

February, 2011

Proposal for the Turneffe Atoll Marine Reserve

The stakeholders of Turneffe Atoll seek your support in designating Turneffe Atoll a multiple-use Marine Reserve. Active management of Turneffe Atoll has been discussed for at least two decades. For the first time, all stakeholder groups are unified in their desires to move forward by establishing a Turneffe Atoll Marine Reserve to implement the innovative programs developed by the Department of Fisheries for Belize's Marine Reserves.

Management planning for Turneffe has also been in process for several years and a great deal has been completed. With the declaration of the Turneffe Atoll Marine Reserve, a comprehensive and unified Site Management Plan can be in place within one year. Now is the time to move forward with a plan to manage Turneffe's significant ecological and economic value for Belizeans.

I. Background

Turneffe Atoll is the largest and most biologically diverse atoll in the Caribbean. Located 25 miles east of Belize City, it is approximately 30 miles in length and 10 miles wide. Turneffe is a self-contained coastal marine ecosystem made up of a complex pattern of coral reef, cayes, spits, channels and lagoons. The atoll has been a major fishing ground since the Mayan era and over the past 30 years it has become a popular tourism destination. Prior to 2000, most land on the atoll was owned by the Government of Belize but significant portions have been issued to private interests with development proceeding in an unplanned fashion over the past five to ten years.

The Government of Belize, and others, has long recognized that increasing development pressures may lead to conflicts between user rights and Turneffe's fragile coastal ecosystem. In the late 1980s and early 1990s, the Turneffe Islands Committee (TIC) was established to adjudicate between various conflicting claims. This resulted in informal land allotments for different uses including fishermen's camps, tourism areas, conservation areas, and general occupation parcels. Although a management plan was recommended, this process was never formally initiated and TIC ceased to exist by 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 & Fisheries, Natural Resources & Environment and Tourism. At that time, the University of Belize and Coral Cay Conservation Ltd (CCC) agreed to collaborate in forming the Marine Research Centre on Turneffe's Calabash Caye. The goal of the facility was to collect, analyze and synthesize biological data to support an integrated management plan for Turneffe. During this effort, UB & CCC identified over 400 marine species, some of which represented previously unrecorded and rarely encountered species (Raines and Gill, 1994). In 1996, John Gill *et al.* drafted the Turneffe Islands Development Guidelines (TIDG) with the aim of achieving true sustainable development for the atoll. This was done through an extensive study of the region and consultation with stakeholders by the UDP/GEF sponsored CZMP, which later became CZMAI.

Subsequently, the Government of Belize passed the Coastal Zone Management Act in 1998 calling for the development of a Coastal Zone Management Plan and Turneffe was formally proposed as an area in need of planning. The first phase of this plan, the National Integrated Coastal Zone Management Strategy for Belize, was passed into law in 2001 and the coastal area of Belize was divided into nine planning regions, including Turneffe Atoll. Each region was identified as having unique social, economic, geographical, and administrative factors.

From 2001 to 2003 the Turneffe Islands Coastal Advisory Committee (TICAC) met regularly to develop the Turneffe Islands Development Guidelines, 2003. TICAC was composed of Turneffe stakeholders, implementing governmental agencies and relevant non-governmental organizations. Comprehensive development guidelines were drafted including site-specific recommendations for development throughout the atoll, and the guidelines included a recommendation that the atoll be established as Belize's first Biosphere Reserve. Unfortunately, CZMAI fell on difficult times and these Guidelines were never enacted.

In October, 2010, the Turneffe Atoll Sustainability Council (TASC), consisting of all Turneffe Atoll stakeholders, was organized. The Turneffe Atoll Sustainability Council includes the commercial fishing sector represented by BFCA, tourism represented by all atolls resorts, the University of Belize's Environmental Research Institute, CZMAI, the Department of Fisheries, the Belize Coast Guard, Turneffe Atoll Trust and relevant NGO's. *The mission of TASC is "To establish the best form for managing Turneffe Atoll through a fully participatory process with all stakeholders leading to sustainable environmental and economic benefits for Belize."* TASC unanimously agrees that the preferred way forward for Turneffe Atoll is the establishment of a multiple-use Turneffe Atoll Marine Reserve.

II. Justification for the Turneffe Atoll Marine Reserve

As the largest and most biologically diverse atoll in the Caribbean, Turneffe is a jewel of the Mesoamerican reef system and it is in dire need of a comprehensive management structure. Turneffe encompasses all aspects of an intact coastal marine ecosystem including deep ocean, fringe reef, patch reef, back-reef flats, extensive sea grass beds, extensive mangrove stands, creeks, littoral forest and two large lagoon systems.

For decades, Turneffe has been one of Belize's largest producers of spiny lobster, conch and finfish and over the past thirty years the atoll has developed a healthy tourism industry focusing on high-end/low-impact tourism namely scuba diving, catch and release fly fishing and eco-tourism. Turneffe's commercial fishing and tourism provide significant employment for Belizeans and are important foreign exchange earners for Belize. Sustainable management of these resources is essential to ensuring jobs and providing continued foreign exchange.

With its diversity of coastal marine habitats, Turneffe is also an ideal location for coastal marine research. The University of Belize and its Environmental Research Institute lead the way with these efforts. Turneffe is home to populations of several threatened species including Antillean manatees, Hawksbill turtles, goliath groupers, Nassau grouper and American crocodiles; and it also supports large populations of bonefish, permit and tarpon making it one of only a few places in the world where fly fishing tourists can accomplish the coveted Grand Slam of flats fishing a bonefish, permit and tarpon all landed in one day. Six spawning aggregation sites are associated with Turneffe.

At present Turneffe Atoll remains the only substantial offshore location in Belize without meaningful management. Aside from two spawning aggregation sites designated as Marine Protected Areas, none of Turneffe enjoys any form of managed status. 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 priority. More recently, Turneffe Atoll was highlighted as a regional gap and priority in the Mesoamerican Reef Eco-regional Assessment conducted in 2008.

Due to its relative inaccessibility, Turneffe has avoided much of the development-related ecological damage seen along much of Belize's coastline until recently. The atoll remains vulnerable with several recent events pointing out the urgent need for action. For instance, dredging has recently devastated portions of Turneffe's world-famous back-reef flats and several large stands of mangroves have been destroyed for the sake of development. Without swift and decisive action these practices will likely escalate and will seriously compromise Turneffe's substantial ecological and economic value.

While there has been shared consensus for managing Turneffe Atoll for nearly three decades, all attempts to date have failed. This has largely been due to a lack of an organization to lead the way, and effective management of Turneffe requires an organization focused solely on Turneffe Atoll. For the first time, all relevant stakeholder groups and permitting agencies have come together to form such an organization aimed at comprehensively managing Turneffe through the establishment of a multiple-use Marine Reserve. In October 2010, stakeholders formed the Turneffe Atoll Sustainability Council (TASC) bringing all stakeholders together and to move this process forward. The purpose of TASC is to create a fully participatory bottom-up organization for developing a Turneffe Atoll Marine Reserve. All stakeholder groups are participating and there is consensus to proceed with a Marine Reserve.

Stakeholders actively participating in the Turneffe Atoll Sustainability Council (TASC) are;

- Commercial Fishermen: Belize Fishermen's Cooperative Association (BFCA)
- Tourism: The Ministry of Tourism and major Turneffe Atoll resorts
- Academia: Environmental Research Institute/University of Belize
- The Belize Coast Guard
- The Coastal Zone Management Authority and Institute (CZMAI)
- The Department of Fisheries
- Relevant NGO's: The Nature Conservancy, Oceana, APAMO, Wildlife Conservation Society, Environmental Defense Fund and the Healthy Reefs Initiative

The time is right as the members of TASC are poised to move forward with comprehensive management for Turneffe that ensures its valuable ecological assets are protected while promoting sustainable economic development. Much of what is needed for a Site Management Plan has been completed and TASC will continue to draw from the "Development Guidelines" drafted by the Turneffe Islands (Atoll) Coastal Advisory Committee which are currently being revised.

Effective enforcement of fisheries regulations is an essential aspect of managing Turneffe Atoll. The lack of enforcement is a significant issue throughout Belize's coastal zone and this is particularly apparent at Turneffe where practices such as illegal netting, poaching of protected aggregation sites and harvesting undersized conch and lobster are commonplace. Turneffe's commercial fishing community recognizes this as a major problem and they have approached Turneffe Atoll Trust and TASC for help in formulating a solution. TASC is working with the Department of Fisheries, BFCA and the Belize Coast Guard and others to solve institute an enforcement plan at Turneffe, and it is noteworthy that the three major resorts on Turneffe Atoll have already committed \$60,000 for this effort. Additionally, Turneffe Atoll Trust has also instituted long-term funding plans.

III. Proposed design for the “Turneffe Atoll Marine Reserve”

The proposed design has been structured based on the CZMAI coastal planning region for Turneffe for ease of reference to an already adopted and widely accepted region, especially since this marine managed area will compliment the work of the CZMAI and the implementation of the Turneffe Atoll Development Guidelines. The total area of the proposed marine managed area is **205,351 ha**. Open sea is classified as 30-200 m, mesopelagic/bathyal as 200-1000 m and bathyal as 1000-3000 m. The proposed boundaries include the entire Turneffe Atoll and its associated critical, important habitats: coral reefs, seagrass beds, mangroves, back reef flats, lagoons, creeks, littoral forest and other habitats within the atoll. This proposed design also includes the surrounding ocean ecosystems in recognition of their importance in the context of ocean connectivity for fish larvae and other important marine larvae.

Ecosystem Representation within the National Protected Areas System

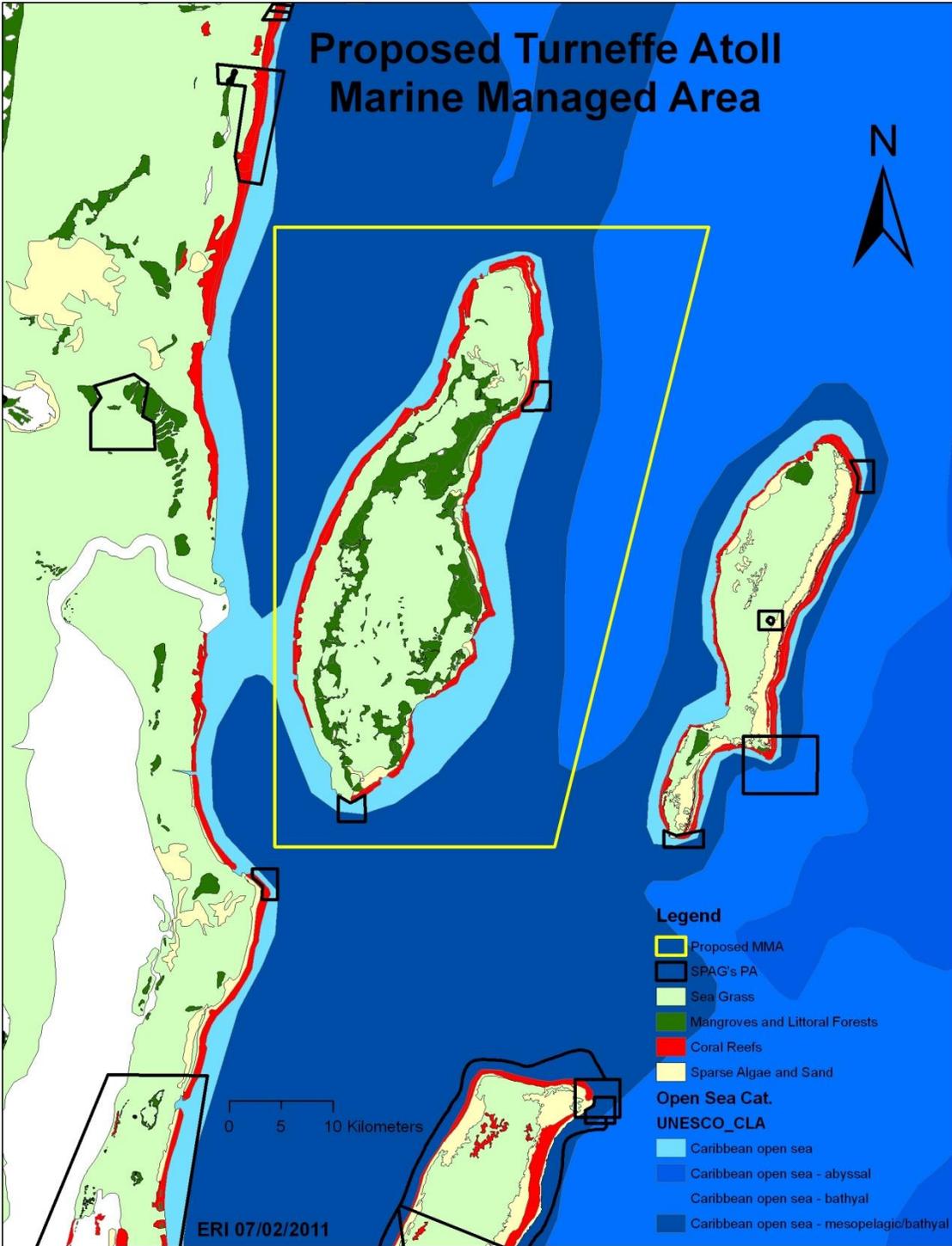
Based on the 2004 Ecosystems Map of Belize, the main ecosystems and their corresponding area within Turneffe were identified and mapped. Below is a breakdown of the area represented by each ecosystem within Turneffe and the corresponding percentage that each ecosystem contributes to the national target for the proposed design. Besides the representation of major ecosystem types, the Turneffe Atoll Marine Managed Area would also protect six SPAG sites, including two protected sites, 3 crocodile nesting areas, 8 sea turtle nesting sites, several bird nesting colonies, and resident dolphin and manatee populations. The proposed Turneffe protected area will form a significant contribution to the advancement of the NPASP targets for protected areas in all areas, particularly for seagrass, mangroves and oceanic ecosystems.

Unit (hectares)	Proposed MPA	NPASP target %	Current status %	% Turneffe representation	% Total MPA representation
pelagic (open ocean) *	25,320	30	0.5	0.9	1.4
mesopelagic/bathyal *	88,137		0.8	3.1	3.9
bathyal *	31,231		0.1	1.1	1.2
coral reef	6,909	30	40	15	55
Seagrass	40,982	30	15	10	25
mangrove & littoral forests	11,226	50	17	12	29
sparse algae	1,546	30	61	1	62
TOTAL AREA	205,351				

* Values for area for open ocean ecosystems derived by ERI based on defining polygons for each ocean type and the determining area.

Proposed boundaries

Proposed Turneffe Atoll Marine Managed Area



IV. Management Structure for the “Turneffe Atoll Marine Reserve”

Although the management of a multiple-use Turneffe Atoll Marine Reserve presents some challenges, the required structures are largely in place. Like Glover’s Reef Atoll, Turneffe is remote and a similar management structure, utilizing an advisory council rather than a co-management arrangement, appears preferable. The suggested framework envisions a partnership between the Fisheries Department and several key organizations based at Turneffe: the Belize Fisherman Cooperative Association, Turneffe Atoll Trust, the Belize Coast Guard and the University of Belize through their Environmental Research Institute.

Management responsibility for Turneffe Atoll lies with the Fisheries Department and we recommend the development of a Turneffe Atoll Advisory Committee (TAAC) be evolved from the existing Turneffe Atoll Sustainability Council (TASC) to provide oversight and guidance for on-site management of the Marine Reserve. Following the Glover’s Reef Marine Reserve model, which is working successfully, the advisory committee will be strengthened through the signing of Stakeholder Agreements with the Fisheries Department. Proposed membership of the committee is presented below and includes all major stakeholder groups within Turneffe Atoll.

- Three representatives from the umbrella fishing cooperative association: the Belize Fishermen’s Cooperative Association (BFCA)
- One representative from the Fisheries Department
- Two representatives from Turneffe’s tourism sector
- One private landowner representative
- One representative from the Environmental Research Institute/Calabash Caye Field Station
- One representative from the Belize Tourism Board
- One representative from the Turneffe Atoll Trust
- One representative from APAMO
- One representative from the Belize Coast Guard
- One representative from the Coastal Zone Management Authority and Institute (CZMAI)
- One representatives from international NGOs

The Turneffe Atoll Advisory Committee, like all MPA advisory committees, will be responsible for making recommendations regarding the development of policies and regulations on issues that affect the management of the Turneffe Atoll Marine Reserve. These responsibilities will include:

- Regular review and revision of the management plan.
- Recommendations on policies, legislation and regulation governing the Turneffe Atoll Marine Reserve
- Monitoring of development activities ensuring that proper legal procedures are followed
- Oversight and advice on management issues, which may include requiring applications for permits to the Turneffe Atoll Advisory Committee (TACAC) of the CZMAI for development within the Atoll.
- Oversight of enforcement programmes.
- Providing assistance in the development of sustainable financing mechanisms for the Marine Reserve.
- Recommendations on public relations and education about Turneffe Atoll.
- Recommendations for approval of applications for research within the Marine Reserve
- Recommendations regarding development on the atoll
- Recommendations regarding zonation of the atoll

TAAC and its membership would support the Fisheries Department in several key areas including: patrolling and enforcement, research and monitoring, and educational outreach through memoranda' of understanding or partnership agreements:

- Turneffe Atoll Trust – Funding, monitoring, enforcement and educational outreach
- Tourism Operators – Assisting with monitoring and enforcement, logistics
- Belize Coast Guard – Enforcement, housing and logistical support
- Belize Fisherman Cooperative Association – Monitoring and enforcement
- Environmental Research Institute, University of Belize – Scientific research, monitoring and educational outreach

The combined efforts of the Turneffe Atoll Advisory Committee and the Turneffe partner organizations ensure a successful, multi-stakeholder participatory management framework for the Turneffe Atoll Marine Reserve.

V. Planning Process for the Marine Reserve

The development of a comprehensive management plan is a key component in developing the Turneffe Atoll Marine Reserve and much of this has already been completed. The Turneffe Atoll Coastal Advisory Committee (TICAC/now TACAC) produced Development Guidelines in 2003 which are currently being updated; and the Turneffe Atoll Sustainability Council (TASC), which represents all stakeholder groups of Turneffe, has been addressing related matters for the past several months. TASC and TACAC will continue to guide the maturation of the management plan following the declaration of the Turneffe Atoll Marine Reserve and we anticipate that a comprehensive and unified Site Management Plan can be in place within six to nine months following the establishment of the Reserve.

TASC members will provide the human and financial resources needed to compile, organize and present the information necessary for the Management Plan. The process will include stakeholder consultations to ensure that all stakeholder interests are fully addressed. Additional studies and consultations will be carried out as needed including a land tenure analysis and an analysis of the socio-economic benefits of sustainable fishing and tourism industries at Turneffe.

Concurrently, members of the TASC will implement educational and outreach program for stakeholders on the fragility of the atoll's natural systems highlighting the benefits of the Marine Reserve. This will be accomplished through a series of presentations at stakeholder meetings and the Conservation Action Planning process, which has been used for a wide range of projects all over the world (including Belize). A unified stakeholder vision will be further refined insuring the conservation of Turneffe's valuable natural resources while pursuing sustainable economic development through its fishing and tourism industries.

An important aspect of the plan will be improved enforcement of fisheries regulations. This is of significant interest to both Turneffe's commercial fishermen and the tourism sector. Plans for comprehensive monitoring and enforcement at Turneffe are well on their way to being completed with all relevant parties working to make this happen. To date, \$60,000 in private monies has been committed to this effort and the establishment of a Turneffe Marine Reserve will make further funding available.

Sustaining the Turneffe Atoll Marine Reserve will require ongoing revenues. Following the established of the Marine Reserve, Turneffe Atoll Trust and others anticipate raising the necessary funds to sustain the Reserve. A

plan to systematically monitor and evaluate the actions of the Advisory Committee will provide the necessary insight for adaptive management

This process will compliment the ongoing work of the National Protected Areas Secretariat in filling the national GAP for Belize and also supplement and strengthen the ongoing coastal zone and marine spatial planning that the Coastal Zone Management Authority and Institute is undertaking and ensure a more robust marine protected areas system for Belize.

Finally, a Marine Reserve, with a comprehensive Site Management Plan, will serve as the basis for establishing Belize's first Biosphere Reserve at Turneffe Atoll. UNESCO representatives visited Belize in November 2010 as part of an effort to encourage CARICOM members to support the Biosphere Reserve concept. During their stay in Belize, Turneffe Atoll Trust facilitated a visit for the UNESCO dignitaries to Turneffe Atoll, the only potential Biosphere site they visited in Belize.

VI. Timeline for developing the Turneffe Atoll Marine Reserve

January 2011:

Turneffe Atoll Sustainability Council (TASC) will write a Position Paper outlining the process for forming the Turneffe Atoll Marine Reserve.

February 2011

TASC will finalize its Position Paper and decide protocols for moving the process forward.

February & March 2011

Endorsements for TASC's plan will be solicited and hopefully obtained from the Department of Fisheries, CZMAI, National Protected Area Secretariat (NPAS), BFCA, ERI, key tourism operators and the Belize Coast Guard.

April 2011

A group will be formed by Fisheries and TASC to approach the Minister of Agriculture and Fisheries, and to facilitate the required political support for a Marine Reserve.

April 2011 – October 2011:

The Turneffe Atoll Site Management Plan will be developed.

Endorsements for a Turneffe Atoll Marine Reserve

Coastal Zone Management Institute and Authority
University of Belize Environmental Research Institute
Turneffe Atoll Trust
Turneffe Island Resort
Turneffe Flats
Blackbird Caye Resort
The Nature Conservancy
Environmental Defense Fund
APAMO
Oceanic Society
Healthy Reefs Initiative
UNESCO
Green Reef
Oceana
Wildlife Conservation Society
World Wildlife Fund
BTB