



SAM / MBRS



CONSERVATION AND SUSTAINABLE USE OF THE MESOAMERICAN BARRIER REEF SYSTEMS PROJECT (MBRS)

TECHNICAL AND FINANCIAL PROGRESS REPORT

REPORT No. 3
Reporting Period: July – December 2002
(Revised for Web Publishing)

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**COMISION
CENTROAMERICANA
DE AMBIENTE
Y-DESARROLLO**

MEMORANDUM OF TRANSMISSION FROM THE REGIONAL COORDINATOR

TO: Executive Secretary and Director General of Environment, CCAD-SICA
Project Manager, World Bank
MBRS National Coordinator, Belize
MBRS National Coordinator, Guatemala
MBRS National Coordinator, Honduras
MBRS National Coordinator, Mexico

FROM: Noel D. Jacobs
Regional Project Coordinator

SUBJECT: Conservation and Sustainable Use of the Mesoamerican Barrier Reef System (MBRS) in
Belize, Guatemala, Honduras and Mexico
Project No: GE-P053349 TF: 027739
Third Technical and Financial Report: July 1 – December 31, 2002

DATE: January 31, 2003

Attached please find the Third Technical and Financial Report on the MBRS Project for the period July 1-December 31, 2002. This report reflects advances in the implementation of the Annual Work Plan and the budget approved for the period of July 1, 2002 to June 30, 2003.

We will be pleased to answer any questions and/or comments regarding the contents of this third technical and financial report on advances in the MBRS Project.

List of Acronyms

AWP	Annual Work Plan
BEMAMCCOR	Belize-Mexico Alliance for the Management of Coastal Resources
CCAD	<i>Comisión Centroamericana de Ambiente y Desarrollo</i>
CICESE	<i>Centro de Investigación Científica y de Estudios Superiores de Ensenada</i>
CINVESTAV	<i>Centro de Investigación y de Estudios Avanzados del IPN</i>
CZMA/I	Coastal Zone Management Authority and Institute
GEF	Global Environmental Facility
ICRI	International Coral Reef Initiative
INWEH	International Network for Water, Environment and Health
IUCN	International Union for the Conservation of Nature
MBC	Mesoamerican Biological Corridors' Project
MBRS	Mesoamerican Barrier Reef Systems Project
MOU	Memorandum of Understanding
MPA	Marine Protected Area
NCORE	National Center for Caribbean Coral Reef Research
PCU	Project Coordinating Unit
PDF	Project Development Fund
PROARCA	<i>Proyecto Ambiental Regional para Centroamérica</i>
PY	Project Year
REIS	Regional Environmental Information System
RSC	Regional Steering Committee
SEMARNAT	<i>Secretaría de Medio Ambiente y Recursos Naturales</i>
SMP	Synoptic Monitoring Program
TNC	The Nature Conservancy
TORs	Terms of Reference
TRIGOH	Tri-national Alliance of the Gulf of Honduras
TWGs	Technical Working Groups
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
WRI	World Resources Institute
WWF	World Wildlife Fund
WWF-CA	World Wildlife Fund for Nature, Central America Office

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1.0. Executive Summary

During the July-December 2002 period, project implementation was characterized by intensive activity in an effort to recover lost time while waiting for the Project to be declared effective. Although a demanding amount of time and effort was required, both the PCU and countries demonstrated a high level of commitment toward meeting Project goals.

Seven courses were given over a six-month period, training over 110 people. Topics included techniques for monitoring fishing, training for press officers of the environment ministries, design of management plans for marine protected areas (MPAs), regional fisheries co-management, synoptic monitoring methodologies and a regional forum on sustainable tourism.

Preliminary design of the Regional Environmental Information System (REIS) has been finalized, along with a draft of the Manual on Synoptic Monitoring Methodologies in the MBRS region. Training manuals have been produced for each course described in the previous paragraph. The baseline to measure the effectiveness of protected area management has been completed, and will be published in the near future. Recommendations for monitoring fish aggregations and the preliminary version of a regional map on aggregation sites have also been produced. Some of these reports are already posted on the project web site, and the others will be posted shortly. The final draft of the strategy for the public awareness campaign has been submitted, and material has been produced and distributed for use in project training courses, including 5,000 educational rulers, 1,000 leaflets, 900 posters and 1,000 folders.

Project administration experienced several important challenges during this report period, with the two most important being 1) the need to request and negotiate a significant change in procurement methodology and 2) the World Bank monitoring and evaluation mission in November 2002, with resolutions in favor of the Project in both cases. Mention should be made, however, of the World Bank's insistence that training courses satisfy predetermined percentages regarding indigenous groups. Cooperation agreements were signed with two international institutions during the period.

2.0 Implementation of Project Components

2.1. Component I: Marine Protected Areas

2.1.1. Planning, Management and Monitoring

2.1.2. Institutional Strengthening

Component No. 1: Marine Protected Areas: Budget Analysis

Budget approved for the July 2002 to June 2003 period: US\$816,174.00

Budget executed as of December 31, 2002: US\$60,903.00

Percent budget executed as of December 31, 2002: 7.46%

Summary of the Component:

Continued degradation of coastal marine systems creates an immediate need to establish marine protected areas and reserves as powerful instruments for reconciling resource protection with economic development and sustainable fish harvests, given that dynamic exchange of organisms between marine reserves and unprotected areas provides many benefits.

The area of influence of the MBRS Project contains more than 60 officially declared MPAs. Nonetheless, country governments have prioritized 15 of these for support during the first phase of the Project, based on their connectivity and transboundary location.

In this sense, the fundamental objectives of this component are the following:

- Directly strengthen processes of planning, management, and monitoring of the 15 priority MPAs in the range of influence of the MBRS Project to increase the sustainability of efforts to conserve coastal and marine ecosystems
- Support institutional capacity-building of government agencies and nongovernmental organizations responsible for management of these MPAs, through training courses and workshops for personnel

This third semi-annual report covers activities to achieve the above objectives, as approved by the Regional Steering Committee in June 2002, and implemented during the first half of year 2 of the project (July to December 2002.)

Achievements to Date

2.1.1. Planning, Management and Monitoring

The most notable achievements in this component during the reporting period are summarized below:

1. The second progress report was drafted for the January-June 2002 period, making it possible to verify advances in relation to the Annual Work Plan and thus strengthen activities that have not been carried out.
2. Ongoing communication was established with the INWEH/CZMAI/CINVESTAV consortium expert in charge of designing the methodology to establish the baseline for monitoring effectiveness of MPA management.

During the six months, reports were requested on research progress, comments were made on the reports, and authorization was granted to a request for a no-cost extension of time for submitting the final report.

As a consequence, the final report was presented on December 13, 2002, and is now undergoing review. The report identifies the current situation of the 15 priority MPAs in the MBRS and makes recommendations for a program to monitor management effectiveness starting as of the next semester.

3. Follow-up was given on the workshop to update the management plan of the Sapodilla Cayes Marine Reserve and the first consultation for broadening it to a master plan. The final version of the report contained recommendations regarding terms of reference for the specialist in master plans, who must be contracted during this second year of the project. The process will culminate in four master management plans for four transboundary MPAs.
4. The Secretary General of the Trinational Alliance of the Gulf of Honduras (TRIGOH) requested the organization of the second meeting of the Transboundary Parks Commission of the Southern Region of the MBRS Project. Coordination was subsequently provided regarding the venue, invitations, protocol, meeting structure, expected results, materials and logistics. The meeting took place on November 6 and 7, 2002, in San Pedro Sula, Honduras.

Meeting results were presented in December of that year, along with recommendations on marine protected areas, tourism and fishing in the Gulf of Honduras, produced during the meeting and now undergoing review. Currently we have recommendations generated from two meetings of the Southern Transboundary Commission, thus making it possible to continue transforming them into regional policy proposals for adoption by the Council of Ministers of CCAD.

5. Concerning support for infrastructure in transboundary MPAs, terms of reference were prepared for contracting an architect to design the multi-purpose center, including a visitor center, rooms for park rangers, administrative center, warehouse, rooms for visitors and sanitary services.

Applications were evaluated and narrowed down to three persons, who were asked to present financial and technical proposals. Currently we are in the process of coming to an agreement with the finalists regarding their proposals. The start of design and construction is expected for the end of March 2003, and should be concluded according to schedule. Most importantly, the four transboundary MPAs will have the adequate infrastructure necessary for implementing their respective management plans.

6. Together with the Procurement Specialist for the MBRS Project, lists were prepared of the equipment and materials to be acquired for the priority MPAs, along with characteristics, quantities and delivery sites. We are now in the purchasing process. Once this is accomplished, the MPAs will be strengthened by having the equipment and materials that are indispensable for efficient compliance with management plans.
7. Participation in the PROARCA/APM consultative groups October 9-11, in order to establish areas of support and cooperation between the two projects. Joint actions were defined regarding the promotion of financing strategies to generate revenues for protected areas, and in the formulation of master plans.
8. Participation in the meeting programmed by the Colegio de la Frontera Sur (ECOSUR) and the Mexican Embassy in Belize, on MPAs and related projects. A presentation was made of the MBRS Project and certain concerns were resolved. As a result, of these activities, both ECOSUR and the University of Quintana Roo have a greater interest in supporting the Project and working together in joint actions of mutual interest. The Embassy offered unconditional support for joint actions.

2.1.2. Institutional Strengthening

The most notable achievements in this sub-component are summarized below. It should be noted that certain activities and achievements from the previous sub-component are very closely related and are not repeated.

1. Follow-up on the course given on generating revenue for protected areas, held during the previous reporting period. Participants responsible for preparing financial proposals were asked to update and improve these proposals and send them to us for publication. Four of the five proposals drafted during the workshop have been received and are under review. Publication of these proposals will provide the region with different case studies from the four MBRS countries that MPAs can use as guidelines.
2. Follow-up on the proceedings of the revenue-generation workshop: two drafts were revised and pertinent comments were provided. Currently we are in the final version of the proceedings, expected to be published at the end of February 2003. Achievements in this activity complement those of the previous period, since the proceedings will contain the lectures that were presented, as well as existing methodologies and other sources of information on this theme. All together, these activities will make it possible for MPAs to establish financial mechanisms contributing to the sustainability of conservation efforts.
3. Training course given on design and formulation of MPA management plans, involving preparation of terms of reference for selecting the instructor, evaluating applications and defining the contract and course structure. Invitations were sent out and logistics were organized for the event, held on September 24-27. A request was authorized for a no-cost extension to submit the final product, and at this time the second version of the training manual is being revised. The final version is expected to be received in January 2003 for subsequent publication.

This activity impacts directly on improving MPA management capacity, since 20 directors and administrators from different MPAs in the region were trained. Apart from the training, they received additional support materials including CDs of other manuals, and the knowledge imparted was enriched through the exchange of experiences.

4. Participation in the National Forum of MPAs organized by the Belize Audubon Society, December 12, in Belize City. It was possible to interact with managers of the different MPAs as well as directors of the agencies that support MPA development, and inform them of the actions of the MBRS Project.

2.2 Component II. Regional Environmental Information and Synoptic Monitoring System

2.2.1: Creation and Implementation of a Regional Environmental Information System (REIS)

Component IIA: Regional Environmental Information System

Budget approved for the July 2002 – June 2003 period: US\$285,864.00

Budget executed up to December 31, 2002: US\$75,931.00

Percent budget executed as of December 31, 2002: 26.56%

Summary of the Sub-Component

The primary tasks in this component are to design and implement an environmental information system with nodes in Belize, Guatemala, Honduras, and Mexico and to establish a virtual information center, which will offer information on the Project and reefs to the general public. These two information systems will be accessible through the World Wide Web (WWW.) The products of this sub-component will serve as tools supporting other components in the management and dissemination of environmental and socioeconomic information.

Activities for year 2 centered on establishing the Regional Environmental Information System (REIS) and the Regional Data Communication Network. In the first six months from July to December 2002, work was concluded to select agencies where system nodes will be set up. The design of the regional network was completed and technical specifications for computer equipment were prepared in order to procure network equipment.

Achievements to Date

Activities focused mostly on completing the design of the regional network and continuing with the design of the REIS. The main activities and achievements from July to December 2002 are described below.

1. The project continued execution of consultancies for Design and Implementation of a Regional Data Communications Network and Design and Implementation of a Regional Environmental Information System, initiated in May 2002.
2. To implement the regional network, the project needed to choose agencies in each MBRS country to host network nodes. Candidates were invited to submit proposals describing how they meet the criteria set by the Project. The Information Systems Specialist worked with the National Barrier Reef Committees to select the agency in each country that best satisfied the criteria. A criteria matrix was used in the selection process to assign scores to each proposal.

3. In September 2002, the Information Systems Specialist and a representative of ESG International, the consultancy firm assisting with network design, visited the facilities of the candidate agencies to conduct physical site verifications. Where possible the National Coordinator or his representative accompanied them on this visit to the site where equipment will be located. Meetings were also held with Internet Service Providers in each country to assess available service and prices. The most important results of these visits were 1) obtaining first-hand information about the facilities in node agencies, for use in network design; 2) ascertaining quality and prices regarding the telecommunications services available in each city visited; and 3) most importantly, strengthening relations between the Project and these agencies, on whom the long-term success of the regional network depends. The nodes selected through this process are: Coastal Zone Management Authority and Institute (Belize), Universidad del Valle de Guatemala (Guatemala), La Red de Desarrollo Sostenible (Honduras) and Universidad de Quintana Roo (Mexico).
4. After the visits, the network design was developed. This entailed the synthesis of the information obtained during site visits, the evaluation of various network topologies, and significant research on current hardware and software technologies. In the end, this process resulted in several concrete products, including the report entitled “Design and Implementation of the Regional Data Communications Network for the Mesoamerican Barrier Reefs System Project” and detailed specifications of all equipment that would need to be procured in order to implement the network. Two diagrams of the conceptual design are attached at the end of this section.
5. The Inter-American Biodiversity Information Network (IABIN) is a hemisphere-wide information system established to facilitate the exchange and dissemination of environmental information in the Americas. To ensure compatibility between REIS and IABIN, the Information Systems Specialist met with IABIN representatives in Belize, in October 2002. Additionally, a detailed questionnaire was filled out for the IABIN project on the data and metadata the MBRS Project will be maintaining. These exchanges ensure compatibility between the systems and promote exchange of information in the Americas. Ultimately, sharing this information could result in more sound decisions on environmental themes by governments and decision makers.
6. The Information Systems Specialist kept the web site updated, which relies on information regarding the activities of other components. Through this global medium, the Project has been able to disseminate information on its activities and announce consultancy openings to a wide audience.

2.2.2 Synoptic Monitoring Program (SMP)

Component II B: Synoptic Monitoring Program (SMP)

Budget Approved for the July 2002 – June 2003 Period: US\$446,390

Budget Executed up to December 31, 2002: US\$52,862

Percent Budget Executed as of December 31, 2002: 11.84%

Summary of the Sub-Component

The main objective of this sub-component is to establish a regional program providing a synoptic vision of the health of the Mesoamerican Barrier Reef System, generating reliable information in three main themes: a) ecology of coral reefs and associated ecosystems; b) patterns of currents in the MBRS region and c) point and non-point sources of pollution in the region.

To obtain information on these themes of interest to the SMP, three regional consultancies were executed with support from national consultancies in each of the MBRS countries. The participation of key Support Agencies for the SMP was confirmed in the four countries and several alliances have been established with institutions with similar interests.

Activities and Achievements during the Period

The main activities in this reporting period include the execution of the majority of the national and regional consultancies, participation in the Global Coral Reef Monitoring Network (GCRMN) with the preparation of the chapter corresponding to Mesoamerica, drafting of the synoptic monitoring manual, organization of a regional training course on monitoring and the participation of the Environmental Monitoring Specialist in several national and international meetings relevant to the SMP and the MBRS Project. Activities of note include the following:

Main Achievements:

1. Contracting and execution of national supporting consultancies and submission of most of the national reports. Ongoing liaison with consultants to ensure report content. To date, the following reports have been received:

Regional:

- a. **Coral Reef Ecology:** Two reports submitted: a) on infrastructure and human capacity and b) critical review of monitoring methodologies and specific recommendations for SMP and its respective manual. The comments of external reviewers are expected by the end of February 2003.
- b. **Marine Pollution:** First version of the regional report received. Includes summaries of each country, a regional perspective and the corresponding section for the monitoring manual. Changes are required in the presentation of information in order to incorporate more details. The final version is expected in the first two weeks of March 2003.
- c. **Physical Oceanography:** The part corresponding to the monitoring manual was received. It includes sections on sampling strategies, parameters, instruments, data analysis and software to be used in data collection for development of the three-dimensional oceanographic model in process. This consultancy is effective until June 2003.

National:

- a) **Coral Reef Ecology:** Finished for Belize, Guatemala and Honduras. There was no national consultancy for Mexico.
- b) **Marine Pollution:** Final report received for Belize, Guatemala and Mexico. The report for Honduras requires more details and the incorporation of supporting information presented in photocopies. The final version of this document is expected for the end of March 2003.
- c) **Physical Oceanography:** Preliminary reports received for Belize and Guatemala. A consultant was identified for Mexico and the corresponding contract is expected shortly. A consultant had been identified for Honduras earlier; however, given that this consultant has taken too long to finish her contract on marine pollution, a new consultant is being sought.

2. Consolidation of commitments from the SMP Support Agencies. To date key agencies in the four countries have confirmed their decided collaboration.
3. Selection of SMP staff in each country to receive a training course on coral reef ecology (including seagrasses and mangroves), physical oceanography and marine pollution.
4. Follow up on possible collaboration with the University of California and Centro de Investigación Científica y de Educación Superior de Ensenada (CICESE) on the use of remote sensing and aspects of physical oceanography, respectively. New contacts were established with the Director of Oceanography and other CICESE researchers for active collaboration in the Mexican Caribbean.
5. In association with other authors, the EMS prepared the chapter on Mesoamerica, “Status of Coral Reefs of Mesoamerica – Mexico, Belize, Guatemala, Honduras, Nicaragua and El Salvador,” for publication in the book, *Status of Coral Reefs of the World*, edited by Clive Wilkinson of the Australian Institute of Marine Sciences. The MBRS Project is the Regional Node of the Global Coral Reef Monitoring Network (GCRMN). This publication is posted on the web at:
<http://www.aims.gov.au/pages/research/coral-bleaching/scr2002/scr-00.html>
6. Preparation by the EMS of the draft document, *Manual of Methods for the MBRS Synoptic Monitoring Program – Selected Methods for Monitoring Physical and Biological Parameters for Use in the Mesoamerican Region*. This document was the culmination of considerable effort, not only by the EMS but also from several elements of the MBRS Project. Given that the SMP is a monitoring program with multiple levels (3) and timelines (3), the manual details these concepts, selected methods for each main theme, levels of operation and materials necessary. It presents examples of field sheets and provides pertinent recommendations from both national and regional consultants.
7. Organization of the Training Course for the SMP Monitoring Team to present details of the Synoptic Monitoring Program, including the draft manual, monitoring levels and timelines (see previous paragraph item). The course was held in Belize City in November 2002, and covered five themes: ecology of coral reefs, mangroves, seagrasses, marine pollution and physical oceanography. Twenty-seven scientists from Belize, Guatemala, Honduras and Mexico participated. The course included theoretical and practical sessions in the field and laboratory. Field trips for the Ecology Group (reefs, seagrasses and mangroves) included free diving to study seagrasses, diving to study reef communities (coral and fish) and visits to mangrove areas to practice methodology *in situ*. Field trips for the Marine Pollution Group included boat

trips to several strategic sites to collect fish samples and make comparisons between different sites. The Belize Fisheries Department kindly provided the use of monitoring equipment, boats and boat captain. CZMA/I also in Belize, provided laboratory facilities and monitoring equipment.

8. Possible Training Workshop for the SMP Team in Ecology: Preparation of a budget for presentation to the Government of Spain by CCAD, to carry out a workshop on ecological monitoring (corals, mangroves and seagrasses) in Belize. The main idea is to ensure that the SMP team has the same standard of knowledge regarding species identification, use of methodology, data collection and analysis and interpretation of results. The workshop would take place in Turneffe Atoll, Belize, with the participation of 32 people, 20 of them exclusively for the SMP. Eight people would come from Central American countries not currently included in the MBRS Project, as well as three instructors. There is a possibility that the Government of Spain may also finance the publication of the monitoring manual as a separate activity.

Representation of the MBRS Project in National and International Meetings:

Such representation ensures that other regional projects and groups are aware of the objectives and goals of the MBRS Project, in order to promote synergies and collaborations among them. The EMS formally represented the MBRS Project Director in his absence.

1. The EMS attended the MACC Meeting (Mainstream Adaptation to Climate Change) organized by the Belize Meteorological Service in Belize City to discuss the results of the CPACC Project (Caribbean Planning for Adaptation to Global Climate Change), including the part on reef monitoring, and to discuss the MACC Project, which is the second part of that project.
2. The EMS represented the MBRS Project at the UNDP-GEF meeting in Belmopan to inform of project advances.
3. Attendance of the EMS at the regional workshop, "Toward Sustainable Development in the Caribbean Islands: Training for the Management and Protection of Biological Resources," to obtain information about lessons learned in similar projects. The workshop was organized by the Cuban Ministry of Science, Technology and Environment; the Environmental Agency and the Center for Environment and Development of University of the West Indies, in Cayo Coco, Ciego de Avila, Cuba, 25-29 November, 2002. The general objectives of the Project and the SMP in particular, were presented, both of which generated a great deal of interest.

4. Attendance of the EMS to the Working Meeting on Priorities for Research on Physical Oceanography on the coasts of the Mexican Caribbean, held at ECOSUR. In addition to ECOSUR staff, scientists from CICESE, the Mexican Navy, CINVESTAV and the MBRS Project attended. There was discussion of the need for close collaboration among these institutions and of the data and oceanographic equipment that could be shared. CICESE offered the MBRS Project the use of several instruments, including two current meters and a pressure sensor to advance the development of the MBRS oceanographic model. The Mexican Navy likewise offered their support with logistics, surveillance of instruments and technical assistance with equipment and possibly with personnel.

Visits to MBRS by Similar Projects:

1. Meeting at MBRS offices with representatives of the University of Mississippi (UM) regarding the activities carried out by that institution in the MBRS region. The results of these activities include priority locations for the MBRS Project, and a Memorandum of Understanding between UM-MBRS is being explored.
2. Visit by representatives of the Smithsonian Institution to discuss their environmental education program, to be presented by radio link on May 13, 2003. The MBRS Project was invited to participate and it will liaise with the Smithsonian through its Sociologist and Communications Officer.
3. Visit by representatives of the British Antarctic Survey to discuss the use of current meters, data and satellite imaging in the SMP in order to measure chlorophyll 'a' and surface sea temperature. A representative of TNC participated in these discussions, which also included the use of GIS equipment, bathymetry, fish aggregations and physical oceanography in the SMP.
4. Reciprocal visits to the Coastal Zone Management Authority and Institute (CZMA/I) and Fishing Department in Belize, two of the key Support Agencies for the SMP in Belize, in order to discuss equipment, methodologies and frequency of monitoring for ecology, water quality and oceanography, and the expansion of monitoring sites by CZMA/I, which coincides perfectly with SMP locations.
5. Visit by a representative of the Department of Agriculture and Natural Resources of the University of Belize, to discuss the possibility of using university volunteers in the MBRS. The possibility of using volunteers in the SMP will be followed up.
6. Visit by people from 'Green Reef' to discuss their work on fish spawning aggregations, overlaps with MBRS and their interest in participating with the MBRS Project

7. Visit by representatives of the Summit Foundation to discuss the SMP and the possibility of assisting and complementing project work
8. Visit by staff from the Belize Program to explore the possibility of carrying out a review of coral reef monitoring methodologies. It was clarified that the MBRS Project, through the SMP, had already carried out this activity via regional and national consultancies, specifically those related to coral reef ecology.
9. Visit from the Director of the Institute of Marine Studies of the University of Belize to discuss monitoring activities and methodologies being used by the university. The possibility of using the university marine station in Turneffe Atoll for regional training of the SMP team was discussed.
10. Visit by the Liaison Coordinator of ECOSUR, in Chetumal, Mexico, to discuss the participation of the MBRS Project in a Colloquium on MPA Management in Belize and Mexico, which was held at the end of November 2002.

2.3. Component No III: Promoting Sustainable Use of MBRS Resources

2.3.1. Promotion of Sustainable Fisheries

2.3.2. Facilitation of Sustainable Coastal Marine Tourism

Component No. III: Promoting Sustainable Use of MBRS Resources

Budget approved for the July 2002 – June 2003 period: US\$627,067

Budget executed up to December 31, 2002: US\$90,958

Percent budget executed as of December 31, 2002: 14.51%

Summary of the Component

In the Caribbean region, scientific investigations have shown that overfishing has led to marked declines—practically a collapse—in commercial fish catch in Puerto Rico, the Dominican Republic and other countries. This trend has also been observed in the region of the MBRS, a situation requiring the establishment of regional policies to control overfishing and regulations on reproduction sites and cultivation of ecologically and commercially fish species.

Policies must also be promoted for the implementation of practices and principles of sustainable marine and coastal tourism in the MBRS region through regional cooperation, to reduce adverse impacts that growing and unplanned tourism can have on human communities and ecosystems.

The objective of this component is the following:

- Promote the introduction of new policies and regional management tools to build institutional capacity, disseminate key information and create the necessary incentives for users and groups with an interest in seeking sustainable use patterns for MBRS resources

This third semi-annual report covers activities for reaching the above objectives, approved by the Regional Steering Committee in June 2002 and carried out during this reporting period (July –December 2002.)

Achievements to Date

2.3.1. Promoting Sustainable Fisheries Use

The most notable achievements for this sub-component during the period are summarized below:

1. The second progress report was prepared for the January-June 2002 period, making it possible to verify advances with respect to the Annual Work Plan and thus strengthen those activities not yet carried out.
2. National experts were selected and contracted for the study on reef fish aggregations and follow-up on the study, which was delayed due to the lack of the consultants. Despite the delays, national reports were submitted on time.
3. In accordance with the Annual Work Plan, a training course was given August 26-30 on Monitoring of Reef Fish Aggregation Sites, in Glover's Reef Marine Reserve, Belize. The activity involved coordination with three organizations in Belize, invitations to participants securing the necessary equipment and logistics.

Currently three sections of the training manual have been drafted by the Belize Fishing Department, Green Reef and TNC for the final publication. Twenty delegates from the four countries were trained, and will be in charge of monitoring in their countries to determine the state of reef fish populations and their conservation and management needs.

4. As a follow-up on the study of fish aggregations, a meeting was organized for October 4-5 between the regional and national experts to coordinate the expected products, formats and delivery times. National reports and the regional reports were later reviewed. A request for a no-cost extension of time was authorized, with the submission date of the report being January 3, 2003.

This investigation has increased interest in the theme in the four countries since both Mexico and Honduras have defined new sites with monitoring needs. In the case of Belize, which has generated the most studies, a Ministerial Act was formulated to protect the most important aggregation sites

5. In accordance with the Annual Work Plan, a regional training course was held on co-management techniques for fishery resources, on November 13-15, in Belize City. The structure of the course and content of the manual were coordinated, and the instructor was provided with support material for

consolidation of the manual. The draft of the multimedia presentation, training manual and instructor's guide were distributed to the national coordinators to provide the national training on this theme.

Twenty delegates from the four countries were trained, including fishermen representing cooperatives and formulators of fishing standards and regulations. This has given the two sectors a better understanding of the need for regulations designed through consensus and participation, for their mutual benefit.

6. Specifications were drafted to procure equipment for the four countries to support monitoring of reef fish aggregation sites, along with characteristics and quantities of equipment for training on sustainable livelihoods. We are currently in the process of receiving quotes and effecting purchases.

Strengthening of the Department of Fisheries and other organizations will have a positive impact on substantially improving reef fish monitoring efforts in order to impact on regulatory measures. On the other hand, the equipment for sustainable livelihood training will be of vital importance in order to carry out extensive training in this area and enable fishing communities that may be affected by the regulations in the MPAs to find alternative sources of income.

7. Coordination regarding the budget, course structure and list of participants for national training on techniques for co-management of fishery resources in Honduras through the MBRS National Coordinator in Honduras and with support from the staff trained in the regional course.

According to the information provided by the National Coordinator in Honduras, the course was given successfully December 11-13. Currently we are awaiting the official report. This shows that the regional training produced multiplier effects that will culminate with the implementation of other national workshops in the three MBRS countries.

8. Budget, course structure and list of participants coordinated for national training on techniques for co-management of fishery resources in Guatemala, through the MBRS National Coordinator in Guatemala and with support from the staff trained in the regional course.

According to the information provided by the National Coordinator in Guatemala, the course was held at the end of January 2003.

2.3.2. Facilitation of Sustainable Marine and Coastal Tourism

The most notable achievements in this sub-component were the following:

1. A second progress report was prepared for the January – June 2002 period, making it possible to verify advances in accordance with the Annual Work Plan and thus strengthen those activities that have not been carried out.
2. National experts were selected and contracted for the study on the establishment of a national forum on tourism and follow-up on said study, which was delayed due to the lack of those consultants. This activity made it possible for national reports to be submitted on time, despite the delays.
3. Constant communication was established with Hawkins & Associates, the experts responsible for leading the establishment of the Regional Forum. This made it possible to coordinate the list of participants, course structure, content of the manual and materials and logistics, with the necessary comments constantly provided.

As a result, the forum took place on December 5 and 6, 2002, and the corresponding operating manual was produced. On December 13, the final version of the manual incorporating participants' contributions was submitted to the PCU, and is now under review.

This first forum made it possible to clarify the mechanisms for its successful implementation and to initiate the Catalogue of Best Practices, which must be finalized by the beginning of year 3.

2.4. Component IV. Education and Environmental Awareness

2.4.1 Environmental Awareness Campaign

2.4.2 Formal and Informal Education

Component IV. Public Awareness and Environmental Education

Budget for the July 2002 to June 2003 period: US\$410,924

Budget executed up to December 31, 2002: US\$40,521

Percent budget executed as of December 31, 2002: 9.86%

Summary of the Component

For the MBRS Project, to speak of Environmental Education and Awareness means talking about knowledge, aptitudes, values, attitudes and actions. Of all these elements, values play an important role since, through them, knowledge and aptitudes can be transformed into attitudes and actions, key elements for a positive transformation of the environment.

The concept of environment has been evolving in that more than physical and biological elements are now taken into consideration. There is a broader conception, highlighting interactions among the different elements, with special emphasis on the economic and sociocultural aspect.

As such, nowadays environmental problems are not just the classic ones related to pollution, dumping, etc., but also others more closely connected to issues that are social (*problems of fishery production, displacement of populations*), cultural (*loss of traditional knowledge*) and economic... definitely related to development models. Likewise, the MBRS environmental education programs are measured in light of ecological, political, economic, social and aesthetic factors.

A fundamental objective of the MBRS component on Environmental Education and Awareness is; to ensure that both individuals and communities alike, gain an understanding of the complex nature of the marine and coastal environment, while at the same time, acquiring the knowledge, values and the necessary abilities to be able to participate in the preparation and management of the quality of the environment.

The most important elements of the component to date can be summarized as promotion of the MBRS itself, and continuity in broadening the data and relations that will allow us to interact with organizations, coordinating activities at the local level and reorienting the activities of the component itself.

Achievements to Date

2.4.1 Environmental Awareness Campaign

Through regional training events and distribution of promotional material as part of the public awareness campaign, the charismatic and economic value of MBRS resources, and their conservation and sustainability, are being promoted. Some of the most significant achievements are:

1. Fluid communication with partner organizations, focal points and persons interested and involved in the MBRS, permitting an understanding of the current scenarios in which the project is being carried out so as to make the pertinent adjustments in its activities. It is also possible to learn about new initiatives for the potential generation of important synergies.
2. The inclusion of coastal and marine elements in the UNDP Report on Human Sustainable Development in Nicaragua, presents the project as an important initiative and promotes awareness of the MBRS at the international level. (September 2002)
3. As the result of training for the press chiefs in environmental ministries, four news articles on the MBRS were produced, three in newspapers and one on television. This strengthens MBRS promotion actions and the awareness of the general population.
4. Production of promotional t-shirts and caps with the official logo of the project.
5. In coordination with CCAD, a chapter was written presenting the project at the Johannesburg World Sustainable Development Summit, an additional international window of promotion for the MBRS.
6. 5000 school rulers were designed, produced and distributed to increase awareness of the charismatic and economic value of the MBRS within the formal education sector.
7. Design of publicity spots on appropriate fishing, in English, Spanish and Garifuna, for radio broadcast in the MBRS countries. The version in Garifuna is intended for the Garinagu communities in Belize, Honduras and Guatemala.
8. Distribution of 900 posters and more than 1000 brochures on the Cultures of the MBRS, in English, Spanish and Garifuna
9. Design and production of 1000 folders promoting MBRS resources for use in project meetings and training sessions during year 2, as part of the strategy to establish a line of identification for the project in our audience and other partners

2.4.2 Formal and Informal Education

The sub-component of Formal and Informal Education is an innovative process to incorporate the MBRS concepts into the curricula of primary and secondary schools in the MBRS region. In addition, the participation of specific cultural groups is being monitored and ensured within MBRS workshops and training courses.

1. The management of the archives of photographs of the region allowed us to prepare document covers and five sets of certificates that were issued to participants who attended workshops and training courses.
2. Training of Press Officers from the Ministries of the Environment in the region on coastal and marine issues will play an important role in influencing the objectivity of the information managed by media houses.
3. The preparation of the matrix on Project Monitoring Indicators and the participation of the involvement of ethnic groups in the MBRS activities, allows us to identify the progress of the involvement of cultural groups in the MBRS activities.

Component V. Project Administration

2.5.1. Disbursements

The project started its second year of activities on July 1, 2002 with a work plan and budget of US\$3,438,825. Opening balance of the accounts was US\$109,483, and a total of US\$524,153 was requested from the World Bank, and received during the period July to December 2002, making available a total of US\$633,636 for project activities during that time.

Total expenditure for this period (July 1 – December 31, 2002) was US\$531,470, leaving an ending balance of US\$102,166 at December 31, 2002. This represents 16% of the approved budget for the July 2002-June 2003 period. Cumulatively, the Project has received US\$1,615,977 from the Bank and has spent US\$1,513,812, or 15% of the total Project budget (US\$10,240,715). The details of the Project's financial activities can be seen on annexes 1-A to 1-F4.

Project expenditures focused on the implementation of several training workshops for participants from the region, involving the collaboration of several consultancies that were geared towards the establishment of the preparatory work for some of the major themes of the Project. These included Training in Fisheries Monitoring Techniques, Training of Press Officers in the Ministries of Environment, Training in the Design of Management Plans for Marine Protected Areas (MPAs), Training in Regional Co-Management of MPAs, Training in National Co-Management of MPAs, Training in Synoptic Monitoring Techniques, and a Regional Forum on Tourism.

The January-June 2003 period will be one of the most active periods of the project, as is reflected in the current Work Plan and Budget. With this in mind, it is expected that the final two quarters of this Fiscal Year will render major disbursements in the procurement of the bulk of equipment and materials for Project activities, along with the building of four multi-purpose visitors' centers and living quarters for the MPAs. Expenses for the remainder of this fiscal year are projected at approximately US\$2,059,718. A total of US\$500,755.45 has been requested from the World Bank to replenish the special accounts of the PCU and UNDP. This amount covers expenditures made from July 1, 2002, to November 30, 2002. Replenishment of these two accounts will be maintained to facilitate the implementation of project activities in accordance with the Work Plan and Budget.

2.5.2 Procurement

Procurement activities for this report period focused on contracting national consultants in Belize, Guatemala, Honduras and Mexico to support the work of international consultancies.

During this period, two international and one regional consultancy were also contracted. In addition, the following consultancies were initiated:

- Identification of the architect to design the multi-purpose visitor center for MPAs
- Identification of the international consultant to integrate MBRS concepts in the curricula of primary and secondary schools in the MBRS region

Evaluation of the Curriculum Vitae received for these consultancies has concluded.

International Competitive Bidding (ICB) had been planned to procure goods for the MBRS member countries, however, unforeseen importation problems in countries where local markets are being promoted (the case of Mexico) and even with support from UNDP, extremely slow progress was made in the preparation of the bidding documents. Also, the ICB process takes in excess of 180 days, a procedure that would evidently result in significant delays in delivering goods to the MBRS countries.

During a supervision and monitoring visit made by the World Bank during the third week of November 2002, a detailed analysis of delays in the procurement of goods and the implications for project execution was made. As a result, recommendations were made to acquire goods through National and International Shopping, thus facilitating both the procurement and delivery processes. The National Coordinators in Guatemala, Honduras and Mexico, have been provided with a list of goods along with the respective technical specifications, to support the PCU in obtaining quotations at the national level in each respective country. This will also help to expedite the goods procurement process.

No information has been provided in this report on procurement of goods and works since none took place in these investment categories during the period.

2.5.3. Regional Coordination

Project activities during the last six months of 2002 presented a great challenge for both the PCU and the four countries of the MBRS project. To compensate for the unavoidable delay of the project last year, the AWP 2002-2003 is overloaded with activities. This situation placed a great deal of pressure on project staff and on our main partner, the National Coordinators, during the July-December period. In a desperate effort to begin satisfying expectations created during design of the Project, it was clear that high-visibility achievements needed to be produced in the short term, while also assuring the initiation of activities that will produce achievements in the long term. These considerations marked the character of the current AWP and demanded an intense pace of implementation during this reporting period.

The development and implementation of several training events in a variety of themes, supervision of numerous consultancies and the request for national inputs required unprecedented coordination between the PCU, course instructors and the four countries. Coordination with partner agencies such as the World Bank, UNDP and CCAD also posed new challenges, particularly in areas related to procurement, disbursements and monitoring and evaluation.

Perhaps the greatest challenge to the Project during this period was presented by the procurement of goods, the many agencies participating in the process and the subsequent consequences. As per the 2002-2003 AWP, procurement of goods during this fiscal year represents one of the largest investments the Project will make during its legal life. During the initial stage of the Project and as a condition for disbursement, the PCU required the institutional support of an external agency with experience in procuring goods using the International Competitive Bidding (ICB) process. Through a formal agreement between CCAD and UNDP, the latter was contracted by the MBRS Project, mainly to provide technical assistance in preparing the pertinent documentation. Various exchanges took place between the PCU and UNDP from July to November 2002 in an effort to prepare the first ICB document. Unfortunately, this process did not proceed at the pace required by the Project's timetable of activities. Aware of the fact that beneficiary countries cannot accept further delays in receiving the goods promised, the Regional Coordination opted to explore other means for accelerating the process of procuring and delivering goods to them.

This situation was presented and analyzed during a World Bank evaluation mission November 18-22. During these deliberations, the PCU requested a change of procurement methodology in order to simplify the process, expedite purchasing and accelerate delivery to the countries. This request was received well by the Bank and was approved. The change in procurement methodology requires an amendment to the Grant Agreement,

which was consulted and approved by the countries and the World Bank. Using this new option for the procurement of goods, the Project will be able to fulfill its support for infrastructure in the countries in full accordance with the current AWP—in other words, by June 2003.

Although the World Bank evaluation mission determined that the Project is satisfactorily meeting the performance indicators defined in the Project Document, some important observations were made regarding compliance with the Indigenous Action Plan, which forms an integral part of the Project. Likewise, emphasis was placed on the need for assuring drafting and implementation of Master Plans for the four transboundary MPAs and of implementing the training courses on sustainable livelihoods. Also stressed was the importance of beginning to produce transboundary and/or regional policies on the themes of fishing, tourism and MPAs.

In response to a request for clarification on the life of the Project, given the delay in the formal declaration of Effectiveness, the World Bank mission communicated that the Project's legal life concludes in June 2006, as indicated in the Project Document. However, they clarified that the Mid-term Evaluation, tentatively scheduled for October 2003, will provide opportunity to assess whether the Project's legal life needs to be extended based on the achievements obtained at that time. To compensate for the delay in Project start-up, the PCU is requesting that the Midterm Evaluation be made in June 2004.

Coordination with other Projects and agencies continues at a very productive pace. After many months of negotiations, cooperation agreements have been signed with the National Center for Caribbean Coral Reef Research (NCORE) and with the World Resources Institute (WRI). Other agreements will be signed in the near future and the MBRS Project is participating in the preparation of other Projects by multiple agencies with an interest in the MBRS region.

3.0. Constraints to Project Implementation

The constraints observed during this reporting period are presented below, and are mainly technical and administrative in nature.

1. Late receipt of contributions and responses from partners and national counterparts. This has affected all of the project components in an important way, and was quite evident in the MPA, REIS and SMP components, causing delays in their implementation. These delays will no doubt have negative impacts on Project evaluation reports.

2. In carrying out the training courses, the most frequent constraints are not having the list of country participants on time, last minute changes in delegates and the absence for different reasons of the people nominated. This prevents us from reaching our goals with respect to numbers trained each year and obtaining the expected multiplier effect in each country. We have seen certain isolated cases in which the staff member trained leaves the organization, likewise for various reasons.
3. In several cases, the national coordinators have not contributed either the quantity or quality of information required for completing regional studies within the stipulated period of time, with the logical consequence that final reports are delayed.
4. Finalization of the design of the REIS depends a great deal on information provided from consultancies in other project components. The progress of the database design, the REIS, has been deferred due to delays in other consultancies. Although it was still possible to begin the design, final design of the database must await the final version of the Synoptic Monitoring Manual and the final report on Effective Monitoring of MPA Management.
5. Although all MBRS countries have telecommunications and Internet, the services necessary for implementing a regional data communications network (as dedicated lines) are very expensive. In Belize, where the two network servers will be located, monthly charges for maintaining dedicated ISP lines exceed the operational budget for component 2 of the project. A corresponding adjustment to the budget will be necessary. However, national counterparts and partners will have to absorb the costs of maintaining this connection once the Project concludes.
6. The equipment Procurement process has posed another serious problem for all project components. In the case of the SMP, development of the oceanographic model depends directly on obtaining a series of information on currents, tides, seawater temperature and other data using current meters, which have not yet been obtained due to time restrictions imposed by World Bank guidelines. Likewise, the rest of the equipment needs to be obtained as soon as possible to initiate training activities, familiarization with the equipment and protocols for its supervision and maintenance.
7. The need has been perceived for more training workshops in the three main themes of the SMP (Coral Reef Ecology, Seagrass and Mangroves; Marine Contamination and Physical Oceanography) throughout the life of the Project to ensure calibration in the use of methodologies, equipment and instrumentation used in the SMP, data analysis and interpretation of results.

4.0 Technical Activities for the Next 6-Month Period

Along with the follow-up on activities initiated during the previous period, other activities to be carried out in the upcoming period are detailed below.

Component I. Marine Protected Areas

1. Continue with the establishment and publication of the baseline for monitoring management effectiveness
2. Develop 10-year master plans for 4 MPAs
3. Publish at least 5 manuals on the training provided
4. Public consultations and exchanges to strengthen execution of the management plans of the different MPAs
5. Conclude the construction of the multi-purpose center in 4 transboundary MPAs
6. Conduct the training course on Community Relations
7. Meeting of the Transboundary Commissions
8. Presentation at the Mesoamerican Congress on Protected Areas
9. Equip MPAs in order to implement management plans and monitor their effectiveness

Component II. Environmental Information System and Synoptic Monitoring Program

A. Environmental Information System

1. The project will continue with the execution of consultancies for the Design and Implementation of a Regional Data Communications Network and Design and Implementation of a Regional Environmental Information System. The next steps will be to acquire computer equipment for the four MBRS countries in order to set up a network and finalize the REIS database design. These efforts will produce functional

systems before the end of year 2. The project will provide the necessary training for personnel in the node agencies so they can use and manage the database and regional network. This activity is programmed to take place after the systems are installed.

2. In addition to the main database where the Project's environmental information will be stored, the Technical Working Groups had defined other databases that should be maintained. These include the metadata database on available digital information pertinent to the MBRS region, a bibliography of publications related to the Mesoamerican Reef, a library of technical reports and a directory of the main actors and projects involved in management and conservation of the Mesoamerican reef. The project will begin to develop these databases, investing the necessary financial and human resources to compile and enter data, and design the structure of these databases.
3. The Computer Sciences Specialist will continue advances to develop the website establishing a center for virtual information on the project and which will be the site of the databases it maintains.

B. Synoptic Monitoring Program

1. Finalization of the Monitoring Manual for the SMP, incorporating comments and information from the training course on monitoring and from other reviewers
2. Follow-up on the proposal for a training workshop on ecological monitoring in Turneffe Atoll, with financing from the Spanish Government through CCAD
3. Follow-up on offers of oceanographic equipment from several Mexican institutions (CICESE and SEMAR) to advance the oceanographic model for the MBRS project
4. Follow-up on pending consultancies to finalize these activities
5. Ensure that the equipment and instruments for the SMP arrive on time for early distribution of monitoring equipment in the region
6. Carry out the necessary efforts for launching the first season of synoptic monitoring in the summer of 2003

*Component III. Sustainable Use of the MBRS**A. Sustainable Fishing*

1. Initiate the Reef Fish Monitoring Program
2. Equip agencies identified by the respective National Coordinators to lead this monitoring
3. Complete national training in techniques of fishery co-management
4. Direct the training course on sustainable livelihoods

B. Sustainable Tourism

1. Initiate the study to identify conflicts in fishing and tourism activities
2. Initiate the process for certification of coastal and marine tourism operations
3. Direct the training course on environmental impact assessments and audits for tourism infrastructure
4. Carry out promotion of the CST program in MBRS countries

Component IV. Environmental Education and Public Awareness

1. Establish contracts with at least 4 radio companies and 4 written press companies to publish and disseminate articles supporting the environmental awareness strategy and other relevant information having to do with the MBRS
2. Print the first project bulletin by the end of March, with subsequent publications every four months
3. Publish the document of the Regional Awareness-Campaign Strategy, to be distributed among project partner organizations as a means of promoting their ownership of this process while also seeking important synergies

4. Prepare the document on incorporation of MBRS concepts adapted to the primary and secondary school curricula. This activity will include a meeting with the ministers of the region to obtain their official endorsement and two training events on the use of this new chapter of the curriculum, one each for primary and secondary school teachers
5. Continue maintaining a bank of photographs of the MBRS during the next period
6. Produce two posters, one promoting appropriate fishing and the other on pollution of coral systems, as well as a video on the MBRS and several radio spots
7. Prepare billboards promoting the MBRS, to be located in 12 airports in the region (Cancún, Cozumel and Chetumal, in Mexico; Aurora and Flores Peten, in Guatemala; San Pedro Sula, Tegucigalpa, La Ceiba and Roatán, in Honduras, and San Pedro Ambergris, Phillip Goldson International and the Municipal Airport, in Belize). These will be ready at the beginning of May.