



Highlighting 20 years of World Heritage designation, BBRRS: Working toward better monitoring, management, and awareness

Terms of Reference

Consultancy to conduct an assessment of the total mangrove and littoral forest cover within the Belize Barrier Reef Reserve System (BBRRS)- World Heritage Site

1. Introduction and Background Information

The Belize Audubon Society (BAS) formed in 1969, is a non-governmental, membership organization dedicated to the sustainable management of our natural resources through leadership and strategic partnerships with stakeholders in order to create a balance between people and the environment.

The Belize Tourism Industry Association (BTIA) was formed April 26, 1985 as a broad-based tourism umbrella organization. The BTIA seeks to bring together tourism related interests to meet the challenges of a dynamic and growing tourism industry in Belize. The Association's mission is to develop a robust and professional membership association which promotes, advocates and represents the interests of its members for the benefit and sustainable development of the tourism industry

The BAS and the BTIA have received funding from the Global Environment Facility Small Grants Programme (GEF-SGP) to implement the project entitled “Highlighting 20 years of World Heritage designation, BBRRS: Working toward better monitoring, management, and awareness”.

Although mangrove ecosystems provide a range of services, they are endangered throughout the world, and need large scale monitoring (ERI 2010, Giri et al. 2010, TNC 2010)¹. Littoral forests are just as important in providing ecosystem services and are also under grave threat as more coastal areas and cayes are being deforested for development. As it relates to the protected areas within the BBRS-WHS, the reality is the same; however, current baseline data is lacking that shows the amount of forest cover we have lost and the actual status of the remaining standing littoral and mangrove forests. As a result, it limits the protected areas managers' understanding of

¹ Validation of the 2010 Belize Mangrove Cover Map, Environmental Research Institute- University of Belize

the biodiversity and ecosystem functions and ability to make informed management decisions.

The overall project impact objective is to improve conservation and sustainable use, and management of important terrestrial and coastal/marine ecosystems through implementation of community based landscape/seascape approaches in approximately 50 countries; which is aligned with the goals of GEF-SGP in supporting Community Landscape and Seascape Conservation.

1.1 Leading Organization

The consultancy will be overseen by the Belize Audubon Society. The BAS will provide the consultant with necessary information in an effort to carry out the consultancy efficiently and effectively. The primary contact person at Belize Audubon Society will be the Marine Protected Areas Manager who will work closely with the consultant throughout the consultancy period. For further information or clarification please contact Shane Young: marineparks@belizeaudubon.org.

Throughout the consultancy, the consultant is to meet with BAS to identify stakeholders during the initial phase of the consultancy, and to clarify expected outputs and guide the work plan/implementation plan.

1.2 Beneficiary Site

The Belize Barrier Reef Reserve System, Belize's only UNESCO World Heritage Site.

1.3 Site Background

The Belize Barrier Reef Reserve System (BBRRS), inscribed as a UNESCO World Heritage Site in 1996, is comprised of seven protected areas; Bacalar Chico National Park and Marine Reserve, Blue Hole Natural Monument, Half Moon Caye Natural Monument, South Water Caye Marine Reserve, Glover's Reef Marine Reserve, Laughing Bird Caye National Park and Sapodilla Cayes Marine Reserve. As the largest reef complex in the Atlantic-Caribbean region it represents the second largest reef system in the world. The seven protected areas that constitute the BBRRS comprise 12% of the entire Reef Complex. The property provides important habitat for a number of threatened marine species, harbouring a number of species of conservation concern including the West Indian manatee (*Trichechus manatus*), green turtle (*Chelonia mydas*), hawksbill turtle (*Eretmochelys imbricata*), loggerhead turtle (*Caretta caretta*), and the American crocodile (*Crocodylus acutus*), as well as resident and migratory birds which use the littoral forests of cayes, atolls and coastal areas. Major bird colonies include the red-footed booby (*Sula sula*) on Half-Moon Caye, brown booby (*Sula leucogaster*) on Man O'War Caye and the brown noddy (*Anous stolidus*) on Glover's Reef. Approximately 247 taxa of marine

flora have been described within the complex and over 500 fish, 65 scleritian coral, 45 hydroid and 350 mollusc species have also been identified, in addition to a great diversity of sponges, marine worms and crustaceans (<http://whc.unesco.org/en/list/764>)

2. Purpose of consultancy

The primary objective of this consultancy aims to contribute to the achievement of one of the project's main components: "Establish an updated baseline for mangrove and littoral forest cover within the BBRRS-WHS to facilitate future monitoring".

3. Scope of Work

The specific activities under this consultancy are:

1. Conduct mapping of mangrove and littoral forest cover within the BBRRS-WHS, differentiated by vegetative classification type.
2. Identify areas of change (i.e. loss, colonization and regeneration) in mangrove ecosystems since 2009/2010, and validate results against historical data including the technical report; 'Validation of the 2010 Belize Mangrove Cover Map', *Environmental Research Institute- University of Belize*
3. Identify mangrove areas potentially at risk of being cleared.
4. Assess mangrove connectivity for the period requested (2009 to present).
5. Make data available in varied formats, particularly GIS layers, maps and tabular formats.
6. Design a simplified methodology for continued assessments of mangrove and littoral forests cover that can be replicated across other sites in Belize.
7. Produce a technical report on the findings from the assessment of the mangrove and littoral forest cover within the WHS-BBRRS.

4. Deliverables

A draft and a final Technical report on the findings from the assessment of the mangrove and littoral forest cover within the BBRRS-WHS; complete with (qualitative & quantitative data, digitized geo reference image relevant to attributes and metadata).

4.1 Submission requirements

All interim and final documentation resulting from this consultancy shall be prepared in English and formatted in Microsoft Word and in the form of digital and hard copies. All geo referenced images produced shall be in the form of Arc GIS shape files usable for spatial analysis and mapping. The final version of the project report should be entitled “**Assessment of mangrove and littoral forest cover within the BBRRS-WHS**”. The project report and supporting materials shall be submitted in three hard copies and a digital copy to the Protected Areas Manager/Project Manager.

5. Qualifications and Experience

- Minimum Bachelors Degree in Geography, Natural Resources Management, Environmental Science, or related field.
- Experience in remote sensing and mapping using satellite imagery and other advanced tools such as Arc GIS
- Experience in mangrove and littoral forest identification.
- Knowledge about Belize's World Heritage Site-Belize Barrier Reef Reserve System (both landscape and seascape)

6. Timeframe

It is expected that the consultancy will commence June 16th, 2017 and completed by September 15th, 2017.

Submission of Bids

Interested applicants can access a detail Terms of Reference from Belize Audubon Society Webpage at www.belizeaudubon.org, Bids shall be sent via email to marineparks@belizeaudubon.org no later than June 9th, 2017