

# Application of an Ecosystem-based Approach to the Management of Marine Protected Areas in the Southern Archipelagos of Cuba

## Aplicación de un Enfoque Ecosistémico en el Manejo de Áreas Protegidas Marinas en los Archipiélagos del Sur de Cuba

### Application d'une Approche Basée sur L'écosystème pour la Gestion des Aires Marines Protégées dans les Archipels du Sud de Cuba

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#### ABSTRACT

We presented the main results and lessons learned of the project Application of a regional approach to the management of marine protected areas (MPAs) in the Southern Archipelagos of Cuba, developed between 2009 and 2014. The project contributed to increase coverage of priority ecosystems (coral reefs, seagrass beds and mangroves) in the National System of Protected Areas (SNAP) of Cuba. As a result of the project there currently are 40 marine protected areas in the project area (12 more than at the beginning of the project), of these 26 are legally approved, 17 as a result of the project. There are also 14 Integrated Coastal Management Areas and two new fisheries reserves. Several marine biodiversity studies were accomplished involving many scientific institutions. A national strategy for cooperated surveillance among all stakeholders was developed. MPAs were strengthened with training and equipment for management activities, surveillance and monitoring. The management plans for MPAs were developed and / or updated. 12 monitoring protocols for key species and priority ecosystems were developed and implemented for the project region. Numerous educational materials, audiovisuals, etc. were developed. A great approach with the Ministry of Tourism, local communities and other public and private stakeholders in planning and decision making on the development of tourism in the area was achieved. They were designed and implemented 10 products of sustainable nature tourism in MPAs. Economic valuation studies of ecosystem services were held in several MPAs of the project and its impact on human well-being was assessed. Economic alternatives were implemented in local communities, aimed at changing harmful fishing gear on the environment, among others. A proposed financial mechanism for SNAP was developed.

KEY WORDS: Marine protected areas, project, ecological monitoring, sustainable tourism, Southern Archipelagos of Cuba

#### PROJECT OVERVIEW

Cuba's Southern Archipelagos play an important role in the Caribbean region in terms of ecosystem function and in the sustainability of fisheries stocks and populations of globally important biodiversity (Baisre 2000, Paris et al. 2005, Alcolado 2006). The main threats to this coastal and marine biodiversity include overfishing, eutrophication, sedimentation, and changing hydrological conditions, among others (Baisre 2006, Baisre 2007). The long-term solution proposed to addressing these threats was the design and execution of a mosaic of protected and productive seascapes and landscapes to be planned and managed from a regional, rather than site specific, perspective, with an ecosystem-based approach, given the high degree of region-wide biological interrelations and interdependencies that result from the marine currents that traverse the whole area and the migratory nature of many of the species in the area. To help to accomplish these purposes in September 2009 was signed the project Application of a regional approach to the management of marine and coastal protected areas in Cuba's Southern Archipelagos Region with the support of the Global Environmental Facility (GEF). The project's overall goal was to conserve globally important coastal and marine biodiversity in Cuba. Its specific objective was to ensure that globally significant marine biodiversity is conserved and sustainably used through an extended, strengthened and integrated network of coastal and marine protected areas in the Southern Archipelagos region. This was addressed by three outcomes:

*Outcome 1:* Increased coverage of priority ecosystems by MPAs, related terrestrial PAs and associated management units within the productive landscape and seascape

*Outcome 2:* MPAs in the project area are subject to effective management within the framework of a regional protected area subsystem

*Outcome 3:* Business planning and partnerships with productive sectors increase MPA revenues and cost efficiencies.

The project was executed by the National Centre for Protected Areas (CNAP) as the main project's Executing Agency. A Project Management Unit (PMU) was created in CNAP in order to mobilize key actors, develop multiple partnerships and maintain constructive relationships with stakeholders.

Project planning was carried out with foresight and in a highly participatory manner, involving almost all of the stakeholders related to the management of marine protected areas and the study and conservation of marine biodiversity. The PMU employed an effective approach to Monitoring and Evaluation system with a well-attended inception workshop, annual lessons learned workshops, and regular visits to the provinces for follow-up with the institutions involved.

The project implementation was completed with 99% of the budget executed and 98% of the planned activities implemented. The final evaluation of the project was also concluded with a rating of Satisfactory. The project has had a significant impact on increasing the coverage of priority ecosystems (coral reefs, seagrass beds, and mangroves) in the National System of Protected Areas. Currently 26 marine protected areas are legally approved by the Executive Committee of the Council of Ministers, 17 have been declared as a result of the project and two are in the process of approval.

The project was conceived in the planning framework of the Second Plan of the National System of Protected Areas 2009 - 2013, and the project implementation greatly contributed to achieve the objectives of this Plan. Also taking full account of the results of the project, the third Plan of the National System of Protected Areas 2014 - 2020 was designed. Thus, currently in the project area there are 40 MPAs (12 more than the initially included in the area). There are also 14 Zones under Special Regime of Integrated Coastal Management (ZBRMIC) working (four officially approved) and two new areas under Special Regime of Use and Protection (ZBREUP). Several additional areas are under negotiation with all of the stakeholders.

The characterization of the priority ecosystems and key species of the project zone was conducted through 30 field expeditions to 15 AMP, resulting in a lot of new scientific information about the biodiversity of the Southern Archipelagos including new reports for the science.

The project had an important role in strengthening the management of the marine protected areas of the project region. The inter-agency cooperation was enhanced through joint monitoring expeditions and with the development of a national strategy for joint surveillance. The Provincial Councils of Protected Areas were strengthened with training and provision of equipment. The project also made significant investments in equipment and transport for 26 marine protected areas of the project mainly for activities of management, monitoring and enforcement. A Strategic Management Plan for the Southern Archipelagos was developed. Many of the actions of this Plan are included in the Strategic Plan of the National System of Protected Areas for 2014 - 2010. A total of 28 management plans were developed or updated during the project duration, some of them twice. The management plans of all of the 14 ZBRMIC proposed or approved were developed. Considerable effort was dedicated towards establishing standardized monitoring protocols for key species and ecosystems in the region, based on extensive cooperation with research institutes and universities and involving the

managers of the MPAs of the project with the field expertise. Twelve monitoring programs were applied in marine protected areas, and a mid-term report and a final publication on the state of the coastal and marine biodiversity in the Southern Archipelagos were developed, among others. A lot of training was provided to the MPA managers in a variety of topics such as MPA management and planning, conflict resolution among others.

A large number of audio-visual products were developed and broadcasted on television and other spaces of promotion like the airports and hotels. Also a lot of educational material was developed, conducting to greater awareness of the importance of the biodiversity of the region.

The National Methodology for the Assessment of the Management Effectiveness of protected areas was revised and updated with a greater emphasis on marine protected areas. Also a methodology to assess the effectiveness of the implementation of the project at regional level was developed.

A great approach with the Ministry of Tourism was achieved as well as a tight integration with the local communities and other public and private stakeholders in planning and decision making about the management and future development of tourism in the area. This strong joint work with MINTUR allowed the reactivation of the National Group of Nature Tourism and the provincial groups. These groups are now legally recognized by the agreement No. 7480 of the Executive Committee of the Council of Ministers approved in December 2013.

They were designed and implemented more than 10 products of nature sustainable tourism in national parks Guanahacabibes, Cayos de San Felipe, Cienaga de Zapata, Jardines de la Reina, Pico La Bayamesa, Desembarco del Granma, and other areas, some of them in synergy with the Sabana Camagüey Project.

Marketing mechanisms and awareness of travel agencies with the conservation and management of protected areas were refined by conducting intensive courses-workshops visiting an important group of the areas of the project with representatives of the travel agencies.

There were designed and implemented the strategic guidelines for public use and the monitoring systems for public use in the National System of Protected Areas. There were also developed an intensive training program with the SNAP staff that included courses, workshops, training for tourism guides and national meetings related to sustainable tourism.

The SNAP and project zone values and attractions were promoted with the participation of the project staff in national and international fairs and events of nature tourism.

The Project has guaranteed a strong support to the private sector of tourism (houses for rent and restaurants) through a training program on good practices and quality of life.

As an alternative to the designation of fisheries reserves and to support the decision of MINAL (in Resolution 503/2012) to eliminate trawling nets, commonly known as "Chinchorros" (fishing gear harmful with marine

ecosystems), the material to construct alternative fishing gears were purchased. Specifically eight boats of the Fisheries Corporation in Ciénaga de Zapata and four boats of the Fisheries Corporation in Batabano were the beneficiaries. The fishermen by themselves built the new fishing gears, taking into account a more sustainable approach of fisheries. The acquisition of all these new fishing items is contributing to ensure the sustainability of fisheries in the project area.

Five studies were executed to determine the links between ecosystem services and the human well-being of some human communities of the project. The environmental services that various marine and coastal ecosystems of the project area provide were identified. The economic value of some of the services and environmental functions of these ecosystems were also defined. As a result, a book containing the five study cases was published.

Furthermore, a process was conducted to propose sustainable productive alternatives in some selected communities of the project. Subsequently, feasibility studies of the alternative activities proposed were performed. There was published a book with the identified economic alternatives and the feasibility studies accomplished.

With regard to the financial sustainability of protected areas, a proposal of financial mechanisms for SNAP was developed and submitted to CITMA. Also, the Strategy for the Financial Sustainability of SNAP was developed. For this, a lot of work was done in conjunction with the Committees of Environment and Energy and Services of the Cuban Parliament in its seventh legislature.

Climate change is one of the most important risks of the project, which will probably affect coastal and marine ecosystems of the project area. The project has been actively involved in national programs for the adoption of measures to mitigate and adapt to climate change. All of the studies and monitoring conducted under the project have incorporated actions to detect and mitigate the effects of climate change.

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