

## **Caribbean Sea Ecosystem Assessment (Carsea)**

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People often talk about being separated by oceans and seas but for those who live intimately with it: islanders and coast dwellers, the reality is that of being joined by it. The Caribbean Sea is the second largest sea in the world and is bordered by some twenty-two countries from --- in the south to --- in the north. These islands and coastal regions share the resources of the Sea and depend on it for livelihoods personal and national. It is this sharing, the fact that it is crucial to the survival of so many different communities and economies, that presents the greatest of management challenges. No single entity is invested with the authority to manage the Caribbean Sea; the region must rely on the co-operation of all bordering countries if we are to successfully protect its ecosystem functions.

This assessment will attempt to contribute to the scientific basis of the decision-making framework in which policy and management decisions are taken and governance arrangements designed. No new research will be undertaken in the name of this assessment; rather, a compilation of existing published and unpublished data will comprise the project's input. We will attempt to identify those policies and governance structures which will be most resilient under various economic and environmental scenarios in protecting the ecosystem functions of the Caribbean Sea.

Despite their significant value to the current and future wellbeing of these states, the ecosystem goods and services provided by the Caribbean Sea - the benefits which are enjoyed by Caribbean peoples and a large number of visitors - are under threat from many sources. International marine shipping (including nuclear waste trans-shipment), wastes from yachts and cruise liners and large commercial fishing vessels from nations not indigenous to the sub-region are among some of the major hazards to the coastal and marine environments in the area. Over-harvesting of fisheries, and land-based sources of pollution have a direct impact on sustainable livelihoods. The resources of the coastal zone are also under threat from several sources such as removal and filling in of mangrove swamps for hotel and resort construction, beach sand mining and blasting channels through coral reefs to facilitate marina development. Deforestation and land clearing also promote soil loss and fertiliser runoff, which may cause algal blooms and increased turbidity in the coastal zone. Many of the driving forces, however, often go unrecognised. The current patterns of degradation of the Caribbean Sea, coupled with the vulnerability of both the coastal and marine ecosystems to climate change, mean that it is imperative to grasp the relationship between ecology and economics so as to prevent the occurrences of ecological surprises with unpredicted economic consequences.

This assessment will provide a platform for a renewed effort by the Association of Caribbean States (ACS), ECLAC Caribbean Office and the Caribbean Community (CARICOM) to request the UN General Assembly to declare the Caribbean Sea and surrounding areas a Special Area in the context of sustainable development of Caribbean countries. The project results will feed into the United Nations SIDS + 10 Conference scheduled for August, 2004 and into the Caribbean preparations for participation in that meeting.

CARSEA is being conducted as a sub-global assessment of the Millennium Ecosystem Assessment whose wealth of scientific and technical expertise will bring valuable guidance and resources to this project. In turn, it is the hope of the organisers that the lessons of shared jurisdiction over the Caribbean Sea by many states will offer a unique contribution to the MA in terms of possible approaches to governance and management of international waters.

Dealing with the degradation of the Caribbean Sea has proved to be especially challenging and management has been largely ineffective for a number of reasons. Firstly, many management efforts have been characterised by uncoordinated approaches without any holistic, integrated management plan. The fragmentation of effort involves not only many countries (e.g. 10 from mainland South and Central America) but also colonial powers from North America and Europe i.e. France, U.K., Netherlands as well as several independent Caribbean islands including some with special challenges such as Cuba and Haiti. In addition many multinational institutions (e.g. UNEP, UNDP, UNECLAC, CIDA, Nature Conservancy, GTZ, World Bank, OAS) and intergovernmental organisations (e.g. ACS and CARICOM) have more influence than many of the smaller states involved. The Caribbean Sea is used and impacted by many states which lie outside the geographical boundaries of the Sea (e.g. Japan, France, UK, and USA) through leisure, trading and transportation activities. This has important implications for policy and management and it is imperative to involve these states or economic interests in efforts to formulate and apply policies that would secure the sustainable and sensitive use of this fragile resource.

Another problem faced by many of the island states in the management of their coastal and marine fisheries is the shortage of trained personnel and the high cost of effective fisheries patrols in offshore as well as inshore waters and marine parks. Despite the formulation of fisheries legislation in all of the islands, unregulated exploitation of limited fish stocks, sometimes by large commercial fishing vessels from several nations not indigenous to the sub-region, has continued unabated within the EEZ of these islands.

This project seeks to make use of the many but disparate research results that have accumulated on various aspects of the forces that are impacting the Caribbean Sea and the effects of those driving forces on the capacity of the ecosystem and on human well-being. Thus it will bring incremental value to the work of a host of researchers and research programmes by explicitly seeking to bridge the gap between the domains of science and policy-making. Gaps in data and information which may be identified during the assessment will indicate continuing work to be done by subsisting research programmes.

The assessment will also establish a consolidated baseline of data and analysis relating to the condition of the Caribbean Sea, for use in periodic monitoring. It will also serve as an example of an approach to integrated assessment of ecosystems, and to inter-governmental/civic society/academic collaboration.