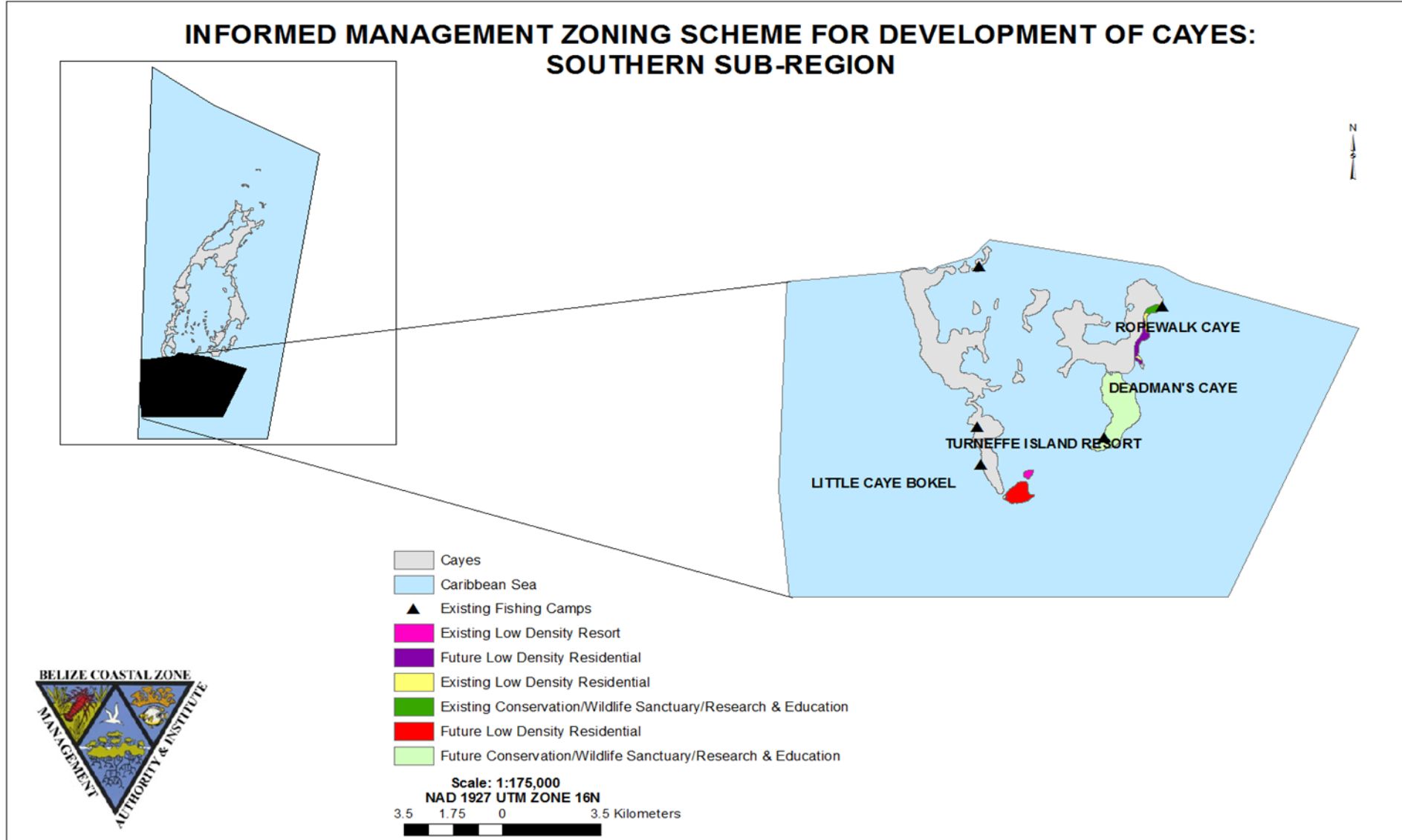
Site number	<b>94</b>
Name / location	<b>RENDEZVOUS POINT, NORTH</b>
Primary land use	Fish camp / residential
Secondary land use	Guest house (only if a fish camp is the primary use)
Maximum lot size	5.7 acres
Minimum lot size	2 acres
Maximum No of lots per site	2
Minimum No of lots per site	1
Net site housing density	2 per lot
Maximum hab-room density	7 per lot
Maximum guest capacity	4 per lot (only if fishing is primary use)
Maximum building coverage	600 sq ft per building
Building set backs	Front = 66 ft; side = 20 ft; rear = n/a
Building height	28 ft
Maximum No of floors	2
Water	Roof / well
Electricity	Solar / wind / generator
Solid waste	Removal to Belize City or Waste Control Point / incineration of Non Hazardous Waste at least 30 ft from water
Liquid waste	Liquid Waste Management System / Above Ground Septic Tank and Drain field /Compost toilet
Piers per site	1 per lot
Other	All lots to have equal sea frontage. The low land to the back and to the north should be left undeveloped.



**Map 8: Informed Management Zoning Scheme for Development of Cayes (Northern Sub-region)**



**Map 9: Informed Management Zoning Scheme for Development of Cayes (Central Sub-region)**



**Map 10: Informed Management Zoning Scheme for Development of Cayes (Southern Sub-region)**

Historically, the 'lands' at Turneffe Atoll, whether consisting of solid land, substantial mangrove stands or over-wash mangrove swamp was, until recent years, predominantly national land. Over the past two decades, an increasing number of properties have become privately owned. In the early 1990's, there was a moratorium on the sale of National cayes. This policy is hereby supported and should be extended to include the cayes at Turneffe Atoll. Those lands which are nationally owned should remain as such as this state of affairs provides the opportunity for decision-makers to have greater input in land management concerns.

Transferable leases and land speculation have resulted in more land being transferred into private ownership, and then foreign hands, resulting in little economic benefit for the people or the Government of Belize. Where land is private property, the right to alienate and develop must be recognized, but regulated to ensure that the subdivision of land subscribes to guidelines which ensure that the resulting parcels can sustain the type of permitted development activity. The seabed is national land and thus any proposals to develop the seabed or to construct piers within this region need to receive clearance from the Lands Department and Department of Environment.

The revised inventory of cayes for Turneffe Atoll indicating current land tenure was completed in late 2002. However, since that time land tenure has changed dramatically. In 2002 there were 33 private properties, ranging in size from 500 square yards to 351 acres; 139 approved leases, ranging in size from 780 square yards to 85 acres; 33 lease applications that have not yet been approved, and 12 cancelled leases. The 1992 Inventory of Cayes had identified 103 leases. As this situation has changed so dramatically since 2002, an update of Turneffe's land tenure is essential.

## **Recommended Actions:**

1. Reactivate the moratorium on the sale of small National Cayes and ask that it apply to Turneffe Atoll
2. Establish a temporary moratorium on the sale of all National Land on Turneffe Atoll until an integrated management structure is in place
3. Secure tenure (leases) for fishing camps that have been occupied on a long-term basis
4. Prioritize new leases for traditional fishermen at Turneffe Atoll
5. All lease conditions, transfers, and sub-divisions should conform to these guidelines
6. Prohibit over the water closed-structures on Turneffe Atoll; particularly those which include bathroom facilities
7. Establish building height limitations for the Atoll with enforcement by a yet-to-be-established management structure
8. Update Turneffe's land tenure
9. Utilize Marine Spatial Planning methodologies such as Marine Invest, as they become available, to better inform land use decisions and achieve the best possible sustainable ecological, economic and social advantages for Belize.

## **6.4 Marine Dredging and Mineral Extraction**

Turneffe Atoll has sufficient high land for resort and/or residential development. Thus conversion of swamp into “beaches” or “land” is not needed for development of the Atoll. Protection of Turneffe’s environment, particularly the reef, back-reef flats and seagrass beds, is essential to the survival of its two major economic sectors - commercial fishing and tourism. Dredging invariably destroys critical habitats for these enterprises - namely back-reef flats, sand flats and seagrass beds. Additionally, Turneffe Atoll’s coral reefs are easily damaged by silt and runoff from dredging. The reef system at Turneffe has been under increased stress in recent years due to coral bleaching from climatic changes as well as damage from Hurricanes Mitch-1998, Keith-2000 and Richard-2010. As a result, it is particularly important to limit significant man-made stresses from activities such as dredging.

### **Recommended Actions:**

1. Dredging conflicts with the all of the management objectives for Turneffe Atoll. Therefore, no dredging, sand mining, or land filling, with the exception of limited hand dredging around docks, should be allowed at Turneffe without 1) a comprehensive Environmental Impact Assessment to include a vetting process involving relevant stakeholders and 2) compliance with these Guidelines. .
2. In consideration of the objectives of these guidelines which include sustainability of commercial fishing sector and support of low-impact, nature-based tourism, development should be confined to areas naturally supportive of such development.
3. Any reclamation of lost property, (after hurricanes) should only be done in consultation with the relevant authorities. Dredging for this purpose should be kept to a minimum while guaranteeing that native habitats are not damaged.
4. Land without feasible access should not be developed and only minimal manual dredging for boat access should be allowed. The cayes development sites table (**Table 4**) stipulates the provisions for piers.

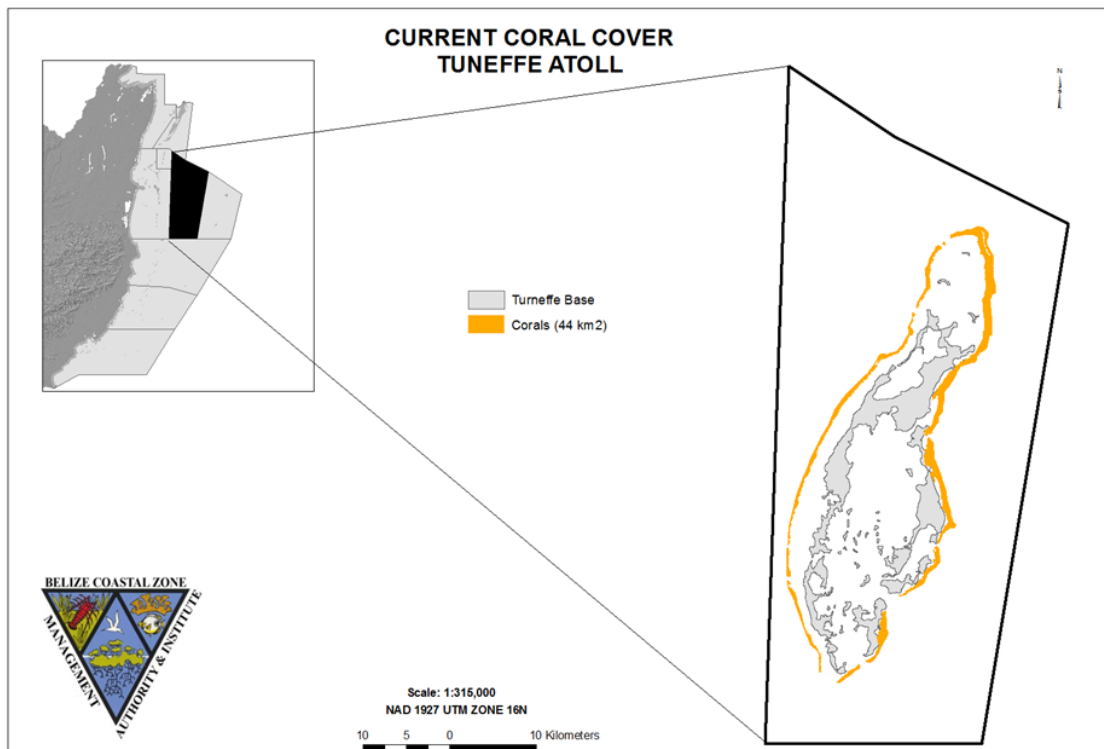
## 6.5 Sensitive Habitats

### 6.5.1 Corals

The firm-bottomed back-reef flats at Turneffe are recognized world-wide for their beauty and they sustain healthy populations of bonefish providing the backbone for Turneffe's sport fishing sector. Turneffe's back-reef flats also serve the commercial fishing sector in that they are important conch nurseries and conch harvesting locations. Furthermore, the back-reef flats provide juvenile habitat for numerous fish species and play an integral role in limiting storm damage by providing critical protection to the Eastern side of the atoll during hurricanes.

Turneffe's fringing reef, which surrounds the entire atoll, was once some of the healthiest coral reef in Belize but it now suffers from over exploitation and disrupted ecosystem dynamics. Along with extensive patch reefs throughout the atoll, the fringe reef provides the economic and ecological backbone of the atoll. In addition to numerous well-known advantages provided by coral reefs, Turneffe Atoll's reefs offer some of the Caribbean's best Scuba diving, snorkeling, and sport fishing. Turneffe Atoll's fringe reef is crucial for the protection of the atoll, and also helps to protect Belize City, from hurricanes.

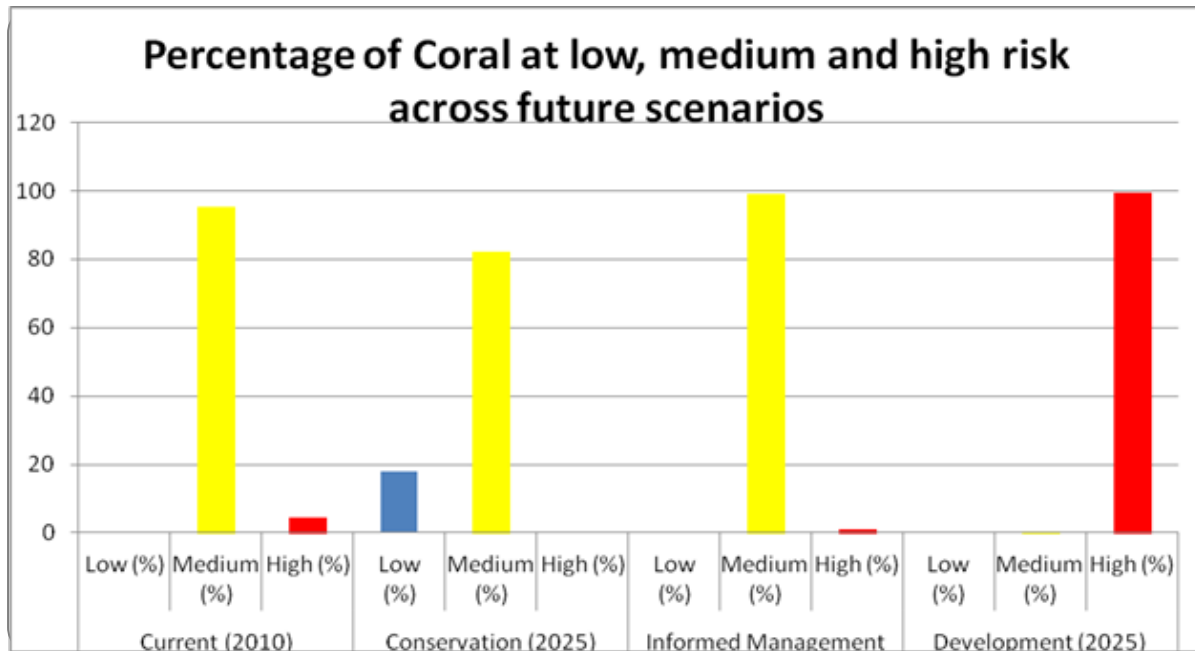
The total coral cover at Turneffe Atoll is approximately 45 km<sup>2</sup> (**Map 11**).



**Map 11: Coral Cover at Turneffe Atoll**



Results of the InVEST Habitat Risk Assessment (HRA) model results suggest less than 1 percent of the region’s coral are currently at low risk, 95% at medium risk, and close to 5% at high risk (**Fig. 1**).

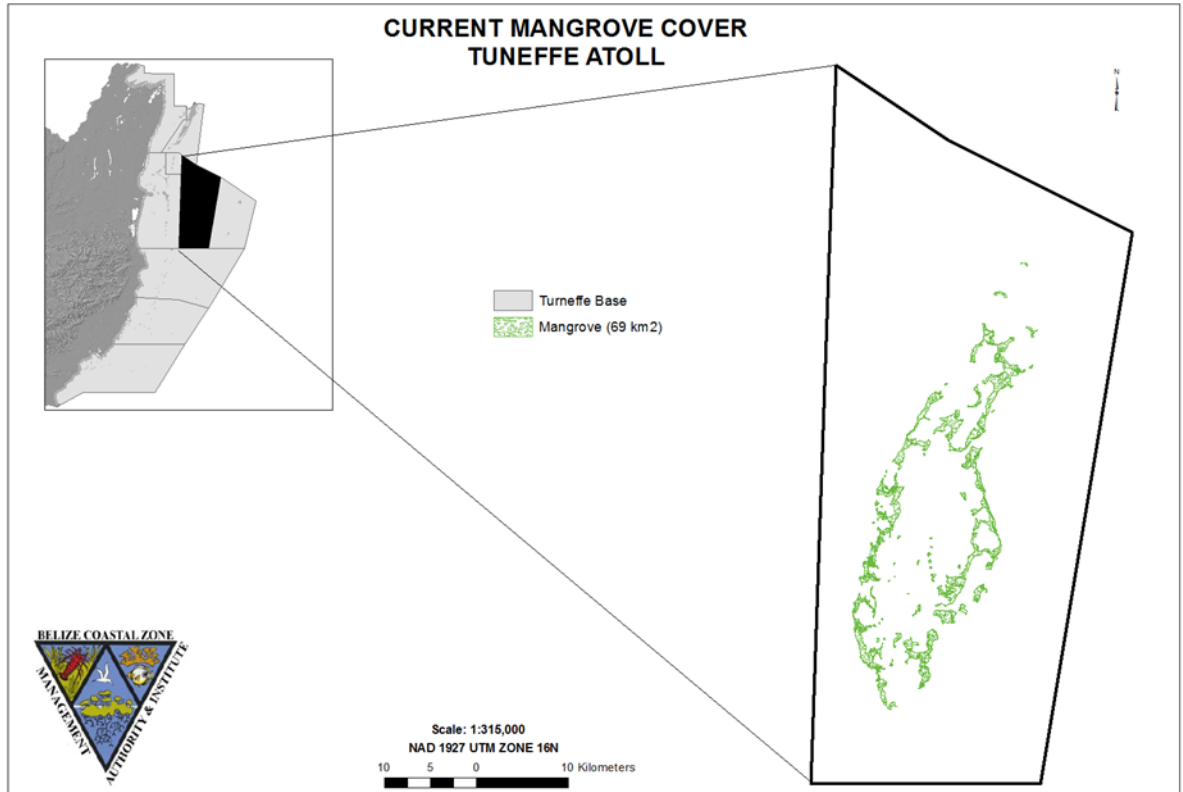


**Figure 1: Risk to Corals at Turneffe Atoll by Scenario**

HRA results also suggest that in a Conservation Zoning Scheme no corals would be at high risk. In addition, there would be approximately 18% and 82% of the present corals at low and medium risk, respectively (**Fig. 1**). Whereas in a Development Zoning Scheme, HRA model results suggest that the threat to corals may become increasingly higher. In this zoning scheme, only 0.2% of present corals would be at low risk, and 0.4% at medium risk whereas 99.4% of present corals would be at high risk (**Fig. 1**). In the proposed Informed Management Zoning Scheme, HRA results are indicating that 0.8% corals would be at high risk, 0.2% of present corals would be at low risk, and 99% at medium risk (**Fig. 1**).

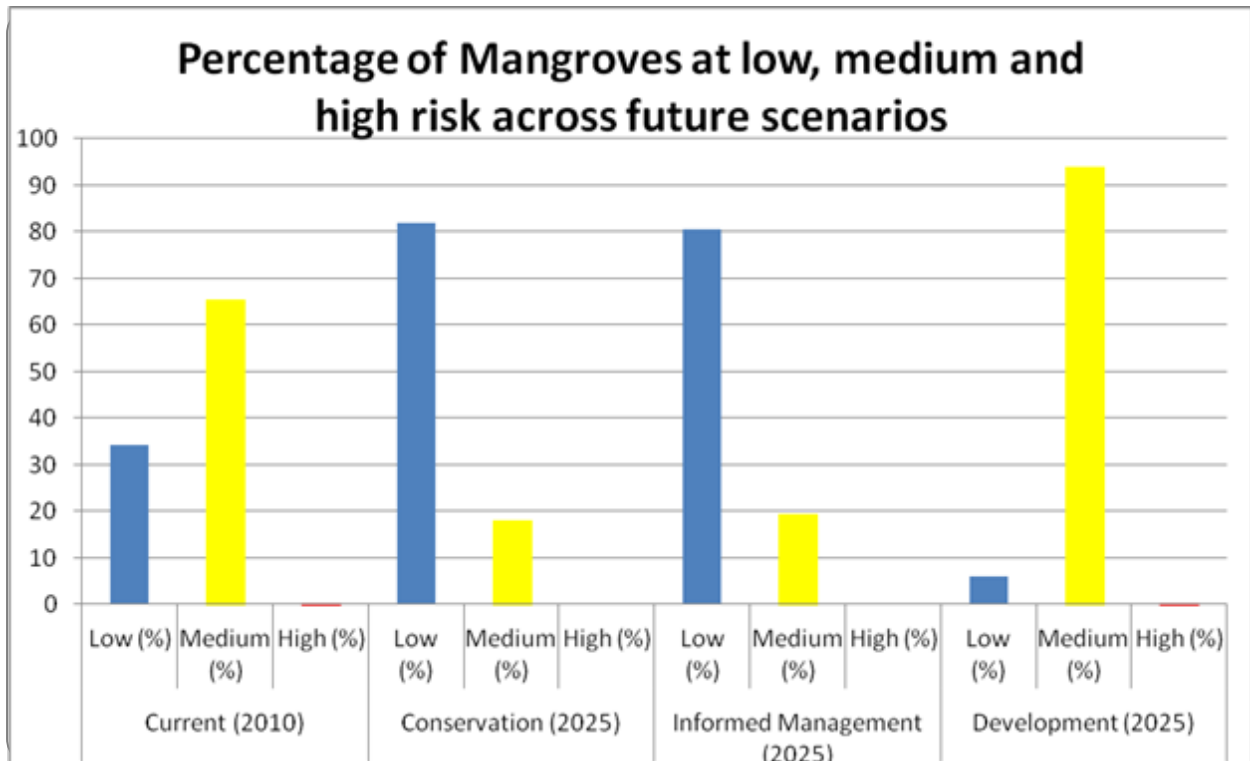
### 6.5.2 Mangroves

Mangroves are important for a variety of ecological and economic reasons including their role as fisheries nurseries and as habitat for birds, reptiles and marine invertebrate. Additionally, mangroves offer protection from hurricanes, provide flood control, and improve water purification through natural filtration services. Turneffe Atoll contains the largest area of mangroves found on Belize’s cayes and the variety and extent of mangrove habitats found there is extraordinary. In this region, the total mangrove cover is approximately 65 km<sup>2</sup> (**Map 12**).



**Map 12: Mangrove Cover at Turneffe Atoll**

Results from the InVEST Habitat Risk Assessment (HRA) model suggest that currently 34.2% of the region’s mangroves are at low risk, 65.4% at medium risk and 0.4% at high risk (Fig. 2).

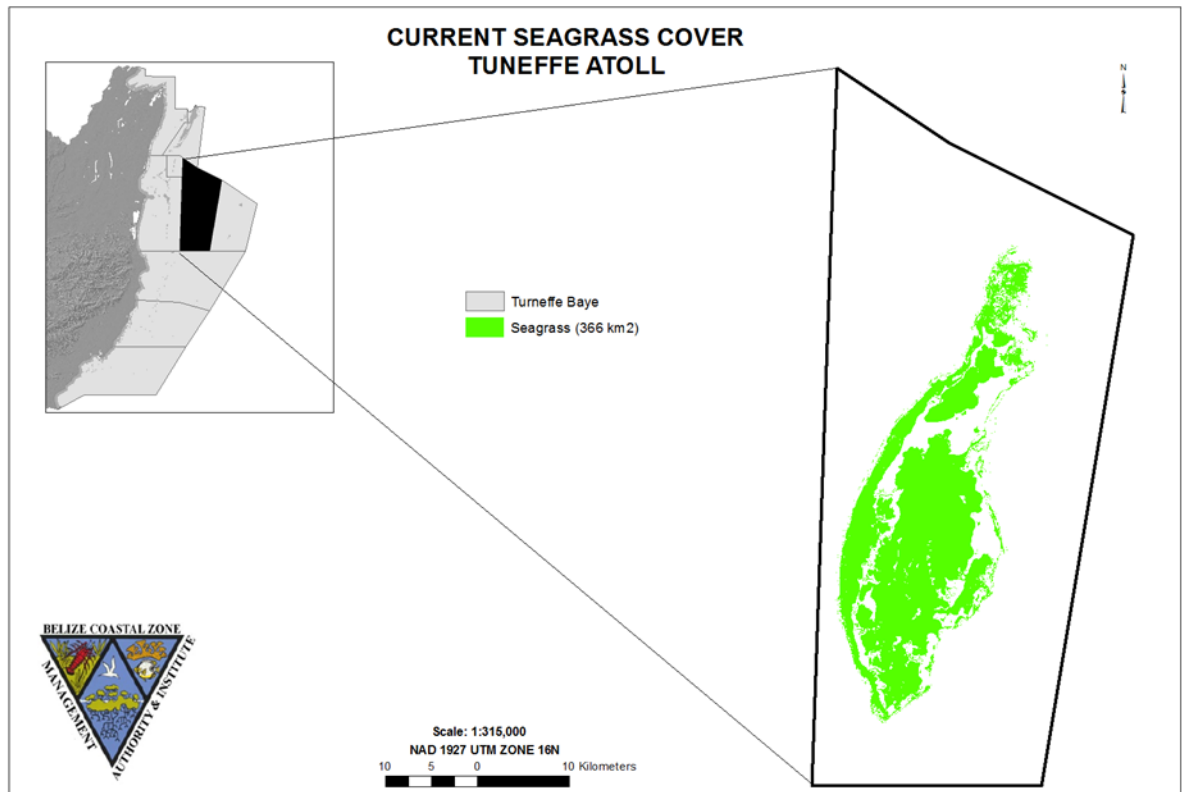


**Figure 2: Risk to Mangroves at Turneffe Atoll by Scenario**

The results also suggest that in a Conservation Zoning Scheme no mangroves would be at high risk. There would also be proportionately less mangrove at medium risk than in the current. According to HRA model results, 82% of mangroves would be at low risk, and 18% at medium risk in a future Conservation Zoning Scheme (**Fig. 2**). In a Development Zoning Scheme, HRA model results suggest that the threat to mangroves would become increasingly higher. Only 5.9% of mangroves would be at low risk whereas 94% and 0.1% of present mangrove would be at medium and high risk, respectively (**Fig. 2**). In the proposed Informed Management Zoning Scheme, HRA results are indicating that 0% of mangroves would be at high risk, 81% of present mangroves would be at low risk, and 19% of medium risk (**Fig. 2**).

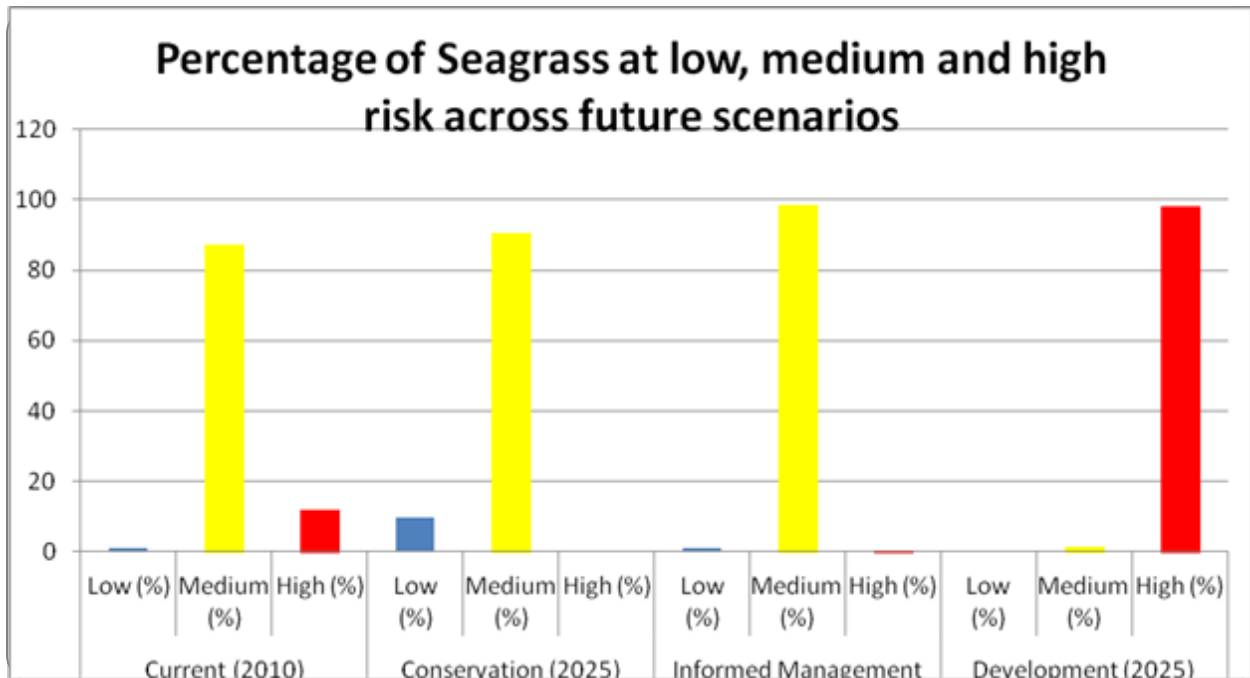
### 6.5.3 Seagrass

Extensive, healthy seagrass beds throughout Turneffe are essential to the commercial fishery as well as sport fishing. Additionally, they are important in sustaining Turneffe Atoll's manatee population. The total seagrass cover at Turneffe Atoll is approximately 366 km<sup>2</sup> (Map 13).



**Map 13: Seagrass Cover at Turneffe Atoll**

InVEST Habitat Risk Assessment (HRA) model results indicate that due to current pressures on seagrass in the region, approximately 1% of the region's seagrass are at low risk, risk 87% at medium risk and 12% at high risk (Fig. 3).



**Figure 3: Risk to Seagrass at Turneffe Atoll by Scenario**

In a Conservation Zoning Scheme, HRA model results suggest a dramatic reversal of the level of risk to current seagrass in this region whereby none of the seagrass at Turneffe Atoll would be at high risk, 10% at low risk and 90% at medium risk in 2025 (**Fig. 3**). In a Development Zoning Scheme, model results suggest that 98.3% of present seagrass would be at high risk. The results also suggest that in the Development Zoning Scheme, 0.3% of seagrass would be at low risk and 1.4% at medium risk in 2025 respectively (**Fig. 3**). In the proposed Informed Management Zoning Scheme, the HRA model results suggest an improvement in the amount of seagrass that are currently at risk. Under this zoning scheme, 98.7% of present seagrass would be at medium risk. Additionally, the model results reveal that under this zoning scheme, 1% of present seagrass would be at low risk and 0.3% at high risk in 2025 (**Fig. 3**).

In discussing the results of the InVEST ecosystem models, and in particular the habitat risk assessment model, there is the need to consider limitations of the model, which are highlighted below:

- Results should be interpreted on a relative scale within a study region and across habitats and stressors, but not to results from separate analyses.
- Results do not reflect the effects of past human activities.
- Results are based on equal weighting of criteria unless the user weights the criteria by importance or data quality.
- Cumulative risk is additive (rather than synergistic or antagonistic)
- Climate change impacts are not directly accounted for in model

Additional information on how this model works can be found in **Appendix B.1** of the Belize Integrated Coastal Zone Management Plan

**Recommended Actions:**

1. Due to the importance of mangroves as providers of ecological services for Turneffe Atoll and their value to its major industries (fishing and tourism), mangrove removal should be minimized and the Mangrove Protection Act of 1989 should be updated and strictly enforced.
2. Clearing of vegetation should be kept to a minimum and valuable littoral forest should be identified with GPS coordinates, clearly mapped and zoned for protection.
3. Some palmettos stands are selectively used for lobster trap construction and this use is sustainable in its present volume, although management may be required in the future.
4. Preservation of seagrass beds should be a priority in all management decisions at Turneffe Atoll.
5. Due to the economic and ecological importance of Turneffe's fringe reef, patch reef and back-reef flats, management of Turneffe Atoll should ensure that the integrity and health of these areas is carefully protected.
6. Modern planning methodologies should be used to further analyze, and presumably confirm, the economic, ecological and social value of preserving the unique and special areas at Turneffe Atoll.

## 6.6 Utilities

Because of remote location of the atoll, the availability of fresh water and electricity are major obstacles for development and also serve as potential sources of environmental degradation. These guidelines seek to ensure that proper consideration is given to the environmental consequences of providing these utilities. The level of need and their resultant potential for impact fall into at least three categories: fishing camps, tourism development and residential development. In general, fishing camps are sparsely populated and require minimal utility infrastructure while tourism and residential developments require more advanced infrastructure.

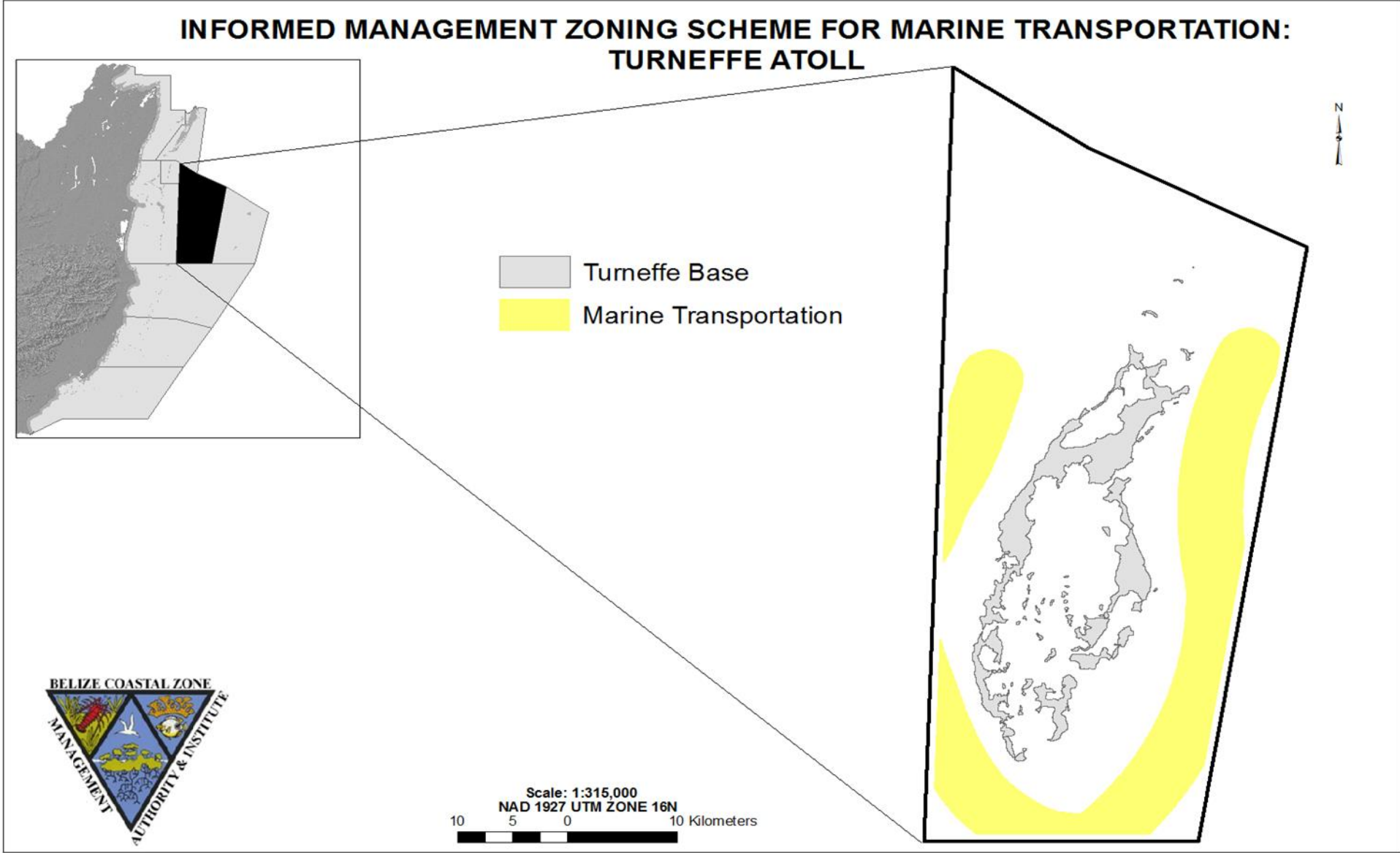
In terms of marine transportation, the Belize Port Authority maintains two lighthouses at Turneffe Atoll, one at Dog Flea Caye to the North and another at Caye Bokel to the south. The Belize Port Authority is mandated to ensure the safety of navigational channels, through the installation of navigational aids (Belize Port Authority Act, 1976; revised, 2003) and installation and maintenance of demarcation buoys. It also has a role in the registration of boats and monitoring of vessels using navigational channels and the removal of boats from the reef, when groundings occur. These guidelines recognize existing marine transportation routes around the atoll, which have been captured in the spatial zoning scheme (**Map 14**). In addition to the recommended actions below, implementation of the framework for enforcing the recommended transportation routes for this region (**Table 5**) is strongly recommended.

### **Recommended Actions:**

1. Tourism and residential developments should be required to provide detailed plans about how they will provide adequate fresh water which will not degrade natural fresh water resources used by wildlife.
2. Rainwater collection, recycling of gray water, and other water preservation methods, should be utilized as much as possible.
3. Maximal use of solar and wind power is recommended, yet it is recognized that some fuel based power will be necessary.
4. Power requirements should be minimized to the extent possible through the use of power-saving measures and other efficiencies.
5. As transportation and storage of fossil fuels present risks of serious contamination, adequate policies and procedures for these activities should be required and approved for all residential and tourism developments.

6. Fuel related contaminants must be disposed of responsibly and all tourism and residential development proposals should include responsible plans for these processes.
7. Transportation, distribution and disposal of fuel products should be monitored for all tourism and residential developments ensuring that appropriate standards are followed, possibly by a Turneffe management entity or the DOE.
8. Generating systems should be shared by neighboring developments whenever feasible.





**Map 14: Informed Management Zoning Scheme for Marine Transportation at Turneffe Atoll**

**Table 5: Framework for Implementing Informed Marine Transportation at Turneffe Atoll**

ZONE	CHARACTERISTICS OF ZONE	SCHEDULE OF PERMITTED USES			SCHEDULE OF RESTRICTED USES	SUPPORTING NATIONAL POLICIES	IMPLEMENTING AGENCY
		Dominant	Compatible	Regulated			
<b>Marine Transportation</b>	Marine area delineated for the use of watercraft, such as water taxis, cruise ships, etc, to transport people, goods and cargo between multiple destinations	1. Shipping operation activities 2. Port development and operation 3. Vessel traffic use	Dredging for the maintenance of navigational lanes and ports of entry	Passage/entry of vessels  Operation and construction of ports	1. Fishing 2. Marine recreational activities 3. Anchoring that leads to disturbance and destruction marine habitats, including but not limited to, coral reef system, seagrass beds, etc 4. Exploration and extraction of petroleum 5. Construction of any illegal structure that would obstruct shipping and navigation 6. Disposal of solid and liquid wastes from boats and ships 7. Transportation of illegal goods, such as drugs and weapons, and human trafficking	Belize Port Authority Act Belize National Coast Guard Service Act Customs Regulation Act Defence Act Environmental Protection Act Harbours and Merchant Shipping Act Immigration Act Maritime Areas Act Marine Dredging Policy (Draft) Mines and Minerals Act	Belize Port Authority Belize National Coast Guard Customs Department Belize Defence Force Department of the Environment Belize Port Authority Immigration Department Ministry of Foreign Affairs Mining Unit, Ministry of Natural Resources Geology and Petroleum Department

## **6.7 Pollution Control**

The matter of pollution control is addressed in much the same manner as utilities with recommendations for tourism and residential development not being as strict as those required for fishing camps. This is based on occupation levels with tourism and residential developments generating far more waste. Due to the fragile nature of the atolls underground septic tanks and soakaways are not recommended as a means of handling liquid wastes. Several of the development sites (**Table 4**) recommend the use of above-ground septic tanks with drain fields. The Central Building Authority (CBA), is the agency mandated by the Belize Building Act 2003 to control building operations in the interest of public safety and health. In 2010, CBA produced detailed specifications for the construction of soakaways and septic tanks for residential and other low-impact buildings. CZMAI recommends that developers must consult with the CBA on standards for the construction of above-ground septic tanks with drain fields.

### **Recommended Actions:**

1. Procedures to minimize waste should be in place for all developments and recycling should be utilized as much as possible. On-site waste disposal should be accomplished in a manner consistent with the National Solid Waste Management Guidelines.
2. For tourism and residential developments, solid waste from toilets should be treated by means of an earth tub or similar type technology with the resulting compost used in landscaping. Open septic tanks should not be permitted for tourism or residential facilities and closed septic tank/drain-field systems should be permitted only with pre-approval from the Department of the Environment and Central Building Authority.
3. Gray water should be recycled and reused as much as possible.
4. Food waste from tourism and residential properties should be composted and used on-site as fertilizer.
5. All hazardous waste, including batteries, tires, propellant cans and petroleum-based products, should be properly stored to avoid contamination and transported to the mainland for final disposal.
6. Metal containers should be used for incinerating burnable inorganic waste, although such incineration should be done in a manner that is not a nuisance to neighbors. Large-scale resorts (yet to be defined) should be required to utilize incinerators for these purposes.

7. For fishing camps, the volume of solid waste generated is small enough that incineration on site, given adequate precautions, should be acceptable. If a fishing camp develops a 'guest house', however, it should then conform to the recommendations above.
8. Open latrines should be used only in fish camps where the occupancy is minimal, i.e. 2-3 people. If a fishing camp develops a 'guest house', they should then conform to the recommendations above.
9. In an effort to reduce and prevent the environmental impacts associated with the disposal of waste products, the operators of cruise ships and other vessels should comply with the national recommendations in the Belize Integrated Coastal Zone Management Plan.

## **6.8 Social Amenities and Recreation**

Given the remote location of the Atoll and its relatively large and sparsely inhabited area, basic social amenities are largely unavailable. Furthermore, many inhabitants have very limited access to communication, even for emergencies.

Health care facilities are not available on the atoll. Depending upon the weather and other circumstances, access to emergency health care can be nearly impossible. Presently, no portion of the atoll is designated for general public recreation for day visitors or cruise ship visitors.

### **Recommendations:**

1. Because there are no basic health care facilities on the atoll, all residents should be prepared to provide at least basic medical care and resorts are encouraged to provide assistance to the wider community when needed.
2. Recommendations for the provision for disaster risk management and emergency evacuation services of inhabitants should be implemented as per prescribed in the Turneffe Atoll Management Plan 2012-2017.
3. The University of Belize, on Calabash Caye or other suitable facilities, should be used for meetings of the general community or specific groups/committees on the islands.
4. Public recreational areas, with infrastructure such as pier and bathroom facilities, should be established facilitate day-trip tourism at suitable sites on Turneffe. Financial support from interested and willing conservation agencies nationally and internationally, as well user fees generated from the Turneffe Atoll Marine Reserve could help to establish and oversee this recommendation.
5. Large vessels, including cruise ships, should only be allowed at sites or in harbors designated by the Belize Port Authority. Near the reef, vessels must moor at sites designated by the Fisheries Department where adequate mooring facilities have been installed. Tender vessels associated with the operations of large vessels will not be allowed to drop anchor where the anchor, chain or any part of the vessel could cause damage to the reef. In the event that the cruise ships or other vessels are to be anchored in the vicinity of the atolls or reef, permanent-mooring sites must be established for this purpose in consultation with the Fisheries Department and the Belize Port Authority.

## 6.9 Conservation

Turneffe Atoll is unique in that it is one of the few atolls in the Caribbean containing excellent reef development around its margins as well extensive back-reef flats and intact mangrove and seagrass habitat in its interior. It is also the largest of the four atolls in Mesoamerica. The reefs and hard-bottom communities support a diverse assemblage of corals, sponges, and fish. At least six critical fish spawning sites are known to exist around the atoll, including sites for the endangered Nassau grouper.

Turneffe contains some of the best remaining habitat for the American salt-water crocodile in the Caribbean, with perhaps the largest population in Belize of this endangered species. Sea turtles nest on the sandy beaches of the eastern cayes. Dolphins and the endangered Antillean manatee regularly frequent the interior network of mangrove cayes, creeks and lagoons. Several species believed to be endemic to Belize, including Belize's atoll gecko and the rare white-spotted toadfish, are found at Turneffe Atoll.

Caye littoral forest is likely the most threatened coastal habitat in the world and the eastern side of Turneffe Atoll is an especially important area for littoral forest. Littoral forest refers to forested areas along the coast or cayes that generally occurs on the higher land. Littoral forest has distinctive plant assemblages such as red and white gumbo limbo, sea grape, poisonwood, Matapalo fig, sapodilla, numerous shrubs and other flowering plants, which support a diverse assemblage of birds and insects

In the early 1990's, the Turneffe Islands Committee Plan identified a number of terrestrial areas to be reserved due to their high conservation value and these were confirmed by the Coastal Zone Management Authority and Institute in 1999. A GAP analysis by Meerman, et al in 2005 identified Turneffe Atoll as one of the largest remaining marine gaps within the National Protected Areas System Plan and several NGO's have listed Turneffe Atoll as a top conservation priority. In 2008, Turneffe Atoll was highlighted as a regional gap and priority in the Mesoamerican Reef Eco-regional Assessment.

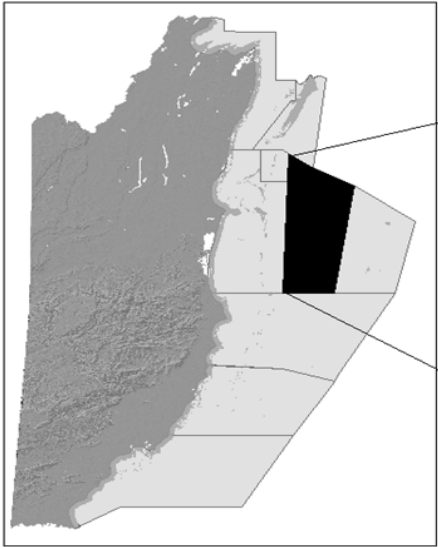
Up until 2012, Turneffe Atoll had the unfortunate distinction of being the only atoll in the Belize Barrier Reef System without significant protection or management. Although recommendations and justifications for protection and management have been made since the mid 1990's, only two offshore spawning aggregation sites, "The Elbow" and Dog Flea Caye, were declared as marine protected areas. The atoll was officially declared a marine reserve in November 2012, not the largest in the country, and equipped with a fully functional management plan.

In an effort to support continued national efforts to conserve the marine biological diversity at Turneffe Atoll and reduce the pressures that could potentially impact the atoll, the CZMAI supports the existing spatial management zoning scheme for Turneffe Atoll (**Map 15**).. The recommended supporting framework for implementing the Informed Management Zoning Scheme for Conservation at Turneffe Atoll is found in **Table 6**.

## Recommended Actions:

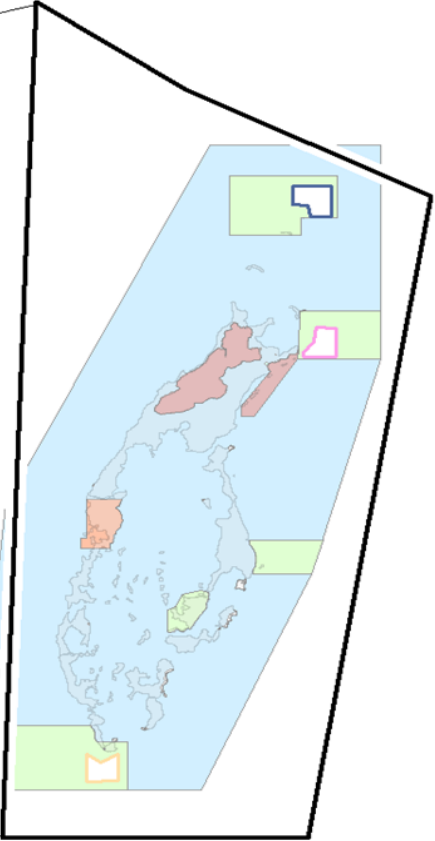
1. The following recommendations for specific conservation sites are to be reserved.
  - **Soldier Caye** - a nesting site for the roseate tern, least tern and white crowned pigeon;
  - **Grassy Caye** - a nesting site for turtles, the roseate and least tern as well as flats for bonefish and juvenile conch;
  - Portions of **Blackbird, Deadman's and Calabash cayes** - important nesting sites for the endangered American crocodile and turtles;
  - **Vincent's (or Northern) Lagoon**, the **Freshwater Creek** area, **Pelican Caye**, the **Crayfish Range** in Central Lagoon, **Shag Caye / Cross Caye, Cockroach Caye Range**, and **Douglas Caye**;
  - **Mauger Caye** which is the site of a historic lighthouse.
2. Turneffe's important conservation sites should be mapped and prioritized and this should include mapping of critical manatee, crocodile, turtle, dolphin and other wildlife areas.
3. National land lying outside of the identified provisional development sites should not be developed pending further evaluation including Spatial Marine Planning.
4. Policies should be initiated to further protect Turneffe's endangered and threatened species including the Antillean manatee, Hawksbill turtle, goliath grouper, Nassau grouper, and American crocodile. Known manatee areas should be marked with signage alerting boaters to their presence and appropriate no-wake zones should be established.
5. Dogs, cats and other domesticated animals should be contained so as not to disturb wildlife.
6. Implement management recommendations and framework for conservation in these guidelines in coordination with the recommendations in the Turneffe Atoll Management Plan (2012-2017)

# INFORMED MANAGEMENT ZONING SCHEME FOR CONSERVATION: TURNEFFE ATOLL



### Existing Marine Reserve

- Caye Bokel, Spawning Aggregation Site Reserve
- Cockroach Bay, Public Reserve
- Dog Flea Caye, Spawning Aggregation Site Reserve
- Maugre Caye, Nassau Grouper & Species Protection
- Turneffe Atoll Conservation Zone
- Turneffe Atoll Marine Reserve
- Turneffe Atoll Preservation Zone
- Turneffe Atoll Special Management Zone



Scale: 1:175,000  
NAD 1927 UTM ZONE 16N  
10 5 0 10 Kilometers

Map 15: Informed Management Zoning Scheme for Conservation at Turneffe Atoll



Table 6: Framework for Implementing Informed Conservation Management at Turneffe Atoll

ZONE	CHARACTERISTICS OF ZONE	SCHEDULE OF PERMITTED USES			SCHEDULE OF RESTRICTED USES	SUPPORTING NATIONAL POLICIES	IMPLEMENTING AGENCY
		Dominant	Compatible	Regulated			
<b>Marine Conservation</b>	Coastal and marine areas delineated for the retention of critical habitats and ecosystems for a diversity of marine life, fish spawning aggregation sites, replenishment zones, biodiversity areas	<ol style="list-style-type: none"> <li>1. Coastal and marine reserves</li> <li>2. Breeding, spawning, feeding area for marine life</li> <li>3. Replenishment zones</li> <li>4. Seagrass rehabilitation</li> <li>5. Mangrove planting</li> <li>6. Foraging area for manatees, dolphins, crocodiles</li> <li>7. Nesting beaches for sea turtles</li> </ol>	<ol style="list-style-type: none"> <li>1. Research and education</li> <li>2. Marine Recreation and Tourism</li> </ol>	<p>Tourism and recreation (snorkeling and diving)</p> <p>Research and education</p> <p>Establishment of new reserves</p>	<ol style="list-style-type: none"> <li>1. Fishing within “no-take”/replenishment zones, and spawning aggregation sites</li> <li>2. Development of shoals</li> <li>3. Anchoring that leads to disturbance and destruction marine habitats, including but not limited to, coral reef system, seagrass beds, mangrove forests, etc</li> <li>4. Exploration and extraction of petroleum</li> <li>6. Disposal of solid and liquid wastes from boats and ships</li> <li>7. Shipping</li> </ol>	<p>Belize Port Authority Act</p> <p>Belize National Coast Guard Service Act</p> <p>Customs Regulation Act</p> <p>Defence Act</p> <p>Environmental Protection Act</p> <p>Harbours and Merchant Shipping Act</p> <p>Immigration Act</p> <p>Maritime Areas Act</p> <p>Marine Dredging Policy (Draft)</p> <p>Mines and Minerals Act</p>	<p>Belize Port Authority</p> <p>Belize National Coast Guard</p> <p>Customs Department</p> <p>Belize Defence Force</p> <p>Department of the Environment</p> <p>Belize Port Authority</p> <p>Immigration Department</p> <p>Ministry of Foreign Affairs</p> <p>Mining Unit, Ministry of Natural Resources</p> <p>Geology and Petroleum Department</p>

### **6.10 *Scientific Research and Education***

As a relatively isolated area which encompasses all key aspects of a coastal marine ecosystem, Turneffe Atoll is an ideal location for coastal marine research. For several decades Turneffe Atoll has served as the location for important research related to coral reefs, manatees, crocodiles, bonefish, permit and many other species with a number of monitoring and research projects currently underway.

The University of Belize's Institute of Marine Studies (IMS) on Calabash Caye is the preeminent marine research facility in Belize and IMS has expanded its educational and research focus at Turneffe Atoll in recent years. Additionally, the Oceanic Society, on the South end of Blackbird Caye, has operated primarily as a research, monitoring and educational facility doing important research on Turneffe's marine mammals and reptiles.

#### **Recommended Actions:**

1. The notable ability of Turneffe Atoll as a resource for coastal marine education and research should be embraced and promoted.
2. The biodiversity and interconnected coastal-marine habitats of the atoll should be carefully considered in management decisions to ensure the health of all aspects of the ecosystem with special consideration given to biological corridors.
3. The importance of ongoing monitoring and research to evaluate the effects of all influences on the atoll should be recognized and supported.
4. Additional studies related to bird distribution, nesting and flight paths as well as sustainable fisheries management and numerous other topics should be encouraged.

## 7.0 IMPLEMENTATION STRATEGY

The Turneffe Atoll Coastal Zone Management Guidelines form a part of the Belize Integrated Coastal Zone Management Plan being developed by the CZMAI. After approval of the Plan by CZMAI's Board of Directors, it will be offered to the House of Representatives for endorsement. Implementation of these coastal management guidelines will be undertaken through two mechanisms: (a) centralized statutory control through the various Government departments, and (b) localized community and stakeholder participation. Following the mechanism of centralized statutory control, the regulatory and permitting agencies with management mandates for the coastal zone will implement the specific policy actions and informed management spatial zoning scheme that are recommended in the Plan.

While the government agencies have the authority of the law to back up its procedures, it is constrained by limited resources. In several instances, however, local NGOs and community-based stakeholder organizations have greater access to, and knowledge of, local conditions and activities, though they have no statutory powers to either assist or control development beyond those available through the Village Councils and Towns Councils Acts. For this reason, it is recommended that localized community and stakeholder participation complement the management efforts of centralized government and statutory agencies in implementing integrated coastal zone management. The Turneffe Atoll Coastal Advisory Committee (TACAC), and other interested stakeholders of this region, will work closely with the Coastal Zone Advisory Council (CZAC) regarding monitoring and implementation of the guidelines.

Objectives of the Turneffe Atoll CAC include, *inter alia*, contributing to the drafting of the coastal zone management guidelines for their coastal region, supporting their initial approval, and monitoring and reporting to the Coastal Zone Advisory Council (CZAC) on the implementation of the guidelines. This means that the Committee will be expected to undertake the following tasks:

1. Develop, assess and approve the draft guidelines;
2. Forward the approved draft guidelines to CZMAI for approval;
3. Monitor the implementation and effectiveness of the guidelines;
4. Identify the appropriate time for a review of all or part of the guidelines;
5. Review and update the guidelines.

Planning is a continual process of recommendation, participation, implementation and review. These guidelines shall be monitored on a continual basis in order to establish its strengths and weaknesses. Through a management planning mechanism, the TACAC, along with CZMAI, will regularly update the guidelines, which will hopefully set a good example of

representative, cooperative and adaptive management that is environmentally sound, rational and equitable.

Additional studies are needed in liaison with the relevant authorities and region's stakeholders. Such studies should reveal information which may help to further support sustainable development and to address the social, cultural and economic human use of the region and its resources.

## **8.0 CONCLUSIONS**

The coastal zone management guidelines recommended for the Turneffe Atoll are not intended to be rigid, as changing socio-economic, cultural and environmental conditions may necessitate modifications. Noteworthy, however, these guidelines and Informed Management spatial zoning scheme have identified sites for specific human uses of the coastal zone, and the disqualification of sites for not conducive to sustainable development. It is hopeful that the objectives outlined at the beginning can be realized through the recommended sector policies guidelines and spatially-explicit zoning scheme as they will ensure the sustainable use and development of the Turneffe Atoll.

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## **10.0 APPENDICES**

### **10.1 Background**

The coastal zone is one of Belize's greatest assets and its magnificent Barrier Reef Reserve System is a renowned World Heritage Site. It is the longest barrier reef in the Western Hemisphere, extending approximately 280 km from the northern to southern borders of the country (Cooper et al. 2009). Belize's coastal zone has complex and dynamic marine ecosystems that support innumerable ecological processes and a vast array of marine life and habitats. In addition to its important ecosystem functions, the coastal zone is vital to the Belizean way of life. The highly productive coastal zone is the resource base for a broad range of economic activities. In fact, approximately thirty-percent of the country's gross domestic product is directly linked to these commercial activities that take place within the coastal zone (Cho 2005). The coastal zone also has important social and cultural values to the Belizean people, especially to approximately 40% of the population that reside on the coast and in offshore areas (SIB 2010).

Over the past decades, rapid economic development and population growth have taken place in the coastal zone and inland areas of Belize. World-renowned snorkeling and diving draw over 800,000 tourists to the region annually, driving the construction of new development (BTB 2008). These occurrences have led to increasing pressures on coastal and marine resources, with implications to the livelihoods of those that depend upon them. These anthropogenic threats stem from various developmental activities associated with tourism and recreational facilities, population growth and expansion, utility supply, dredging and mineral extraction, land clearance, pollution, waste disposal, fisheries and aquaculture. These threats are compounded by natural hazards, global warming, rising sea levels, and the vulnerability of sensitive ecological systems to climate change. Thus, it is imperative now more than ever to ensure that the coastal zone is utilized in a manner that will continue to support important ecological functions, as well as social, cultural and economic prosperity for current and future generations.

For many years, and even today, management of the Belizean coastal zone has been under the regime of sectoral planning. However, The need for an integrated approach to optimally manage Belize's coastal resources was made resoundingly clear at a historic meeting in 1989 when a wide cross-section of stakeholders from various sectors, including scientists, marine managers, private sector, and coastal communities converged in San Pedro, Ambergris Caye (Gibson 1989). Integrated coastal zone management (ICZM) brings together all decision-making agencies to ensure integration among their policies and management plans, to ultimately improve and maintain the quality of coastal and marine ecosystems. A defining feature of Belize's ICZM plan is balancing national economic development needs with conservation priorities within a spatially defined area over a specified timeframe. The development of site-specific coastal zone management guidelines, as a component of the Belize ICZM Plan, serves as



a means to guide management decisions and to form the basis on which decisions are made to regulate the development and use of coastal and marine resources within the coastal zone.

## **10.2 Summary of Enabling Legislation And Implementing Agencies For Enforcement Of The Informed Management Zoning Scheme**

The various governmental organizations and agencies with management mandates for the coastal zone that are needed to implement these guidelines, to synchronize the efforts of the CZMAI via the Belize Integrated Coastal Zone Management Plan, and to strengthen inter-agency coordination for integrated coastal zone management include:

*Belize Agricultural Health Authority* – The Belize Agricultural Health Authority Act requires applications for licenses, permits or certificates to import and export animal products, animal feed, and plant products into and out of Belize following inspection as it affects the region. The Turneffe Reef Atoll Region CAC should be included in any discussion on policy formulation on agricultural import and export as it affects the region.

*Belize Port Authority* – The Belize Port Authority Act requires applications for boat and captain licenses and for the construction and operation of private ports for the region. Also, The Harbors and Merchant Shipping Act requires the Authority to regulate the passage of vessels in and out of Belizean waters as well as the maintenance and delineation of vessel routes, lighthouses and wharfs. The Turneffe Reef Atoll Region CAC should be included in any discussion on policy formulation on vessel licencing and shipping as it affects the region

*Belize Tourist Board* – The Belize Tourist Board Act requires applications for hotel licenses for the region. The Turneffe Reef Atoll Region CAC should be included in any discussion on policy formulation on hotel development as it affects the region.

*Belize Trade and Investment Development Service (BELTRAIDE)* – The Belize Trade and Investment Development Service Act requires that foreign trade and investment be liaised through the BELTRAIDE organization. The Turneffe Reef Atoll Region CAC should be included in any discussion on policy formulation on major developments as it affects the region.

*Central Building Authority* – The Housing and Town Planning Act provides for the regulation of the use and development of land through qualitative measures that is, building densities, land use class assignments etc. However, it does not address the structural integrity of buildings, a component of the development. The Central Building Authority, by way of the Belize Building Act, is legislated specifically to address this, and provides for the appointment of Local Building Authorities to administrate the Act. Thus, the Turneffe Reef Atoll Region CAC can be appointed as the Local Building Authority for the Turneffe Reef Atoll Region. However, this may require strengthening the Turneffe Reef Atoll Region CAC with technical expertise to do this.

*Department of Environment* – The Environmental Protection Act requires applications for environmental clearance for the region. The Turneffe Reef Atoll Region CAC should be included in any discussion on policy formulation on environmental protection as it affects the region.

*Fisheries Department* – The Fisheries Act requires applications for fishing license for the region. The Turneffe Reef Atoll Region CAC should be included in any discussion on policy formulation on fisheries as it affects the region.

*Forest Department* – The Forest Act requires applications for the removal of mangroves in coastal areas for the region. The National Parks System Act requires the establishment of National Parks, Nature Reserves, Wildlife Sanctuaries, and Natural Monuments to preserve ecologically important and sensitive areas. The Wildlife Protection Act empowers the Forest Department to determine species to be prohibited from hunting practices as it sees fit. The Turneffe Reef Atoll Region CAC should be included in any discussion on policy formulation on mangrove removal and designation of protective status to sensitive areas and species as it affects the region.

*Geology & Petroleum Department* – The Petroleum Act requires applications for oil exploration and issuing of parcel contracts for the region. The Turneffe Reef Atoll Region CAC should be included in any discussion on policy formulation on petroleum activities as it affects the region.

*Hydrology Unit, Ministry of Natural Resources* - The Water Industry Act requires all entities to apply for a Water Abstraction License where the water source is limited to a natural water body: surface or groundwater. The Turneffe Atoll CAC should be included in any discussion on policy formulation on water use as it affects the region.

*Lands and Surveys Department* - The Land Utilization Act requires applications for subdivisions for the region, any demarcation of special development areas, and any allocation of land in the coastal region, this includes any construction on seabed. The Turneffe Reef Atoll Region CAC should be included in any discussion on policy formulation on land as it affects the region.

*Meat and Livestock Commission* – The Meat and Livestock Act requires applications for the rearing, breeding, sale and exportation of meat and livestock for the region. The Turneffe Reef Atoll Region CAC should be included in any discussion on policy formulation on the sale of meat and livestock as it affects the region.

*Mining Unit, Ministry of Natural Resources*– The Mines and Minerals Act requires applications for dredging, oil exploration and sand mining permits for the region. The Turneffe Reef Atoll Region CAC should be included in any discussion on policy formulation on dredging and oil exploration as it affects the region.

*Ministry of Health* – The Public Health Act requires the Director of Health to make arrangements for health inspectors to enforce building and health standards for the region. The Turneffe Reef Atoll Region CAC should be included in any discussion on policy formulation on public safety as it affects the region.

*Ministry of Housing* – The Ministry of Housing formulates policy for housing and human settlements. Its added function is to assist with the alleviation of poverty due to urban growth. The Ministry coordinates planning and development control functions through municipal bodies. The Ministry also provides the services of Planners, Building inspectors and Engineers to provide the required necessary assistance. In accordance with Section 6 of the Act, the Turneffe Reef Atoll Region CAC can be delegated the powers and duties of the Central Housing and Planning Authority (CHPA) with regard to approving, with or without conditions, and prohibiting further development in the region as well as powers to serve prohibition notices. This delegation should be supported by the Solicitor General’s Office or an Attorney at Law for the enforcement of the provisions of the Act.

*National Emergency Management Organization* – The National Emergency Management Act requires that sites be declared as vulnerable areas for the region and policy formulation on disaster management be effectuated. The Turneffe Reef Atoll Region CAC should be included in any discussion on policy formulation on issues of national preparedness as it affects the region.

*Pesticide Control Board* – The Pesticide Control Act requires applications for the importation, manufacturing, sale and storage of restricted pesticides for the region. The Turneffe Reef Atoll Region CAC should be included in any discussion on policy formulation on pesticide use as it affects the region.

*Solid Waste Management Authority* – The Solid Waste Management Act requires the Solid Waste Management Authority to make arrangements for garbage collection or the engagement of contractors for the region. The Turneffe Reef Atoll Region CAC should be included in any discussion on policy formulation on garbage collection as it affects the region.

### 10.3 Checklist For Human Use/Development Of The Coastal Zone

DEVELOPMENT ACTIVITY/HUMAN USE	RESPONSIBLE AGENCIES
<b>1. Coastal Agriculture</b> <b>Governing Legislation/Policy:</b>	
Banana Industry Act	<input type="radio"/> Banana Control Board <input type="radio"/> Banana Growers Association <input type="radio"/> Ministry of Agriculture
Belize Agricultural Health Authority Act	<input type="radio"/> Belize Agricultural Health Authority
Citrus (Processing and Production) Act	<input type="radio"/> Citrus Control Board <input type="radio"/> Citrus Growers Association <input type="radio"/> Ministry of Agriculture <input type="radio"/> Department of the Environment
Environmental Protection Act	<input type="radio"/> Department of the Environment
Land Utilization Act	<input type="radio"/> Land Utilization Authority <input type="radio"/> Ministry of Natural Resources
Meat and Livestock Act	<input type="radio"/> Belize Livestock Producers Association <input type="radio"/> Belize Agricultural Health Authority <input type="radio"/> Ministry of Agriculture
Papaya Growers Association Act	<input type="radio"/> Papaya Growers Association <input type="radio"/> Ministry of Agriculture
Pesticide Control Act	<input type="radio"/> Pesticide Control Board <input type="radio"/> Ministry of Agriculture
Sugar Cane Industry (Control) Act	<input type="radio"/> Belize Sugar Cane Board <input type="radio"/> Ministry of Agriculture

DEVELOPMENT ACTIVITY/HUMAN USE	RESPONSIBLE AGENCIES
<b>2. Coastal Aquaculture Governing Legislation/Policy:</b>	
Fisheries Act National Aquaculture Policy (Draft)	<input type="radio"/> Fisheries Department <input type="radio"/> Aquaculture Unit, Ministry of Agriculture
Environmental Protection Act	<input type="radio"/> Department of the Environment
Belize Trade and Investment Promotion Service Act	<input type="radio"/> Belize Trade and Investment
DEVELOPMENT ACTIVITY/HUMAN USE	RESPONSIBLE AGENCIES
<b>3. Coastal Development Governing Legislation/Policy:</b>	
Belize Building Act	<input type="radio"/> Central Building Authority
Belize City Council Act	<input type="radio"/> Belize City Council
Belize Trade and Investment Promotion Service Act	<input type="radio"/> Belize Trade and Investment Development Services
Cayes Development Policy Coastal Zone Management Act	<input type="radio"/> Coastal Zone Management Authority
Disaster Preparedness and Response Act	<input type="radio"/> National Emergency Management Organization
Electricity Act	<input type="radio"/> Belize Electricity Limited
Environmental Protection Act	<input type="radio"/> Department of the Environment
Forest Subsidiary Act	<input type="radio"/> Forest Department
Hotels and Tourist Accommodation Act	<input type="radio"/> Belize Tourism Board
Housing and Town Planning Act	<input type="radio"/> Ministry of Housing
Land Utilization Act	<input type="radio"/> Land Utilization Authority
Mines and Minerals Act Private Works Construction Act	<input type="radio"/> Mining Unit, Ministry of Natural Resources <input type="radio"/> Ministry of Works and Transport

Public Health Act	<input type="radio"/> Ministry of Health
Public Utilities Commission Act	<input type="radio"/> Public Utilities Commission
Solid Waste Management Authority Act	<input type="radio"/> Solid Waste Management Authority
Telecommunications Act	<input type="radio"/> Belize Telemedia Limited
Town Councils Act	<input type="radio"/> Town Councils
Trade Licensing Act	<input type="radio"/> City/Town Councils
Water and Sewerage Act	<input type="radio"/> Belize Water Services Limited
Water Industry Act	<input type="radio"/> Hydrology Unit, Ministry of Natural Resources

DEVELOPMENT ACTIVITY/HUMAN USE	RESPONSIBLE AGENCIES
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**4. Conservation**

**Governing Legislation/Policy:**

Fisheries Act	<input type="radio"/> Fisheries Department
Forest Act	<input type="radio"/> Forest Department
Private Forests (Conservation) Act	<input type="radio"/> Forest Department
National Parks System Act	<input type="radio"/> Ministry of Agriculture, Fisheries, Forestry, the Environment and Sustainable Development
National Protected Areas Policy and System Plan	<input type="radio"/> National Protected Areas Secretariat
Wildlife Protection Act	<input type="radio"/> Forest Department
Coastal Zone Management Act	<input type="radio"/> Coastal Zone Management Authority

DEVELOPMENT ACTIVITY/HUMAN USE	RESPONSIBLE AGENCIES
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**5. Marine Dredging**

**Governing Legislation/Policy:**

Mines and Minerals Act	<input type="radio"/> Mining Unit, Ministry of Natural Resources
Dredging Policy	<input type="radio"/> Mining Unit

Environmental Protection Act	<input type="radio"/> Department of the Environment
<b>DEVELOPMENT ACTIVITY/HUMAN USE</b>	<b>RESPONSIBLE AGENCIES</b>
<b>6. Fishing</b>	
<b>Governing Legislation/Policy:</b>	
Fisheries Act	<input type="radio"/> Fisheries Department
Coastal Zone Management Act	<input type="radio"/> Coastal Zone Management Authority
<b>DEVELOPMENT ACTIVITY/HUMAN USE</b>	<b>RESPONSIBLE AGENCIES</b>
<b>7. Marine Transportation</b>	
<b>Governing Legislation/Policy:</b>	
Belize Port Authority Act	<input type="radio"/> Belize Port Authority
Harbors and Merchant Shipping Act	
Private Works Construction Act	<input type="radio"/> Ministry of Works and Transport
Customs Regulation Act	<input type="radio"/> Belize Customs Department
Maritime Areas Act	<input type="radio"/> Ministry of Foreign Affairs
Defence Act	<input type="radio"/> Belize Defence Force
Immigration Act	<input type="radio"/> Immigration Department
Dredging Policy	<input type="radio"/> Mining Unit, Ministry of Natural Resources
Environmental Protection Act	<input type="radio"/> Department of the Environment
<b>DEVELOPMENT ACTIVITY/HUMAN USE</b>	<b>RESPONSIBLE AGENCIES</b>
<b>8. Marine Recreation</b>	
<b>Governing Legislation/Policy:</b>	
Fisheries Act	<input type="radio"/> Fisheries Department
Ancient Monuments and Antiquities Act	<input type="radio"/> Archaeology Department
National Institute of Culture and History Act	<input type="radio"/> National Institute of Culture and History
Belize Tourism Board Act	<input type="radio"/> Belize Tourism Board
Public Health Act	<input type="radio"/> Ministry of Health
<b>DEVELOPMENT ACTIVITY/HUMAN USE</b>	<b>RESPONSIBLE AGENCIES</b>
<b>9. Oil Exploration</b>	
<b>Governing Legislation/Policy:</b>	
Environmental Protection Act	<input type="radio"/> Department of the Environment
Petroleum Act	<input type="radio"/> Geology and Petroleum Department



# 10.4 Figures

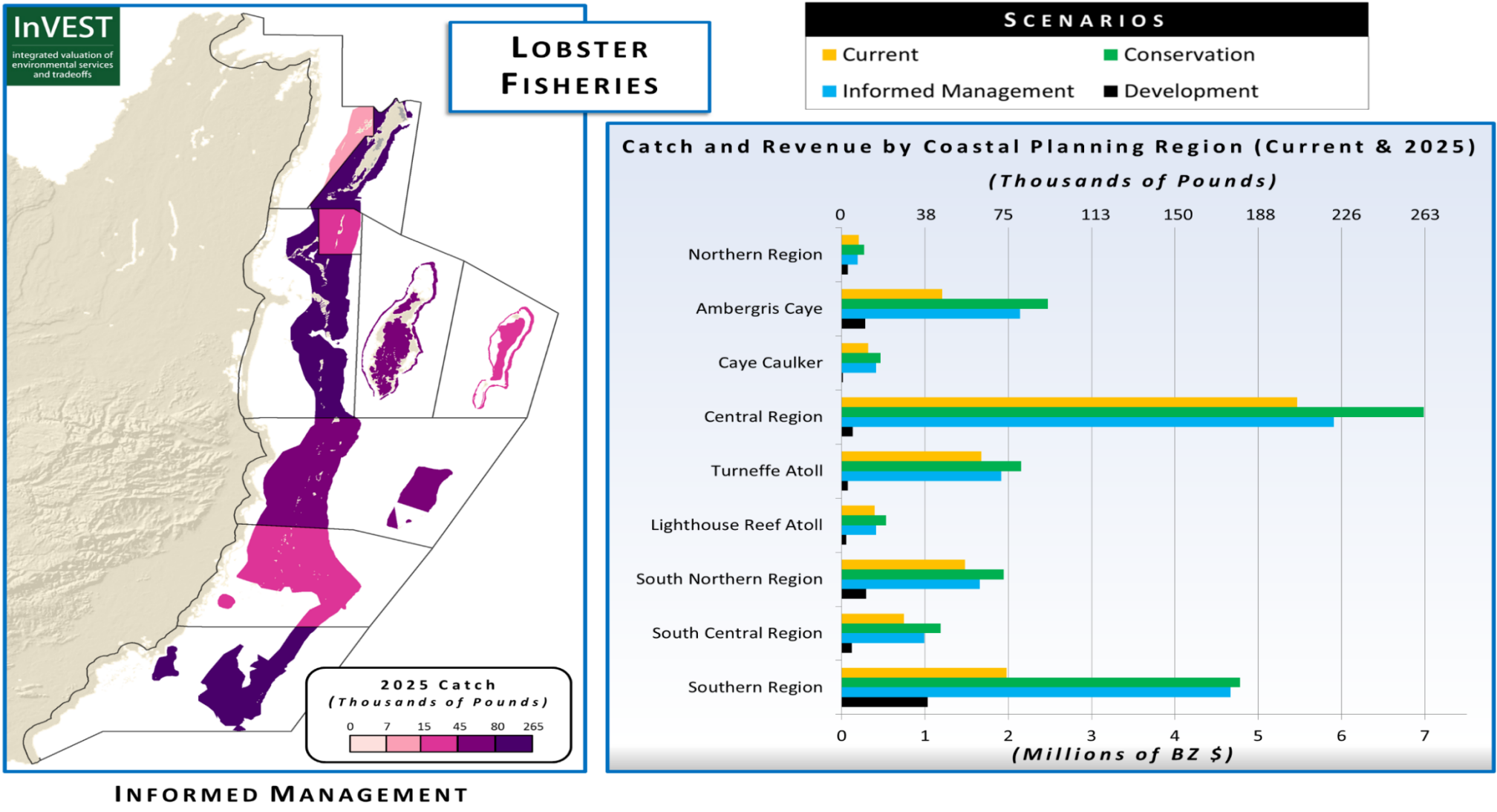
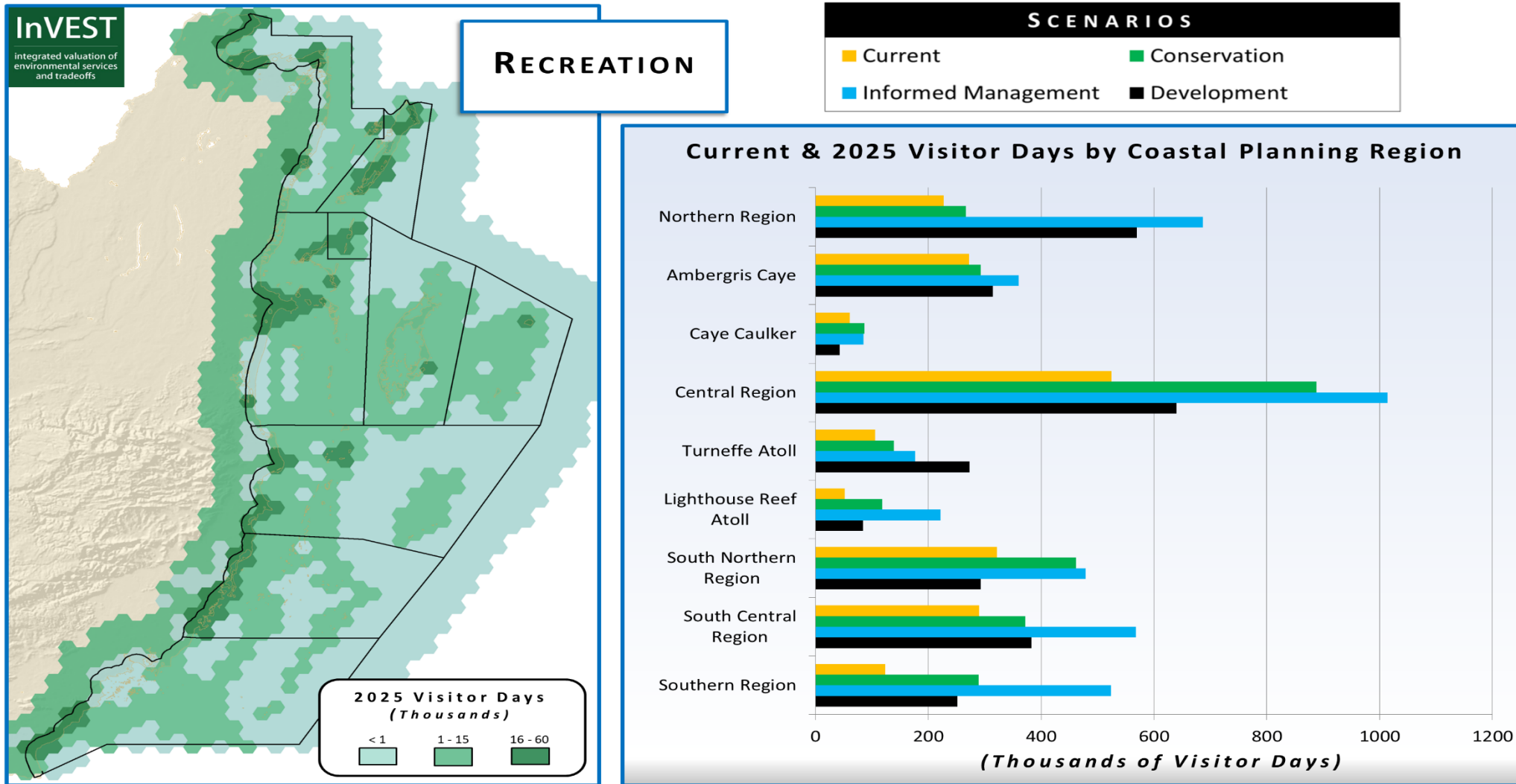
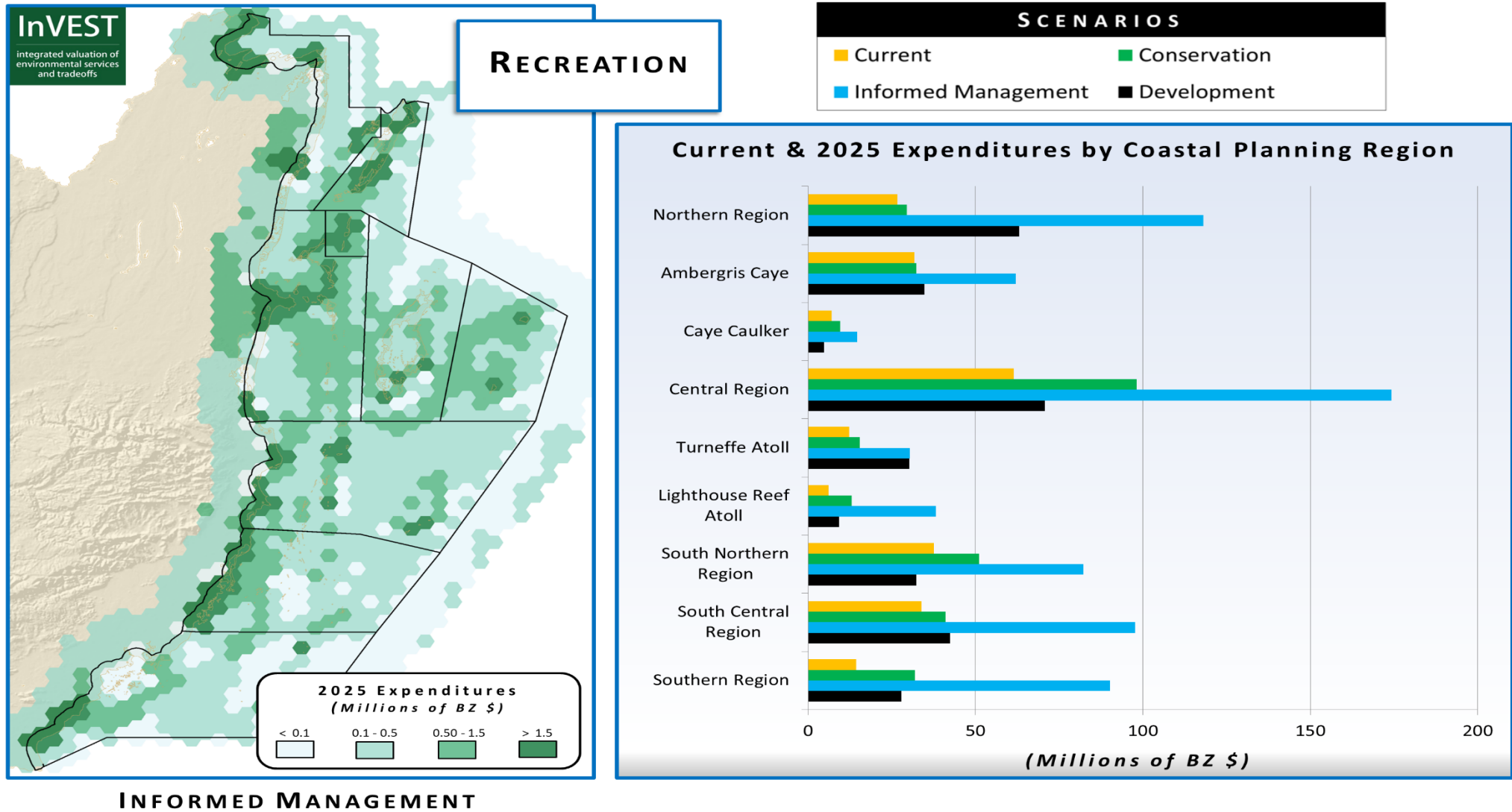


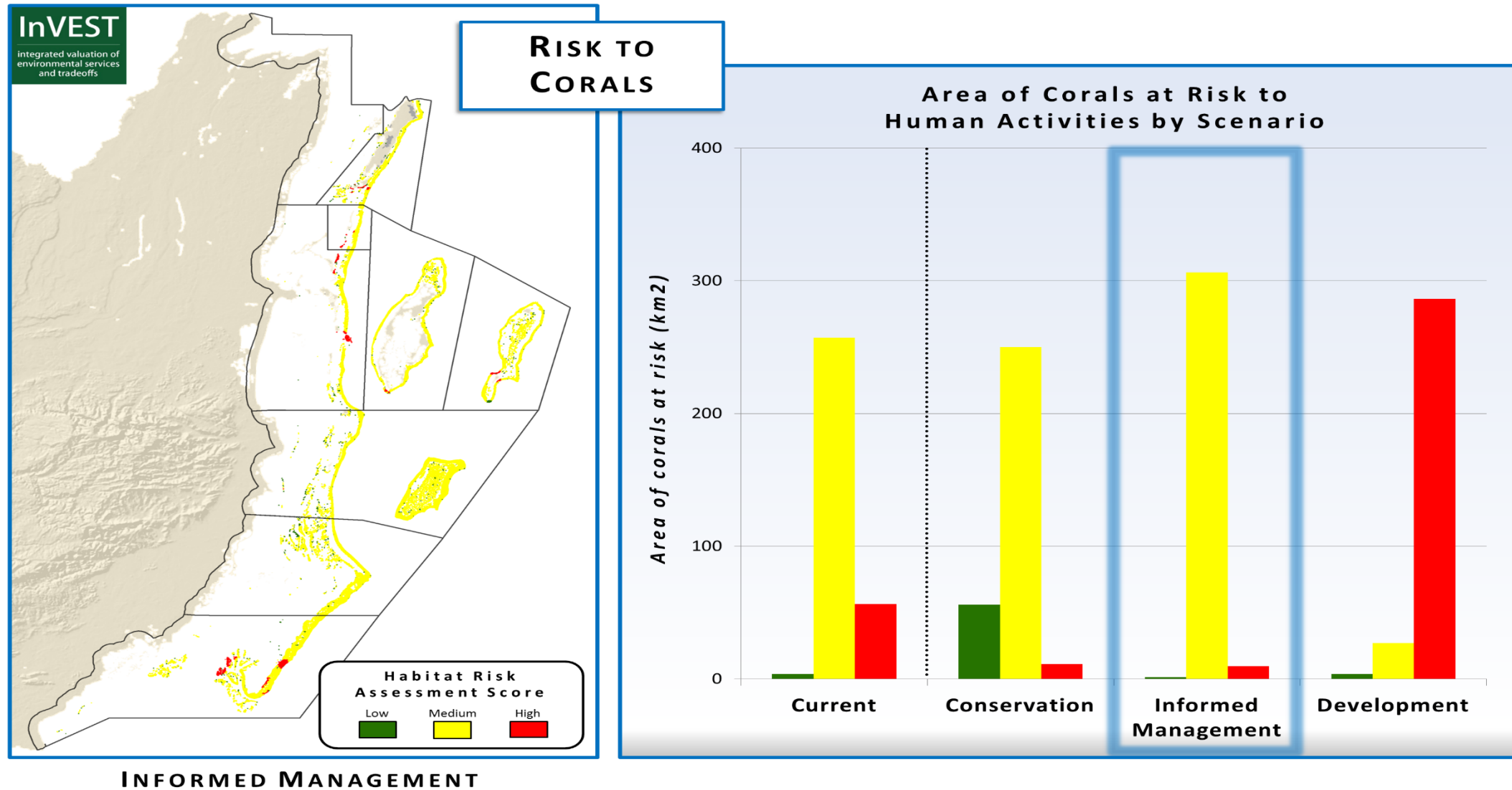
Figure 4: Lobster Fisheries Catch and Revenue by Scenario



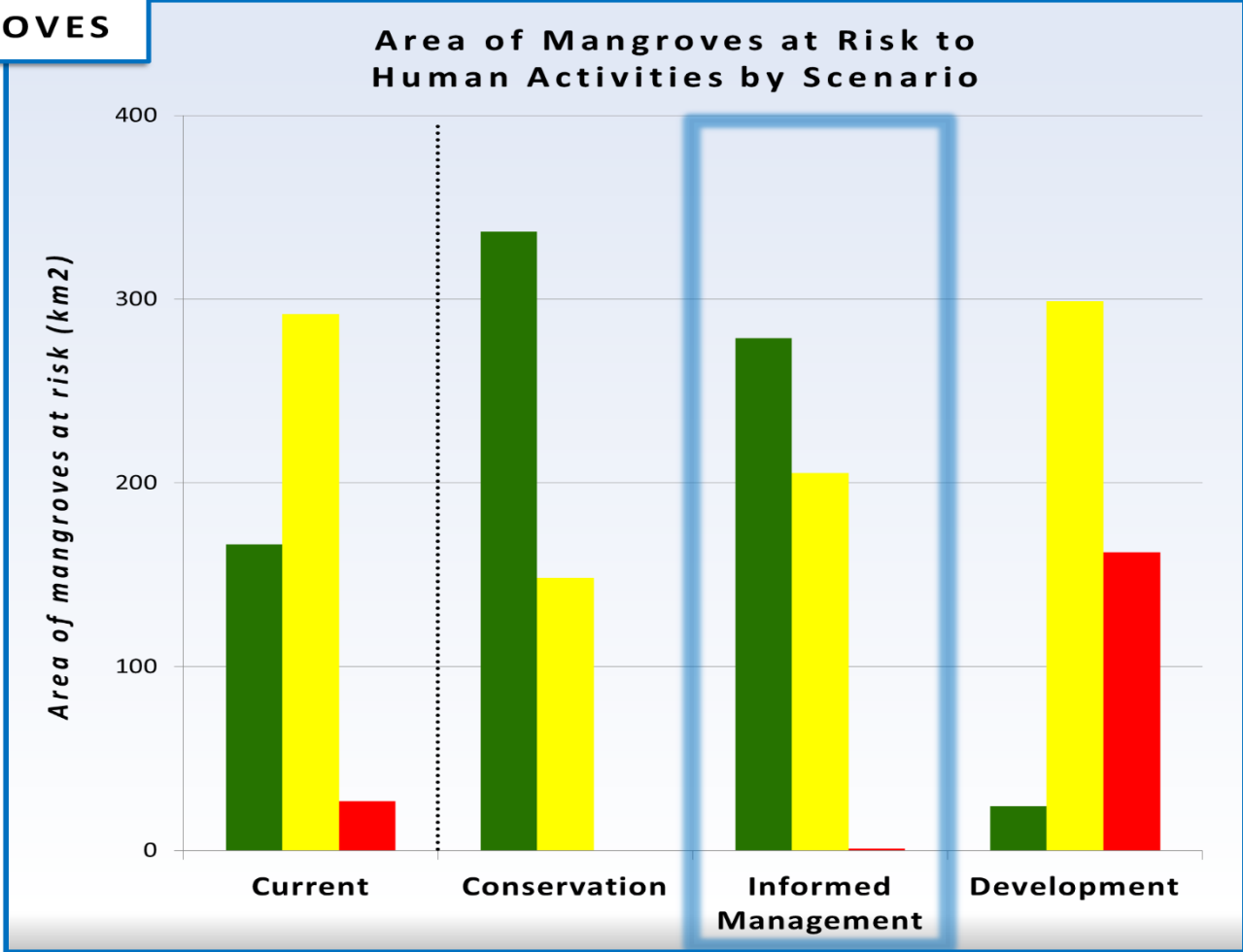
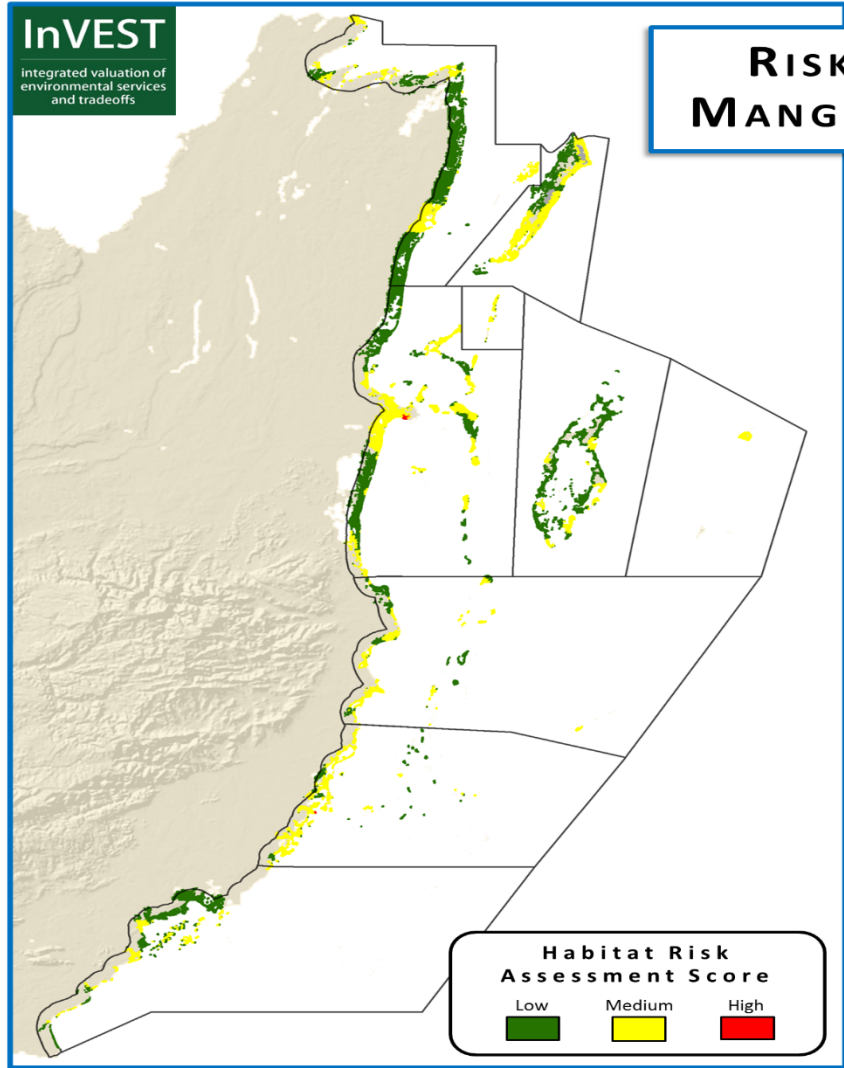
**Figure 5: Annual Visitation for Marine Tourism and Recreation by Scenario**



**Figure 6: Annual Expenditures for Marine Tourism and Recreation by Scenario**

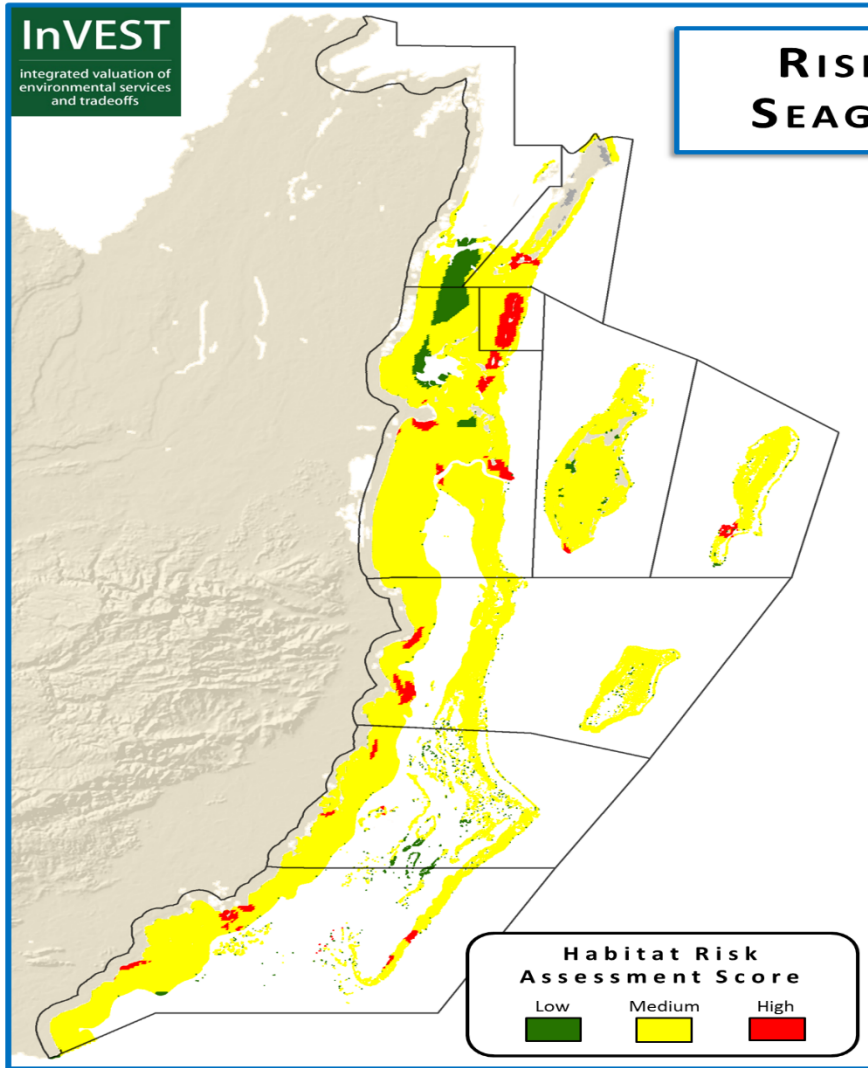


**Figure 7: Area of Corals at Risk from Human Activities by Scenario**

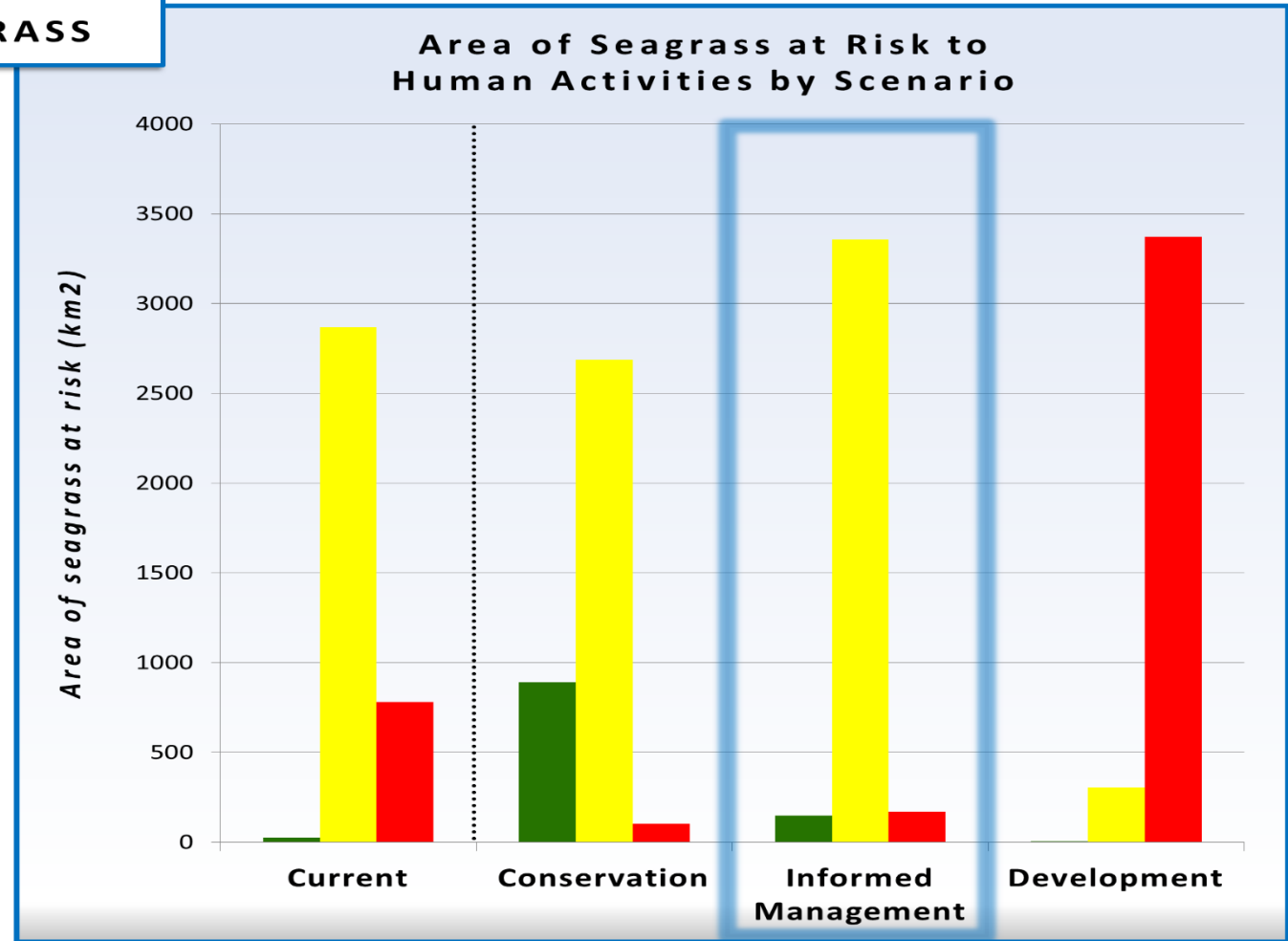


**INFORMED MANAGEMENT**

**Figure 8: Area of Mangroves at Risk from Human Activities by Scenario**



**INFORMED MANAGEMENT**



**Figure 9: Area of Seagrass at Risk from Human Activities by Scenario**