

## PIPELINE CONCEPT PAPER for a GEF Full Project

### 1. *Project title:*

Sustainable Management of the Shared Living Marine Resources of the Caribbean Large Marine Ecosystem (CLME) and Adjacent Regions

- PIMS 2193
- Anticipated Workprogramme Submission: May 2005
- Estimated GEF: \$9,375,000 (including PDF A/B)

2. *GEF Implementing Agency:* United Nations Development Program

### 3. *Country or countries in which the project is being implemented (non GEF-eligible countries and associated territories are in italics):*

Countries of the Wider Caribbean Region -- Antigua and Barbuda, Bahamas, Barbados, Belize, Brazil, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, *France (French Guiana, Guadeloupe, Martinique, St. Barthelemy, St. Martin)*, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, *The Netherlands (Aruba, Bonaire, Curacao, Saba, St. Eustatius, St. Maarten)*, Trinidad and Tobago, *United Kingdom (Anguilla, Bermuda, British Virgin Islands, Cayman Islands, Montserrat, Turks and Caicos Islands)*, *United States of America (Puerto Rico, US Virgin Islands)*, Venezuela.

4. *GEF Focal Area(s):* International Waters

### 5. *Operational Program/Short-term measure:*

- Waterbody-based Operational Program (OP8): Large Marine Ecosystem Component
- Strategic Priority 2

### 6. *Country Drivenness (Project linkage to national priorities, action plans and programs):*

The countries of the Caribbean have repeatedly indicated the need for attention to shared<sup>1</sup> living marine resource management<sup>2</sup> at the regional and international levels through participation in regional arrangements, and through signing various international treaties

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<sup>1</sup> In this proposal, the term 'shared' is used to cover all the various types of transboundary situations that may occur with regard to living marine resources as defined by UNCLOS, including, shared, straddling, highly migratory and high seas stocks.

<sup>2</sup> In this proposal the term management includes all aspects of management and development that are required for sustainable use of living marine resources, and is understood to be an integrated process involving a wide range of disciplines and stakeholders.

and agreements. IOCARIBE Member Countries have endorsed this project at two consecutive Subcommittee meetings (1995 and 1999).

In the past two to three decades, the countries of the region have made progress in establishing and enhancing the institutional capacity for collaborative management of their national and shared coastal and marine resources. This process has been complex and multifaceted owing to the geopolitical complexity of the region. Some regional initiatives began in the 1970's. These include the UNESCO IOC IOCARIBE program (1975) and the FAO Western Central Atlantic Fishery Commission WECAFC (1976). Others had their genesis in the signing of the Montego Bay Convention (UNCLOS III)(United Nations 1983). All were given added momentum by Agenda 21 and other agreements arising from UNCED in 1992. Elaboration of UNCLOS through the United Nations Fish Stocks Agreement (United Nations 1995) and the FAO Compliance Agreement (FAO 1995) has increased the need for urgent action regarding sustainable management of marine resources. All the countries have committed to the implementation of the principles of the FAO Code of Conduct for Responsible Fisheries. Most countries have signed the Convention on International Trade in Endangered Species (CITES) and the Convention on Biological Diversity (CBD) which have considerable implication for the management of living marine resources in the Wider Caribbean Region. Recently the WSSD targeted 2015 for restoring depleted fish stocks and recognized the importance of an ecosystem approach.

In addition to the instruments mentioned above, the countries of the region participate in several regional and international arrangements that are relevant to sustainable living marine resource use in the Caribbean, key examples of which are listed in Appendix 1

Most recently, the concern of Caribbean countries for the future of the Caribbean Sea is reflected in the United Nations General Assembly Resolution (55/203, February 2001) "*Promoting an integrated management approach to the Caribbean Sea area in the context of sustainable development*". This resolution recognizes the dependence of Caribbean countries upon the marine environment as well as the vulnerability of the Caribbean Sea and calls for the countries and international agencies to develop an integrated management approach.

## **7. Context**

### Overall Context – The Wider Caribbean

The Wider Caribbean Region extends from the mouth of the Amazon River, Brazil, in the south, through the insular Caribbean, Central America, the Gulf of Mexico and north along the east coast of North America to Cape Hatteras. This area also corresponds to the region covered by the FAO Western Central Atlantic Fishery Commission (WECAFC). Within this area there are three large marine ecosystems (LMEs): The Gulf of Mexico LME, the Caribbean Sea LME, and the North Brazil Current LME (Figure 1). These ecosystems are closely linked, particularly the latter two, as the oceanography of the Caribbean Sea is strongly influenced by the highly productive upstream Brazil-Guianas Shelf LME. The Gulf of Mexico LME is most influenced by inputs from the Mississippi and other North American rivers, and is not included in this proposal as it is being addressed by another project.

The region includes 26 countries and 19 dependent territories of 4 other countries (see Section 3). These countries range from among the largest (e.g. Brazil, USA) to among the smallest (e.g. Barbados, St. Kitts and Nevis) in the world, and from the most developed to the least developed. Consequently, there is an extremely wide range in their capacities for living marine resource management. Throughout the region, the majority of the population



**Figure 1: The Caribbean and adjacent Large Marine Ecosystems**

inhabits the coastal zone, and there is a very high dependence on marine resources for livelihoods from fishing and tourism, particularly among the small island developing states (SIDS), of which there are 16. In addition 18 of the 19 dependent territories are SIDS. The region is characterized by a diversity of national and regional governance and institution arrangements, stemming primarily from the governance structures established by the countries that colonized the region.

The EEZs of the Caribbean region form a mosaic that includes the entire region with the exception of two small areas of High Seas in the Gulf of Mexico mosaic. Consequently, there is a high incidence of transboundary resource management issues, even at relatively small spatial scales.

The Caribbean Sea has been severely impacted by a variety of human uses. These include overexploitation of most coastal and offshore living marine resources, destruction of coastal habitats by tourism, industrial and urban development, and degradation of the marine environment by pollution from land and ship-based sources. Caribbean coastal states, especially Small-Island Developing States (SIDS), are highly dependent on the

marine environment for their economic, nutritional and cultural well-being. Fisheries play a major role in Caribbean countries. Small-scale fisheries are particularly important, but are often undervalued. As near-shore resources have become depleted, and also in response to increasing demand for fish products, attention has turned to offshore resources, which are inevitably shared and already fully exploited by the major fishing nations.

The oceanography of the Caribbean region is highly variable both spatially and temporally. The North Coast of South America is dominated by the effects of two of the largest river systems in the world, the Amazon and the Orinoco, as well as numerous other large rivers (Muller-Karger 1993). Most Caribbean islands are more influenced by the nutrient-poor North Equatorial Current which enters the Caribbean Sea through the passages between the Lesser Antilles. Those islands with appreciable shelf area exhibit significant coral reef development. From Isla Margarita west to Mexico, the continental shelf is also extensively occupied by coral reefs at shallow depths. Seagrass beds and mangroves are also common coastal habitats.

The Wider Caribbean Region is a biogeographically distinct area of coral reef development within which the majority of corals and coral reef associated species are endemic. Thus, as a whole, the region is of considerable global biodiversity significance. The Meso-American Barrier Reef is the second longest barrier reef system in the world.

There is considerable spatial and seasonal heterogeneity in productivity throughout the region. Areas of high productivity include the plumes of continental rivers, localized upwelling areas and near shore habitats (e.g., reefs, mangrove stands and seagrass beds). The trophic connection between these productive areas and other, less productive systems (e.g., offshore planktonic or pelagic systems), is poorly understood for this region. Likewise, food chain linkages between resources with differing scales of distribution and migration, such as flyingfish and large pelagics, both of which are exploited, are not considered in management, but may be critical to preventing the stock depletion that has occurred in many other systems where the requirements and or impacts of predators have not been considered in the exploitation of prey species.

#### Transboundary Living Marine Resources in the Caribbean Region

The fisheries of the Caribbean Region are based upon a diverse array of resources. The fisheries of greatest importance are for offshore pelagics, reef fishes, lobster, conch, shrimps, continental shelf demersal fishes, deep slope and bank fishes and coastal pelagics (Table 1). There is a variety of less important fisheries such as for marine mammals, sea turtles, sea urchins, and seaweeds. These fishery types vary widely in state of exploitation, vessel and gear used, and approach to their development and management. However, most coastal resources are considered to be overexploited and there is increasing evidence that pelagic predator biomass has been severely depleted (FAO 1998, Mahon 2002, Myers and Worm 2003).

The fisheries use a wide variety of gear, and are primarily artisanal, or small-scale, using open, outboard powered vessels 5-12 m in length (see Table 1). The most notable exception are the shrimp and groundfish fisheries of the Brazil-Guianas shelf where trawlers in the 20-30 m size range are used, and the tuna fishery of Venezuela which uses large (>20 m)

longliners and purse seiners. In many countries there has been a recent trend towards more modern mid-size vessels in the 12-15 m range, particularly for large pelagics, deep-slope fishes and lobster and conch on offshore banks.

The large pelagic species that are assessed and managed by ICCAT are the most 'high-profile' species with ocean-wide distribution sustaining the largest catches, often by distant water fleets. Few countries of the region presently participate in ICCAT's activities. The CARICOM Fishery Resources Assessment and Management Programme (CFRAMP) has been working towards the participation of CARICOM countries in ICCAT, most recently with assistance from FAO. A main problem is that many countries of the Caribbean, often SIDS, presently take only a small proportion of the catch of species managed by ICCAT. These countries may, by virtue of the size and productivity of their EEZs, be entitled to a larger share, but lack the technical capacity or the financial resources to participate in ICCAT where their case would be made. There is the need to develop a strategic approach through which these countries, particularly SIDS, can take part effectively individually or collectively in ICCAT (Chakalall *et al.* 1998, Singh-Renton *et al.* 2003, FAO 2002, 2003).

Numerous other large migratory pelagic species that are not managed by ICCAT are important to the fisheries of Caribbean countries, e.g. dolphinfish, blackfin tuna, cero and king mackerels, wahoo and bullet tunas. The information base for management of these species is virtually non-existent. These are species for which a regional effort at management is urgent (Mahon 1996, FAO 2003). This effort must include the appropriate institutional arrangement for cooperative management as required by the UN Fish Stocks Agreement.

Recreational fishing, an important but unknown contributor to tourism economies, is an important link between shared resource management and tourism, as the preferred species are mainly predatory migratory pelagics (e.g. billfishes, wahoo, dolphinfish). This aspect of shared resource management has received minimal attention in most Caribbean countries (FAO 2002).

Whereas, there is the tendency to think primarily of migratory large pelagic fishes as shared resources, it is important to note that reef organisms, lobster, conch and small coastal pelagics are also likely to be shared resources by virtue of planktonic larval dispersal. In many species, larval dispersal lasts for many weeks (e.g., conch) or many months (e.g., lobster) and will result in transport across EEZ boundaries. Therefore, even these coastal resources have an important transboundary component to their management. They are the resources that have been most heavily exploited by Caribbean countries and are severely depleted in most areas. Their status has been discussed and documented by FAO and WECAFC for several decades (see Table 1). These early stages are impacted by habitat destruction and pollution as well as overfishing of the spawning stock and both improved knowledge and institutional arrangements are required to implement management.

Understanding the role of these early life-history stages is important to the effective management of Caribbean LMR. Physical and biological processes of the wider Caribbean LME influence recruitment and, thus, these processes impact the nature of how resources are shared. What is often lacking is a practical knowledge of how physical and biological processes, as well as human impacts on these processes, are shaping larval populations and recruitment. Marine Protected Areas (MPAs) may play an important role as sources of output, supplying either local or regional populations. The effectiveness of MPAs may be

largely determined by strategic, and in some cases fortuitous, placement upstream from unprotected and exploited adult populations; fragile downstream coastal ecosystems may in fact depend heavily on contributions from MPAs (Roberts 1997). The contributions of MPAs, however, are limited by the oceanographic regime transporting larvae (an example of physical processes) and the uncertainty of survivorship in transported larval populations (biological processes). These considerations apply to all living marine resources with planktonic early life history stages and, thus, concern fisheries species (e.g., offshore pelagics, lobster, conch, and shrimps) and most reef-dwelling organisms (e.g., corals, reef fishes, and myriad others).

### Large Marine Ecosystems as Marine Resource Management Units

The case for addressing living marine resource management at the scale of the LME has been well developed through a number of initiatives (Sherman 2001). Typically, the LME approach includes five modules that focus on different aspects of the ecosystem: (1) productivity, (2) fish and fisheries, (3) pollution and health, (4) socioeconomic conditions and (5) governance (Sherman 2001). It is now widely accepted globally and has been incorporated into the FAO Code of Conduct for Responsible Fisheries. Most recently, the need for ecosystem level approaches to management were addressed at the Reykjavik Conference on Responsible Fisheries in the Marine Ecosystem, October 2001, which issued the Reykjavik Declaration, calling for much greater attention to incorporation of ecosystem level considerations into marine resource management (FAO 2001). These were also identified at the World Summit on Sustainable Development (WSSD) in 2002.

At the scale of the LME, living marine resource management issues in the Caribbean include:

- Migratory resources (mainly large pelagics, but also some coastal pelagics)
- Resources with transboundary distribution as adults (various demersal fishes)
- Resources with transboundary larval dispersal (lobster, conch, reef organisms)
- Dispersal of pathogens, pollutants and invasive species
- Resources with transboundary trophic linkages.

### Governance Context: Legal, Policy and Institutional

The need for attention to the management of shared marine resources in the wider Caribbean Region is well documented. From the early 1980s it has been a main subject for discussion by WECAFC (e.g. Mahon 1987) and was stressed at its Commission Meeting in 1999 (FAO 1999). These issues have been discussed and agreement reached on the need for a coordinated regional effort on shared resources at other fora, such as: The IOC/ARIBO Workshop on Fisheries Oceanography of Highly Migratory and Straddling Species of the Intra-Americas Seas in 1995; The ACP-EU Fisheries Research Initiative, Third Dialogue Meeting, Caribbean, Pacific and the European Union in 1996 (ACP-EU 1997); and the CARICOM Symposium on the Sustainable Utilization of Fisheries and Other Ocean Resources in 1999. In the latter, Ministers endorsed recommendations addressing these problems, that included developing the information base for shared living marine resources.

A number of regional and global agreements exist which seek to address the social, economic and governance issues related to shared marine resource management. These include UNCLOS, the UN Fish Stocks Agreement, the FAO Compliance Agreement and the FAO Code of Conduct for Responsible Fisheries (United Nations 1983, United Nations 1995, FAO 1995a, 1995b). The latter three of these are relatively new instruments the national level implications of which are now being explored by the countries of the Caribbean region. These implications include (a) the need for capacity building at the national level to take part in international and regional level management of shared resources, and (b) the need for strengthening and expanding the scope of regional institutions to undertake this function.

Institutional arrangements for the management of transboundary living marine resources in the Caribbean region have been emerging, de facto, from the ongoing efforts of various institutions. These reflect the fact that the Caribbean does not have any major fish stocks attracting large commercial fleets, revenues from which can be expected to support a fisheries management institution. In other parts of the world, large valuable tuna or clupeid stocks have provided the incentive to establish management regimes to protect indigenous rights and to extract rents from non-indigenous fleets. The emerging approach in the Caribbean is more suited to the large diversity of resources that are already mostly exploited by indigenous fleets so that the issues relate primarily to conservation, optimization and intra-regional equity.

In response to the above situation, the emerging arrangements are flexible and involve networking and adaptation of existing institutions. This approach has been endorsed by the countries of the region at the last two meetings of WECAFC (1999, 2001b). The arrangements involve a number of fledgling initiatives for various types of resources. For example, in the case of conch the Caribbean Fishery Management Council has taken the lead in approaching regional management. However, some countries have difficulty taking part to the extent required for successful management. For shrimp/groundfish and flyingfish, WECAFC ad hoc Working Groups are the lead agencies. The newly established CARICOM Caribbean Regional Fisheries Mechanism (CRFM) has identified large pelagics as a priority topic and could take the lead for these resources (FAO 2003). A recently completed FAO Technical Cooperation Programme project (TCP/RLA 0070) "Preparation for Expansion of Domestic Fisheries for Large Pelagic Species by CARICOM Countries" has assisted the CRFM in developing a strategy for regional management of large pelagics and for its participation in ICCAT.

While some limited progress has been made, a number of gaps and needs remain, including: (a) strengthening national level capacity to participate in regional level management processes (b) strengthening emerging regional arrangements and organizations to play the role of 'competent organizations' as defined by the UN Fish Stocks Agreement, and (c) developing linkages among these arrangements. This strengthening must span the full range of activities required for collaborative management of shared resources, including: information gathering and sharing, analysis and interpretation, provision of advice, management decision making, implementation. The approach that is considered to be most likely to be successful in the context of the emerging Caribbean model for shared living marine resource management is that of "strengthening by doing". The tenet that management should not use lack of complete information as an

excuse for not taking action will be a guiding one. There is in most cases, adequate information for preliminary planning that identifies the strategic approach to be adopted, the information needs of that approach and interim management actions that can be taken while the information/advisory base is being strengthened. By taking this approach information, advisory, decision-making and implementation capacity can be strengthened in parallel.

## **8. *Project Rationale and Objectives:***

### Problem synthesis

Many living marine resources in the Caribbean Region are in crisis. Most of the fishery resources are coastal and are intensively exploited by large numbers of small-scale fishers. The majority of the human population in the Caribbean region lives in coastal communities and there is high dependence on living marine resources for employment and food. There is also high demand for seafood in the tourism industry, a mainstay of the economy in many of the region's countries. Some species, such as lobster and conch are in high demand for export. These pressures have led to widespread depletion of these resources, a situation that must be reversed in accordance with the targets identified at the WSSD. This depletion has led to increased dependence and fishing pressure on offshore resources, which are already considered to be fully or overexploited. Living resources such as coral reefs that are not exploited, but extremely important for tourism economies and coastal defense against sea level rise are also severely degraded by human activity and require urgent attention for restoration.

The living marine resources of the Caribbean LME are often shared between countries and the management and the recovery of depleted fish stocks will require cooperation at various geopolitical scales, but there are at present inadequate institutional, legal and policy frameworks or mechanisms for managing shared living marine resources across the region. There is a lack of capacity at the national level and information is lacking, particularly with relation to the transboundary distribution, dispersals and migrations of these organisms. This lack of knowledge represents a major barrier to sustainable management of these shared marine resources, even if an adequate mechanism for effective region-wide ecosystem-based management was in place. The establishment of an effective mechanism will be the major challenge for management of transboundary resources and achievement of the WSSD targets.

The proposed GEF project on the Sustainable Management of the Shared Living Marine Resources of the Caribbean Large Marine Ecosystem (CLME) and Adjacent Regions would take the following approach:

1. Preparation and later updating of a Transboundary Diagnostic Analysis (TDA) and of a Strategic Action Programme (SAP) for Caribbean LME shared living marine resources;
2. Compilation and sharing of existing information and filling critical data gaps through targeted assessments, using new and improved information to update the TDA and SAP;

3. Implement and build capacity for legal, policy and institutional reforms for sustainable management of Caribbean LME shared marine resources;
4. Develop and institutionalize process, stress reduction and environmental status indicators to track effectiveness of actions taken through the SAP.

### Project objectives

The overall objective of the project is:

Sustainable management of the shared living marine resources of the Caribbean LME and adjacent areas through an integrated management approach that will meet the WSSD target for sustainable fisheries.

The specific objectives of the project are:

1. To identify, analyze and agree upon major issues, root causes and actions required to achieve sustainable management of the shared living marine resources in the Caribbean Sea LME;
2. To improve the shared knowledge base for sustainable use and management of transboundary living marine resources (see Table 1);
3. To implement legal, policy and institutional (SAP) reforms to achieve sustainable transboundary living marine resource management;
4. To develop an institutional and procedural approach to LME level monitoring, evaluation and reporting..

### Baseline scenario

Despite the international cooperation indicated by country participation in agreements and organizations (see ‘Country Drivenness’ section), and heightened awareness throughout the region that an integrated approach is required for the Caribbean region, the knowledge base, legal/policy regime and technical and institutional capacity that are required to give effect to the variety of agreements and commitments are severe constraints for most of the countries in the region.

Even for those countries with substantial capacity at the national level, the regional institutional network that is required for Caribbean-wide cooperation in management is lacking for most resource types. Furthermore, although there may be good technical information for some areas of the Caribbean LME, there are many gaps that must be identified and filled in the process of implementing management approaches that incorporate ecosystem level processes.

Without the proposed GEF project, the present trend of decline and crisis will continue until resources are depleted (FAO 1998). There has been a shift from exploitation of on-shelf resources, which are mainly national, to offshore, shared resources. This has been partly due to the depletion of on-shelf resources, but also due to demand for additional seafood products. Consequently, there will be increased prominence of transboundary issues in Caribbean fisheries.

Biodiversity is threatened as the trend in degradation of living marine resources continues. The Wider Caribbean Region is an area of high marine biodiversity, including many endemic species. Overfishing and other forms of exploitation in the Caribbean's coastal ecosystems threaten these intrinsically valuable endemic species (Jackson *et al.*, 2001).

Without the intervention proposed in this project the continuing trend of resource depletion will contribute to poverty and ultimately to political/economic conflicts that decrease regional stability. Countries of the region will not achieve food security, particularly regarding protein supply. The impact will be greatest at the lowest socioeconomic levels and in rural coastal areas with the fewest economic alternatives. Depleted living marine resources will also severely impact tourism in several ways as described in the rationale above.

Countries will remain lacking the national and regional level institutional mechanisms, capacity and knowledge base for management of transboundary living marine resources. The potential of international agreements such as UNCLOS, the UN Fish Stocks Agreement and the FAO Code of Conduct for Responsible Fisheries to contribute to improved management and ultimately marine livelihoods will not be realized in the wider Caribbean region. Threats to marine and coastal biodiversity will escalate.

#### Alternative scenario.

The proposed project for the Sustainable Management of the Shared Marine Resources of the Caribbean Large Marine Ecosystem (CLME) and Adjacent Regions will build on and complement existing projects and initiatives that focus on technical and institutional aspects of sustainable living marine resource use by focusing on governance, knowledge, and institutional issues in a transboundary context. Most present projects in the Caribbean have a focus that is primarily coastal. Several include only sub-areas of the Caribbean LME. The present project will expand this focus to offshore systems and transboundary issues at the scale of the Caribbean LME.

With the project, there is the opportunity for implementation of management reforms that will permit sustainable development and management of the shared living marine resources of the Caribbean Large Marine Ecosystem and adjacent regions. Since most living marine resources are shared in some way, these reforms can be expected to lead to improved food security and enhanced livelihoods in rural coastal communities that rely on fisheries and tourism. There is also the likelihood of preservation and rehabilitation of degraded coastal ecosystems, conserving and protecting marine biodiversity.

The increased knowledge of transboundary living marine resources and increased institutional capacity to use that knowledge at national, regional and international levels that will result from the proposed project, will halt and should even reverse the declining trend of resource depletion and degradation. At both national and regional levels, measures to improve management of these resources will be put in place. Management and decision-making mechanisms that have been established or enhanced through strengthening of the key institutions will be functioning to ensure that resources are assessed, management recommendations are provided, measures are put in place and that compliance to these is monitored. They will operate under reformed national and regional policies and agreement. These mechanisms will incorporate LME level considerations into their measures. In

concert with the above changes, heightened public awareness and improved coordination with linked programmes will ensure the sustainability of the GEF intervention.

### GEF involvement

GEF should be involved in this project because it focuses on transboundary issues facing living marine resources. The countries of the Wider Caribbean region need to identify and develop reforms in an international framework in order to manage these shared marine resources. GEF is uniquely situated to comprehensively address transboundary needs in an integrated way through its International Waters programme.

It is expected that GEF would fund the filling of knowledge gaps, legal, policy and institutional reforms, awareness raising and stakeholder involvement, sustainability strategy, development of indicators and initiation of systematic assessments to monitor LME indicators. Research aspects (e.g. influence of physical and biological processes on life cycles of transboundary LMR, etc.) would require co-financing.

## ***9. Expected Components, Outcomes and Activities of Full Project:***

### Project structure

The project is focused on aligning institutions on the national and regional scales to sustainably manage near shore and deep-water fisheries and related habitat of the LME, including the development and use of a knowledge base to support institutional decision-making. As emphasized above and by relevant international agreements, implementation of governance activities will not be delayed due to lack of information. “Strengthening by doing” is a key conceptual element of this project.

The Project will have four Components.

1. Analysis of transboundary LMR issues (TDA) and needed actions (SAP) (initial and update following adaptive management approach);
2. Filling knowledge gaps needed for effective transboundary LMR management;
3. Implementation of governance reforms (institutional, legal, and policy) for LMR management;
4. LME level monitoring, evaluation and reporting including indicators;

The expected duration of the project is 5 years and it is anticipated that the project will be submitted to the Spring, 2005 GEF Work Program.

Each Component will include the following Activities and Outcomes:

### Components/Activities/Outcomes:

#### Component 1. Analysis of transboundary LMR issues and needed actions

Activity 1.1 Conduct an initial (pdf-b) Transboundary Diagnostic Analysis (TDA) in which existing information will be reviewed and analyzed to fully characterize the nature, scope and root causes of transboundary living marine resource issues in Caribbean LME; update TDA with new information gathered in Component 2

Activity 1.2 Prepare an agreed initial (pdf-b) Strategic Action Program (SAP) for Caribbean LME shared living marine resources that identifies and outlines approaches to addressing necessary legal, policy and institutional reforms at national and regional levels; update SAP following revision of TDA in 1.1 and adaptive management approach

Outcome 1. Transboundary LMR issues analyzed and needed actions agreed upon

- i. A preliminary Transboundary Diagnostic Analysis (TDA) that fully characterizes the nature, scope and root causes of transboundary living marine resource issues in Caribbean LME will be completed during the pdf-b. It will be updated towards the end of the full project, reflecting improved information base (Component 2), and agreed among the participating countries and institutions.
- ii. An agreed preliminary Strategic Action Program (SAP) for Caribbean LME shared living marine resources will be completed during the pdf-b. Following an adaptive management approach, the SAP will be updated towards the end of the full project and agreed among the nations, specifying necessary legal, policy and institutional reforms at national and regional levels and means of achieving these.

Component 2. Filling knowledge gaps and sharing information needed for management

Activity 2.1 Compilation and sharing of existing information through support for information compilation efforts by established regional management bodies and for new bodies required for resources presently not covered, and through establishment of regional shared living marine resources information nodes and/or networks based on meta-database concepts

Activity 2.2 Fill knowledge gaps on resources and biophysical processes required for ecosystem-based living marine resource management as identified by PDF-B review and by the ongoing governance reforms established or enhanced in component 3.

Outcome 2. Knowledge and information gaps for living marine resources management filled

- i. Improved quality and availability of data and information in support of policy and management decision-making.

Component 3. Implementation of necessary governance reforms (institutional, legal, and policy)

Activity 3.1 Enhance institutional structures that provide living resource management advice to the bodies with responsibility for management decision-making (based on the principles of using existing international, regional and sub-regional institutions with a mandate for management of shared resource wherever possible, ‘strengthening by doing’)

Activity 3.2 Link these advisory institutions together for a region-wide ecosystem approach by networking and where necessary establishing regional cross-sectoral committees among them.

Activity 3.3 Use and strengthen existing institutional (political) structures with responsibility for management decision-making, and facilitate the establishment within these bodies of competent management authorities for various subsets of shared resources as prescribed by the UN Fish Stocks Agreement, WSSD and other relevant international agreements and to ensure effective regional participation in the international management authorities responsible for Caribbean resources, e.g. the International Commission for the Conservation of Atlantic Tunas (ICCAT).

Activity 3.4 Promote increased ratification and implementation of relevant international agreements (UNCLOS, FAO Code of Conduct, UN Fish Stocks Agreement, etc.) by Caribbean countries.

Activity 3.5 Improve implementation of management measures and reform supporting policy and legal instruments by: promoting harmonization of national (with regional and international) and regional (with international) policy and legislation for shared living marine resource management; building capacity for implementation of management measures, legal, policy and regulatory reforms and by developing a concept for a compact between management bodies to achieve the coordination necessary for recovery of depleted fish stocks.

Activity 3.6 Ensure sustainability and replicability of project interventions by identifying and implementing measures (financial, institutional, etc.) to sustain the reforms (e.g. fees on fishing/tourism, trust funds, government contributions, etc.).

Activity 3.7 Disseminate and share project results, best practices and lessons learned with appropriate target audiences through wide range of mechanisms (publications, Internet incl. IW:LEARN, twinning, GEF IW Conferences, etc.).

Outcome 3. Legal, policy and institutional reforms for shared LMR management implemented and sustainable

- i. Institutional
  - a. Management advisory bodies and processes strengthened or established and providing timely and accurate advice to decision makers.
  - b. Existing institutional (political) structures for decision-making strengthened, where appropriate by establishing competent management authorities within them, and will be active.
  - c. Linkages among these advisory and decision-making bodies strengthened to ensure a Caribbean-wide ecosystem-based approach to living marine resource management.
- ii. Legal/Policy
  - a. Increased ratification and implementation of relevant international agreements (UNCLOS, UN Fish Stocks Agreement, FAO Compliance Agreement, etc.) by Caribbean countries
  - b. Supporting national policy and legal frameworks reformed and harmonized regionally and internationally
- iii. Sustainability

- a. Regional management institutions have capacity to participate in the activities of international FMOs responsible for resources of interest to Caribbean countries.
- b. Increased national and regional capacity for implementation of management measures and for legal, policy and regulatory reforms
- c. Sustainability and replicability of the project interventions ensured.

#### Component 4. LME level monitoring, evaluation and reporting

Activity 4.1 Identification, establishment and operation of an institutional arrangement that will be responsible for assembling and reporting on agreed indicators for monitoring and evaluation of the status of the Caribbean LME, e.g. through a tripartite mechanism comprising FAO WECAFC, IOC IOCARIBE and UNEP CEP.

Activity 4.2 Development of a suite of process, stress reduction and environmental status indicators (GEF International Waters Indicators), for the Caribbean LME shared living marine resources using the improved knowledge base and enhanced regional institutional arrangements.

#### Outcome 4. LME level monitoring, evaluation and reporting processes in place

- i. Institutional and procedural approach to LME level monitoring, evaluation and reporting in place, including process, stress reduction and environmental status indicators.

### ***10. Sustainability (financial, social, environmental) and replicability of the full project***

#### Sustainability

The following elements of the project will contribute to its sustainability beyond the end of the project:

- Increased awareness and commitment at political and decision-making levels regarding the value of shared resources and the transboundary management issues affecting them,
- The information base, tools, and models for management decision-making will have been substantially increased,
- The project will focus on enhancing existing networks and institutions rather than creating new ones,
- The project will have a major emphasis on capacity building,
- The project will emphasize the development of levels of capacity that are appropriate to the size and infrastructure of participating countries, and will pay particular attention to economies-of-scale through use of regional and sub-regional organizations,
- The project duration should contribute to the establishment and sustainability of the proposed processes and mechanisms,
- The project will seek to establish a culture of cooperation and networking among countries in the region and the mechanism to do so,

- Through “strengthening by doing”, the project will create successes that serve as examples of how countries can collaborate to manage transboundary living marine resources.

### Replicability

The proposed project has the potential to provide lessons that can be adapted to other regions of the world, particularly those where transboundary resources are exploited by small-scale fisheries, for example in Southeast Asia and West Africa. The project will document these lessons in a form that will facilitate their replicability and will actively participate in GEF and other activities that seek to promote replication and share experiences, such as IW:LEARN and the Biennial GEF IW Conferences.

### ***11. Country Eligibility:***

All proposed recipient countries (25) are eligible under paragraph 9(b) of the GEF Instrument.

The major conventions that are relevant to the management of transboundary living marine resources are the Law of the Sea Convention and related instruments such as the UN Fish Stocks Agreement. With the exception of the Law of the Sea Convention, which most countries have signed, these are relatively new instruments. Most countries are presently in the process of examining the implications of these conventions in preparation for signing them. In many cases, countries have not signed them, primarily because they do not have the capacity or the resources to implement them (FAO 2002).

Rather than being a prerequisite for GEF support, increased ratification and implementation of these conventions could be seen as an outcome of the project due to increased capacity for implementing them.

The proposed project is consistent with GEF's objective in the International Waters focal area to “contribute primarily as a catalyst to the implementation of a more comprehensive, ecosystem-based approach in managing international waters”, and with the strategic thrusts of: “(a) assisting groups of countries to better understand the environmental concerns of their international waters and work collaboratively to address them; (b) building the capacity of existing institutions (or, if appropriate, developing the capacity through new institutional arrangements) to utilize a more comprehensive approach for addressing transboundary water-related environmental concerns; and (c) implementing measures that address the priority transboundary environmental concerns.” (GEF Operational Strategy, Chapter 4).

As proposed by the GEF Waterbody-Based Operational Program this project “...involves activities that address the priority transboundary environmental concerns that exist in a [...] a large marine ecosystem.” It will “help groups of countries to work collaboratively in learning about and resolving priority transboundary water-related environmental concerns. [...] help overcome barriers to organizational learning and transactions costs of working together in strengthening or developing a regional institutional framework and in addressing sectoral causes of major water resources problems.” In this project, “... Institution building plays a crucial role, and specific capacity-strengthening measures are

[proposed] to assist countries in finding the appropriate institutional and organizational arrangements.”

### ***12. Stakeholders involved in project:***

The major stakeholders in this project are:

- National government departments responsible for fisheries, marine affairs, and environment;
- National and regional marine research institutions, universities;
- Regional and international fisheries management and development organizations, e.g. FAO, ICCAT, CARICOM, OECS;
- Donor agencies that are active in the Caribbean region;
- Non-governmental organizations involved in Caribbean LME transboundary living marine resource issues;
- Private sector organizations involved in Caribbean LME shared living marine resource issues.
- Communities involved in harvesting and marketing of transboundary living marine resources

Consistent with other GEF requirements, project preparation will examine the role of various stakeholder communities and determine appropriate involvement as part of the full project; the latter will include a full stakeholder involvement plan.

### ***13. Information on project proposer:***

The project is being prepared by IOCARIBE on behalf of its member countries (Bahamas, Barbados, Belize, Brazil, Colombia, Costa Rica, Cuba, Dominican Republic, France, Guatemala, Guyana, Haiti, Jamaica, Mexico, Nicaragua, Panama, St. Lucia, Suriname, The Netherlands, Trinidad and Tobago, United Kingdom, United States of America).

IOCARIBE, at its Fifth Session held in Barbados, in December 1995, adopted the resolution "to develop a proposal for submission to the GEF to fund a project formulation for an LME monitoring and assessment program for the Caribbean and Adjacent Regions in conjunction with member countries and other relevant regional organizations."

(Recommendation SC-IOCARIBE-V.4 part A). At its Sixth Session in San Jose, Costa Rica, in April 1999, the Member Countries of IOCARIBE further endorsed and committed continuing support to the ongoing efforts to develop an LME project for the Caribbean Sea. (Recommendation SC-IOCARIBE-VI.5). In February 2000, the IOCARIBE Executive Committee appointed an ad hoc Regional Project Coordinator for the Caribbean LME Project.

IOCARIBE<sup>3</sup> is a regional subsidiary body of the Intergovernmental Oceanographic Commission (IOC). It is the IOC Sub-Commission for the Caribbean and Adjacent Regions

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and is responsible for the promotion, development and co-ordination of IOC marine scientific research programmes, the ocean services, and related activities, including training, education and mutual assistance (TEMA) in the Caribbean and Adjacent Regions. In establishing its programmes, it takes into account the specific interests and needs of the Member States in the region.

Cooperative marine science activities of IOC in the Caribbean and adjacent regions have existed for nearly thirty years. Over this period three distinct stages have marked the evolution of marine sciences in the region. The first regional effort in marine sciences in the Caribbean was the Cooperative Investigations of the Caribbean and Adjacent Regions (CICAR) in 1968, coordinated by IOC and modeled on the Indian Ocean International Expedition. Its aim was the understanding of the oceans and related processes in the Greater Caribbean region.

The Member States recognized the benefits of CICAR and expressed their interest in creating a successor organization. The "Association of IOC for the Caribbean and Adjacent Regions", using the acronym "IOCARIBE" for the first time, was approved by the Ninth Assembly of IOC in November 1975 for an experimental period of six years. After the experimental phase, and at the request of Member States, the output of the Association was evaluated and presented to the IOC Assembly in 1982.

The Sub-Commission for the Caribbean and Adjacent Regions, of the Intergovernmental Oceanographic Commission (IOC) of UNESCO, was created in November 1982. It is the first in its kind and its purpose is to carry out the IOC global programmes on a regional basis for the Greater Caribbean. It replaced the former IOCARIBE Association and its predecessor CICAR.

IOCARIBE can be envisaged as an international networking system created by the Governments of Member States, for the co-ordination and promotion of marine and coastal sciences and associated operational services in the region.

Its major objectives are to:

- Foster the generation of knowledge, sharing of information, expertise and experience on the wider Caribbean and its coastlines;
- Assist Member States to develop their capacity to formulate national policies and plans to meet their needs in marine science and technology
- Reinforce and broaden scientific co-operation, regionally and internationally through networking and institutional arrangements with organizations operating within and without the region, for example, UN bodies, IGOs, NGOs, the scientific community;
- Provide regional the input to global ocean sciences and observation programmes; and to
- Promote and facilitate implementation of IOC global science programmes and ocean services at the regional level.

IOCARIBE has several regional projects relating to GEF's mandate in International Waters, most of which are part of the larger global program of IOC. These are in various stages of development or implementation, and include: Tsunami Warning System Project;

the Caribbean component of the Global Ocean Observing System (GOOS) project; the Caribbean component of the Global Sea Level Observing System (GLOSS) project; Whales Eastern Caribbean Project; Harmful Algal Blooms in the Caribbean; Global Oceanographic Data Archaeology and Rescue Project; Hurricane Effects and Mitigation in the IOCARIBE Region. Aspects of most of these projects, particularly the oceanographic information, are relevant to understanding and managing transboundary resources.

#### ***14. Financing Plan of Full project***

This is to be determined during the PDF-B stage; a preliminary estimate given the scope of proposed activities and breadth of GEF-eligible recipient countries is a GEF grant of \$7-9 million plus comparable or more in co-financing.

#### ***15. Implementing Agency (IA) coordination and Linkages to GEF and IA programs and activities***

There are GEF projects and other projects by GEF Implementing Agencies in progress or in preparation that will address aspects of the needs identified above. Most of these are listed below. The majority of them have a national level coastal focus and do not explicitly consider transboundary issues at the scale of the Caribbean LME. Several of the projects listed, and/or the follow-on activities to which they will give rise, may be dependent on an appreciation of the transboundary linkages that affect them and on the capacity to make decisions and take actions that incorporate these transboundary realities. Consequently, in several cases, they can be viewed both as clients of the proposed LME project and as sources of detailed information on local-scale processes and needs.

#### **Projects in progress or in preparation that may require explicit linkages with the proposed Caribbean LME project**

- a) UNEP/CEHI -- Integrating Management of Watersheds and Coastal Areas in Small Island Developing States in the Caribbean (PDF B; UNEP/UNDP). Will focus on reduction of land-based impacts on the coastal marine environment through activities relating to waste management, freshwater resource management, land use, soil degradation and watershed management in Caribbean SIDS. It should be noted that these problems are also of concern in mainland coastal states of the Caribbean.
- b) UNEP project funded by the UN Foundation (US\$ 10 million) to support the ICRAN Action Phase, a four-year project that will have extensive activities occurring in the Caribbean with Coral Reef Conservation, MPA management, etc.
- c) UNEP/UNDP -- Building Capacity for the Conservation of Biodiversity in Marine Protected Areas in the Central Caribbean Ecoregion. PDF B (still under development and scheduled for submission in 2001);
- d) Belize -- Phase Two of the Pilot Phase Full Project 'Sustainable Development and Management of Biologically Diverse Coastal Resources'. Under Implementation as a Full Project. (UNDP).
- e) Guatemala/Honduras/Belize/Mexico -- Conservation and Sustainable Use of the Mesoamerican Barrier Reef System – under implementation. (WB).
- f) Honduras Bay Islands – PDF A/MSP – for submission in April 01. (UNDP).

- g) Colombia - Caribbean Archipelago Biosphere Reserve: Regional Marine Protected Area System – MSP under implementation. (WB).
- h) Colombia - Conservation and sustainable management of marine and coastal biodiversity through strategies to implement a sub-system of marine and coastal protected areas based in the conservation and social participation. PDF B proposal for submission in April 2001. (UNDP).
- i) Venezuela - Conservation of the Biological Diversity of the Orinoco Delta Biosphere Reserve and Lower Orinoco River Basin Full-scale project initiating implementation. (UNDP).
- j) Guyana and Suriname - conservation of coastal biodiversity – Concept under final formulation with WWF. Submission expected mid 01. (UNDP).
- k) Coastal Zone Management in Portland Bight: Demonstration Project – IDB PDF B initiating implementation. (UNDP).
- l) Cuba - Priority Actions to Consolidate Biodiversity Protection in the Sabana-Camaguey Ecosystem – Full-scale project under implementation. (UNDP).
- m) Mexico, Cuba - Gulf of Mexico TDA/SAP International Waters Concept – presently in GEF pipeline (UNDP).
- n) Dominican Republic – Coastal and Marine Biodiversity Conservation – Concept under final formulation for submission mid 01. (UNDP).
- o) Trinidad and Tobago – Coastal Zone/Turtle conservation concept under negotiation. (UNDP).
- p) Antigua and Barbuda - Developing Sustainable Island Resource Management Strategies which address the Conservation of Globally Significant Biodiversity. PDF B under preparation (UNDP);
- q) OECS/UNDP -- Implementation of an Integrated Archipelagic Ecosystem Management and Sustainable Development Programme for the Eastern Caribbean. OP12 PDF B;
- r) OECS and Wider Caribbean countries -- Ship Generated Wastes;
- s) CARICOM Planning for Adaptation to Climate Change project (CPACC) and its follow-on project Mainstreaming Adaptation to Climate Change (MACC);
- t) Venezuela, Costa Rica, Cuba, Trinidad and Tobago, Colombia, Mexico, Nigeria, Cameroon, Iran, Indonesia and Philippines: Reduction of environmental impact from tropical shrimp trawling through the introduction of by-catch reduction technologies and change of management. Full-scale project expected to begin implementation in fourth quarter 2001 (FAO/GEF/UNDP). The project has impact on responsible management of bottom sea living resources and protection of biodiversity.
- u) The Global International Waters Assessment (GIWA) is a GEF project that may provide information that is relevant to the proposed project development activity for the Caribbean LME project for which PDF-B funds will be sought.

The GEF project Conservation and Sustainable use of the Mesoamerican Barrier Reef (e above) is of particular interest to the proposed project. As a transboundary project

involving four countries in marine resource management, it will have much to offer the present project based on its experiences in collaboration at technical and decision-making levels. The proposed project will ensure that the linkages needed to benefit from the experiences of Mesoamerican Barrier Reef Project are in place.

Several other regional or multilateral projects or activities also address aspects of coastal and marine resource use, e.g., projects of the CARICOM CRFM (Belize), the Caribbean Coastal Marine Productivity Program (CARICOMP), the University of Miami Intra-Americas Seas Initiative (IASI), the CCA/UWI Grenadines Islands Project (CCA 2002).

There are also several bilateral and multilateral donor agencies that have consistently supported living marine resource management projects in the region, notably: the Canadian International Development Agency (CIDA), the European Union via the Lome Convention and other arrangements; Japan; The United States Agency for International Development (USAID), The United Kingdom, Department for International Development (DFID).

As an initiative targeting integrated and sustainable management of the shared marine resources of the Caribbean LME, this project supports UNDP focus areas of environment, governance and poverty reduction.

In addition to the activities noted for IA's in the list above there are numerous other national/regional projects/programmes of relevance. Those at the national level are too numerous to list exhaustively at this stage. Those at the regional and international levels are included in the programs of the organizations and institutions noted in the section on Country Drivenness and elsewhere. Linkages with these programs will be essential for successful implementation of this project. At the 10<sup>th</sup> Session of the FAO Western Central Atlantic Fishery Commission, October 2001, FAO recognized the potential value of the proposed project to support the WECAFC program, and welcomed the initiative.

As evidenced by the above descriptions of planned and ongoing activities, there is a variety of activity that is related to the objectives of the proposed project. In implementing the project, special attention will be paid to coordinating activities and sharing knowledge with relevant projects.

## ***16. Proposed project development strategy***

PDF-B funding for an 18-month period will be sought. Following is the approach that will be taken to project development during the PDF-B phase:

### **1. Initial Workshop and PDF-B Coordination mechanisms**

Objectives:

- i. To develop a shared vision for the full project and participatory work plan for the PDF-B;
- ii. To inform the participants of project goals and GEF and UNDP procedures and requirements and to identify their role in the process of developing and implementing the CLME project proposal;
- iii. To establish a Project Steering Committee (participating governments, agencies, other donors)
- iv. To establish the Technical Advisory Group (TAG)

- v. To agree on pdf-b coordination and information sharing mechanisms
2. Information gathering
    - Objectives:
      - i. To gather existing information relevant to the project, to identify gaps, and to determine needs
      - ii. To provide background information for the development of the full project.
  3. Preliminary Transboundary Diagnostic Analysis and Strategic Action Programme
    - Objective:
      - i. Initial identification of the priority transboundary LMR issues and their immediate and root causes that need to be addressed by the main project (preliminary TDA)
      - ii. Initial identification and agreement on governance reforms (legal, policy, institutional) necessary to achieve sustainable management of Caribbean LME shared living marine resources (preliminary SAP)
  4. Full Project Brief draft development
    - Objectives:
      - i. Develop the First Draft of the Full Project proposal
  5. National/Sub-regional Consultations and Resource Mobilization
    - Objectives:
      - i. To provide coordinated national and sub-regional inputs from all stakeholders to the First Draft of the Full Project proposal
      - ii. To identify and include potential donors/partners in the Full Project proposal preparation process
      - iii. To secure and confirm full project co-funding commitments (donor, government and private sector, cash and in-kind)
  6. Final Workshop (Final Draft)
    - Objectives:
      - i. To review and adopt a final Full GEF Project Brief(s) (with full incremental cost analysis and co-finance documentation) and UNDP Project Document for submission to the GEF Council, and upon approval, for later appraisal and implementation.

### ***17. Response to Reviews***

The Concept paper was revised to address the issues raised in the GEF Secretariat review of 11/15/2001. Subsequently, the project proponents, IOCARIBE (Dr. Brad Brown and Dr. Robin Mahon) supported by the US NMFS LME initiative (Dr. Ken Sherman) met with UNDP (Dr. Andrew Hudson) and GEF (Dr. Al Duda) to review the proposal and address any remaining concerns. The final concept addressed and now reflects the main issues that have been raised including:

- Strengthen focus of proposal on governance reforms for transboundary resource management;
- Incorporate application of TDA/SAP approach to the identification of issues/causes and agreement on and implementation of necessary reforms;
- Consolidate and harmonize proposed full project objectives, components, activities and outcomes;
- Addition of GEF International Waters indicators framework activity.

**Table 1: The important resources in the WECAFC region with regard to the need for regional approaches to management (resources are not presented in order or importance or priority)(after FAO 1998)**

Resource type	Importance	Shared distribution	Advantages of sharing information	Justification for regional/sub-regional management	Status
Spiny Lobster	High value for export and tourism	Throughout the region (except Brazil-Guianas shelf) through wide larval dispersal and migration on shared shelves	Transfer of technical skills and management experience among countries. Transfer of data and information for local/regional management. Determination of stock structure.	Widely shared stocks, must be managed regionally. Harmonization of management approaches due to enforcement implications of trade.	Fully-exploited or over-exploited
Queen Conch	High value for export and tourism	Throughout the region (except Brazil-Guianas shelf and Gulf of Mexico). Limited larval dispersal?	”	Locally shared stocks. May be managed nationally. Harmonization of management approaches due to enforcement implications of trade.	Fully-exploited or over-exploited. Listed in CITES appendix 2. Highly vulnerable to over-exploitation and stock collapse.
Large pelagics - coastal (e.g. dolphinfish, blackfin tuna, mackerels)	Domestic and tourism consumption, recreational	Broadly distributed and highly migratory, probably contained within WECAFC region	”	Widely shared stocks, must be managed regionally. Joint management of foreign fishing.	Unknown but fishery expanding rapidly
Large pelagics - oceanic (e.g. yellowfin tuna, billfishes, swordfish)	High value for export, tourism, recreational	Broadly distributed and highly migratory within and outside the WECAFC region	”	Widely shared stocks, must be managed internationally. Joint management of foreign fishing.	Generally fully-exploited to over-exploited (see ICCAT).
Large pelagics - coastal and oceanic sharks	Food (domestic)	Broadly distributed and highly migratory within and outside the WECAFC region	”	Widely shared stocks, must be managed regionally/internationally. Joint management of foreign fishing.	Potential for severe over-exploitation as by-catch. Biodiversity concerns due to vulnerability.
Soft bottom demersals (e.g. drums, croakers, catfish)	Domestic importance for food, export	Widely distributed on continental shelves. Locally migratory.	”	Shared stocks, must be managed sub-regionally.	Heavily exploited as by-catch and directed fisheries
Deep slope demersals (e.g. snappers, groupers)	High value for export, domestic and tourism consumption	Widely distributed on continental and island shelf slopes. Locally migratory?	”	Locally shared stocks. May be managed nationally or sub-regionally.	Fully-exploited to over-exploited.
Shallow reef	Domestically	Widely distributed in		Locally shared	Fully-exploited to

Resource type	Importance	Shared distribution	Advantages of sharing information	Justification for regional/sub-regional management	Status
fishes (snappers, groupers, parrotfish, grunts, surgeonfish)	important for food, high value for export, tourism aesthetics	coral reef habitats. Planktonic larval dispersal. Some species migratory on shared shelves.	”	stocks. May be managed nationally or sub-regionally.	over-exploited. Fishing is impacting reef ecosystem health and productivity. 13 spp. in 5 families on IUCN Red List.
Small coastal pelagics (a) Spanish sardine, menhaden	Major national fisheries	Locally distributed. Fisheries restricted to single countries.	”	May be managed nationally	Under-exploited to fully-exploited
Flyingfish	Domestically important for food.	Distributed and migratory throughout south-eastern Caribbean	”	Shared stocks, must be managed sub-regionally.	Unknown but fishery expanding slowly, after rapid expansion in the 1980s
Shrimp (e.g. brown shrimp, white shrimp, seabob)	High value for export	Widely distributed and migratory within sub-regions (Brazil-Guianas shelf, Gulf of Mexico, Central America/Colombia shelf)	”	Shared stocks, must be managed sub-regionally.	Fully-exploited to over-exploited
Other locally exploited resources (e.g. octopus, squid, crabs, seaweed, sea urchins, corals, etc.).	Locally important	Nationally to widely distributed	”	Various	Various
Turtles, marine mammals	Of concern regarding biodiversity. Nationally important for tourism, aesthetic purposes.	Nationally to widely distributed	”	Regional/international management	Some populations endangered

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**Appendix 1: Key regional and international arrangements that are relevant to sustainable living marine resource use in the Caribbean. (further details on many of these are available in IOCARIBE 2001):**

- **The Caribbean Community (CARICOM)** comprising 16 states has been a leader in regional integration. It is based on The Treaty of Chaguaramus (1973) and its approach to living marine resources is defined in the 1999 Protocol V pertaining to agriculture and fisheries. In March 2003, CARICOM established the Caribbean Regional Fisheries Mechanism a permanent mechanism for fisheries cooperation among its Member States and between these states and other states of the region. The CRFM is the successor to the 12-year CARICOM Fisheries Program. Management of shared resources is the priority issue for the CRFM.
- **The Organization of Eastern Caribbean States (OECS)** is a subregional grouping of nine small island states in the Eastern Caribbean. The OECS Environment and Sustainable Development Unit (ESDU) has an active program in marine resource and environmental management.
- **The FAO Western Central Atlantic Fishery Commission (WECAFC)**, established in 1979, includes all the countries of the wider Caribbean Region and relates widely to the development and management of fisheries in the wider Caribbean. WECAFC has often noted the need for a regional approach to management of many of the region's fisheries and could serve as an umbrella organization for this purpose. In 1999, the Commission agreed that WECAFC should provide advice on management through ad hoc Working Groups. Three ad hoc WGs are in existence: Shrimp and Groundfish Resources of the Brazil-Guianas Shelf, Spiny Lobster and Flyingfish.
- **The UNEP Caribbean Environmental Program**, the activities of which are based on The Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena Convention, 1983) and its Protocols on Special Protected Areas and Wildlife (SPAW), and Marine Pollution from Land-based Sources and Activities (LBS).
- **The UN ECLAC SIDS Implementation Unit** which is mandated with implementing The Barbados Accord and Programme of Action of Barbados regarding Small Island Developing States (1994).
- **The Caribbean Environmental Health Institute (CEHI)** which was established in 1979, as part of an overall Caribbean Environmental Health Strategy, developed under the aegis of the CARICOM Conference of Ministers of Health, and became a legal entity in 1988, has an emphasis on coastal water quality and ecosystem conservation.
- **The Latin American Organization for Fishery Development (OLDEPESCA)** was formed in 1982 with the main purpose of meeting Latin American food requirements adequately, making use of Latin American fishery resource potential for the benefit of Latin American peoples, by concerted action in promoting the constant development of the countries and the permanent strengthening of regional co-operation in this sector.
- **The Association of Caribbean States (ACS)**, established in July 1994, comprises all CARICOM Member States and the States of Latin America whose shores are washed by the Caribbean Sea together with Associate Membership for other Caribbean

Territories, and has as one of its purposes, "to develop the potential of the Caribbean Sea through interaction among Member States and with third parties". Among the activities its articles indicate that it will undertake is "the preservation of the environment and conservation of the natural resources of the region, and especially of the Caribbean Sea".

- The **International Commission for the Conservation of Atlantic Tunas (ICCAT)** was established in 1969 to study the populations of tuna and tuna-like fishes and such other species of fishes exploited in tuna fishing in the Convention area including research on the abundance and ecology of the fishes; the oceanography of their environment; and the effects of natural and human factors upon their abundance. The Commission may, on the basis of scientific evidence, make recommendations designed to maintain the populations of tuna and tuna-like fishes that may be taken in the Convention area at levels which will permit the maximum sustainable catch. The Contracting Parties agree to take all action necessary to ensure the enforcement of this Convention.