

Proposal to ICRI Small-scale Development Projects

Monitoring of Status of coral reefs in the Portland Bight Protected Area (PBPA) of Jamaica

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Background

The Caribbean Coastal Data Centre (CCDC), Centre for Marine Sciences, University of the West Indies, through partnership with the International Coral Reef Action Network (ICRAN) project of UNEP's Caribbean Environment Programme (CEP) is coordinating of the Northern Caribbean and Atlantic node of the Global Coral Reef Monitoring Network (GCRMN). The Northern Caribbean and Atlantic node is comprised of eight countries: The Bahamas, Bermuda, Cayman Islands, Cuba, Dominican Republic, Haiti, Jamaica, and the Turks and Caicos Islands. CCDC aims to increase the level of collaboration among institutions and countries within the node involved in monitoring, as well as to assist in improving the sub-regional capacity for assessing reef health in the long-term and providing appropriate management solutions.

In an effort to improve coral reef monitoring in Jamaica, the CCDC spearheaded the formation of the Jamaica Coral Reef Monitoring Network (JCRMN) through an inaugural meeting at the Discovery Bay Marine Laboratory (DBML) on June 27, 2003. Seventeen individuals representing 12 institutions and organizations involved in coral reef monitoring, research or management in Jamaica, shared on the development of an organized approach to monitoring of coral reefs and related ecosystems in Jamaica. The newly established group agreed that the reefs on the south coast of Jamaica required priority attention as these reefs, for the most part, had not been surveyed and accounted for the major gaps in data and information on Jamaica's coral reefs. An e-group allows for information sharing and interchange among members of the network.

Reef Check Training

Reef Check training workshops have been organized by the CCDC under the umbrella of JCRMN. The first was conducted in Negril during September 5-7, 2003. Seventeen individuals were trained, while valuable data on coral cover, invertebrate and fish density were collected in the Negril Marine Park. Another workshop will be conducted November 1 in the Port Royal Cays and 12 persons will be trained. These individuals represent an important and valuable resource of trained volunteers capable of conducting coral reef surveys. The major area of focus of the JCRMN is monitoring of the Portland Bight Protected Area (PBPA), Jamaica's newest protected area located on the south coast.

The Portland Bight Protected Area (PBPA)

Portland Bight Protected Area (PBPA) was declared by Jamaica's Minister of Environment and Housing on Earth Day, April 22, 1999. It is Jamaica's largest protected area at 1,876 sq. kilometres (724 sq. miles). Its 520 sq. km (200 sq. miles) terrestrial area is 4.7% of Jamaica's land mass, and its 1,356 sq km (524 sq miles) of marine space is 47.6% of her shallow shelf. The PBPA contains 210 sq km (81 sq miles) of dry limestone forest, 82 sq km (32 sq miles) of wetlands, and an as yet undetermined area of seagrass beds and coral reefs. It is habitat for

birds, iguanas, crocodiles, manatees, marine turtles, and fish. The marine and estuarine habitats within the PBPA are home to a wide range of native and migrant wildlife. Some of the native wildlife are endemic to Jamaica, and some are found only in Portland Bight. Portland Bight has the largest remaining mangrove system in Jamaica (The Great Salt Pond, Galleon Harbour, West Harbour, the Goat Islands and almost all areas between), which, together with extensive sea-grass beds and coral reefs, provides probably the largest nursery area for fish, crustaceans and molluscs on the island.

PBPA Marine Area

The PBPA Marine Area encompasses about a half of Jamaica's island shelf and includes critical fishery and marine resources. Within the marine area lie extensive coral reefs associated with 16 coral cays and fringing the island shelf. The coral cays, most with vegetation, and all surrounded by sandy beaches, include Barebush Cay, Little Half-Moon-Cay, Big Half-Moon Cay, Big and Little Portland Cay, Pigeon Island, Big and Little Pelican Cay, Sand Bank Cay, Rock Cay, Tern Cay (Needles), The Twin Cays, Sandy Cay and Careening Cay. Snorkeling assessments of the reefs a few years ago indicated that some are heavily impacted by land-based nutrient pollution and sedimentation as well as the lack of herbivorous fish and echinoids while others are in reasonably good condition. The general belief is that those closest to Kingston Harbour and the Rio Cobre River appear to be most affected with high algal growth.

The ICRI Framework for Action considers maintaining the biological diversity, condition, resources, and values of coral reefs and related ecosystems a matter of global urgency. Small Island Developing States (SIDS) such as Jamaica depend upon coral reef and related ecosystems resources for food, employment and as the foundation of the tourism industry, the main income earner for the majority of the countries of the Caribbean region.

Jamaica's coral reef resources, particularly on the north coast where the island shelf is very narrow, have been impacted by human activities such as over-fishing, pollution and sedimentation from land-based sources. With the exception of the reefs of Port Royal, much less is known about the reefs of the south coast where the island shelf is much wider and where distance from shore limit accessibility. Off shore cays and banks such as the Morant Cays and Pedro Bank are even less accessible.

Caribbean Coastal Area Management Foundation (CCAM)

The CCAM is a non-profit environment and development NGO formally incorporated on August 18, 1998. CCAM has been given management control of the PBPA by the National Environment and Planning Agency (NEPA), the government's environmental agency, and is dedicated to the effective management and sustainable use of the natural resources of the PBPA by and for the residents of the area. The organization promotes the management of the resources in the project area as a joint effort of the resource users and the Government of Jamaica. This co-management arrangement enhances community democracy and empowerment, while acknowledging the duty of the state to be involved in the process.

The Project:

The CCDC in collaboration with the JCRMN and CCAM seeks funding to initiate development of a monitoring program for the PBPA. The coral reef ecosystem surveys will be conducted over a 12-month period. The inaccessible nature of the reefs may require spending days on the cays or where this is impractical, staying in coastal towns nearby. Survey teams would comprise four 4-man teams of divers, drawn from the cadre of volunteer divers trained in the Reef Check technique through the CCDC/JCRMN partnership. The project would address the following elements of the ICRI Call to Action: research and monitoring, management, capacity building and review.

Resource Assessment, Monitoring and Research

One of the primary objectives of the project would be the assessment, through a series of monitoring surveys, of the coral reef resources of the PBPA. Because of number of reef sites associated with numerous cays and the island shelf, it is envisaged that the surveys would be conducted over a one-year period. Data from the surveys would allow assessment of:

- Coral reef health through the relative abundance of hard and soft coral, sponges and other benthic substrates
- Hard coral species composition and diversity at the different locations
- Densities of key invertebrates such as diadema and important fish species
- Densities of other motile reef organisms such as lobster, conch and shrimp
- Identification of spawning aggregation sites and timings of key species, where possible

Apart from increasing knowledge on the status of the resources of the PBPA, the data and information generated from the surveys would be used to inform management of the resources.

Management and Review

The Caribbean Coastal Data Centre (CCDC) will provide data management support and prepare relevant reports from the datasets. The data and information will be used to inform decision-making. A management plan for the PBPA, developed by CCAM, includes a number of strategies to reduce or mitigate impacts on the resources. Data and information from the monitoring surveys can be used to modify the plan with regard to use by stakeholders including fishermen and recreational users. Strategies may include zoning of high impact areas, or the creation of no-take zones/sanctuaries where necessary. These strategies could be adjusted based on data/information inputs thus creating flexibility in the plan and ensuring that the most vulnerable and sensitive areas, such as turtle nesting grounds, areas with high coral species diversity or spawning aggregations are protected.

The data will also form a baseline for comparison with data collected from future surveys, indicating whether the status of coral reefs is improving. Over the long term, the data and information can be used to evaluate the effectiveness of the management plans and encourage appropriate responses aimed at addressing perceived shortfalls in the plan.

Reporting and Education

The data will be processed by the CCDC and used to prepare the various reports outlined in the work plan. These reports will cover details of the survey methods and results as outlined in the Resource Assessment, Monitoring and Research. The datasets will be submitted to the global coral data repository of Reef Check where it will add to the information on the status of reefs in Jamaica. Information from the datasets will also be submitted to the National Environment and Planning Agency (NEPA) to assist in the preparation of the annual Status of the Environment Report. Additionally, the work done at Portland Bight could be made public through various posters.

Sustainability and Capacity Building

The project will involve partnerships between a number of organizations including:

- The CCDC, Centre for Marine Sciences, University of the West Indies will provide project coordination and data management support.

- JCRMN - Trained volunteers in Reef Check, including CCAM personnel, will conduct surveys, providing more than 500 man-hours of dives over the 12-month period.
- CCAM through collaboration with various companies, organizations and individuals, some with direct involvement in the PBPA will benefit from concessionary rates for boats and accommodation facilities necessary to conduct surveys.
- Acquisition of a portable compressor for air fills will support extended monitoring activities at the remote PBPA locations.

Deliverables

- Data on the status of hard and soft corals, fish and invertebrate from reef sites of PBPA.
- Submission of the data to Reef Check
- Submission of the summaries to Reef Base
- Interim reports on the status of the reefs based on data collected in the PBPA
- Final report incorporating all datasets.

Work Plan

Tasks and Activities	Start Date	End Date
4-day survey of cays	April 15, 2004	April 18, 2004
Data processing & Interim report on status of reefs Submission of data to Reef Check		May 31, 2004
4-day survey of cays	October 15, 2004	October 18, 2004
Data processing & Interim report on status of reefs Submission of data to Reef Check		November 30, 2004
4-day survey of cays	December 5, 2004	December 8, 2004
Data processing & Interim report on status of reefs Submission of data to Reef Check		January 31, 2005
4-day survey of cays	February, 10, 2005	February 13, 2005
Data processing & Interim report on status of reefs Submission of data to Reef Check		March 31, 2005
Final Report on status of reefs		March 31, 2005

Budget: April 2004 - 2005

Tasks and Activities	Cost	Subtotal US\$
Acquisition of Portable Compressor	US\$8,000 each	8000
Miscellaneous survey material		
Fibre-glass measuring tapes etc. 4 @ US\$100/tape		400
Under-water paper 2 @ US\$50/tape		100
4 - day Survey of coral reefs	Rental of 2 Boats @US\$250/boat/day	2000
	Accommodation and food for 25 persons @ US\$10/person/day	1000
	Fuel for boats US\$100/day/boat	800
4 - day Survey of coral reefs	Rental of 2 Boats @US\$250/boat/day	2000
	Accommodation and food for 25 persons @ US\$10/person/day	1000
	Fuel for boats US\$100/day/boat	800
4 - day Survey of coral reefs	Rental of 2 Boats @US\$250/boat/day	2000
	Accommodation and food for 25 persons @ US\$10/person/day	1000
	Fuel for boats US\$100/day/boat	800
4 - day Survey of coral reefs	Rental of 2 Boats @US\$250/boat/day	2000
	Accommodation and food for 25 persons @ US\$10/person/day	1000
	Fuel for boats US\$100/day/boat	800
Contingency		2000
	<u>Grand Total \$US</u>	<u>25700</u>

Funding for additional surveys

The funding being sought specifically will initiate a monitoring programme for the coral reef resources of the PBPA. CCAM has signed a Memorandum of Understanding with the Caribbean Coastal Marine Productivity (CARICOMP) Program, coordinated through the CCDC, to measure productivity of coral reefs, seagrass beds and mangrove forests. Additional funding will be sought to assist in developing these CARICOMP surveys. Additionally, more detailed assessment of specific coral cays may be conducted. The marine area of the PBPA is quite extensive and very little assessment has been done to date. Efforts will be made, by continued collaboration with CCAM, to reduce overlap of projects and ensure efficient and effective use of individual project funds.