The CLME$^+$ SAP: A Strategic Action Programme for Transboundary Living Marine Resources Management in the World's Most SIDS-Rich Region

El PAE del CLME$^+$: Un Programa de Acciones Estratégicas para el Manejo de los Recursos Marinos Vivos Compartidos en la Región del Mundo con Mayor Cantidad de Pequeños Estados Insulares en Desarrollo

Le PAE du CLME$^+$: Une Programme d´Actions Stratégiques pour la Gestion des Ressources Marines Vivantes Partagées dans la Région du Monde avec la Plus Grande Quantité de Petits États Insulaires en Développement

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EXTENDED ABSTRACT

Small Island Developing States (SIDS) are a distinct group of developing countries facing specific social, economic, and environmental vulnerabilities. The Caribbean and North Brazil Large Marine Ecosystems (Figure 1) jointly referred to as CLME$^+$ have the highest concentration of SIDS in any one place on the globe (Table 1). Like all SIDS, the island States bordering these two large marine ecosystems (LMEs) are extremely dependent on marine and coastal resources for their socio- economic development, food security and livelihoods.

According to WRI (2011), the Caribbean Sea contains almost 10% of the world's coral reefs. Coral reef ecosystems do not only provide these SIDS with ecosystem goods and services such as food, but are important for coastal protection, pharmaceuticals, and provide recreational opportunities, especially for many visitors in the form of SCUBA diving and snorkelling. It is estimated that the region's reefs provide annual net benefits of USD $391 million from fisheries, USD $720 million from coastal protection, USD $663 million from tourism/recreation. and USD $79 million from biodiversity value, delivering total annual benefits of at least USD $1.85 billion (Schuhmann 2011). Mangrove forests and tropical wetlands which are found in almost all the Caribbean SIDS are also an important habitat, serving as a nursery for many economically and ecologically marine species. Further they are also critical to the protection of coastal areas and communi-

Figure 1. The Caribbean and North Brazil Large Marine Ecosystems

ties and now are seen as an important sink for carbon dioxide. Seagrass beds, another important coastal habitat, provide important ecosystem services, such as the stabilization of sediment, and act as nursery grounds for economically important species. Together, coral reefs, mangroves, and seagrass beds − which often occur in close proximity to each other − serve to enhance the productivity of the entire CLME$^+$, with reefs acting as breakwaters providing a low energy environment to allow mangroves and sea grass beds to flourish. In return, seagrass beds and mangroves act as a barrier to excessive nutrients and sediments entering the reef environment (Harborne et al. 2006).

Another ecosystem type that provides a number of important services (such as provisioning, regulating, and supporting) to many of the SIDS within the CLME$^+$ is the pelagic ecosystem. A wide array of species – from small coastal pelagic fishes such as the four-wing flyingfish to large coastal and oceanic species including tunas, sharks, billfish, turtles and marine mammals/cetaceans – spend their full life cycle or part thereof in the pelagic ecosystem (CLME$^+$ Project Document 2015). Within the last few years, many of the SIDS of the Lesser Antilles, such as Barbados, Grenada, Saint Lucia, St. Vincent & the Grenadines, and Trinidad & Tobago, have been shifting from small-scale coastal and reef fisheries to small-scale offshore pelagic fishing.

Table 1. List of island and low lying States, as well as overseas dependent territories and associated states within the CLME$^+$

Independent SIDS and low lying States	Overseas dependent territories, associated states, outermost regions, departments and island with a special status[1]
Antigua & Barbuda	Anguilla (*United Kingdom*)
Bahamas, the	Aruba, Curaçao, St. Maarten[2]
Barbados	British Virgin Islands (*United Kingdom*)
Belize	Cayman Islands (*United Kingdom*)
Cuba	French Guiana (*France*)
Dominica	Guadeloupe (*France*)
Dominican Republic	Montserrat (*United Kingdom*)
Grenada	Martinique (*France*)
Guyana	Puerto Rico (*United States of America*)
Haiti	Bonaire, St. Eustatius, Saba
Jamaica	St. Barthélemy (*France*)
St. Kitts & Nevis	St. Martin (*France*)
Saint Lucia	Turks and Caicos (*United Kingdom*)
St. Vincent & the Grenadines	U.S. Virgin Islands (*United States of America*)
Suriname	
Trinidad & Tobago	

[1]As of 10 October 2010, Holland, Aruba, Curaçao and St. Maarten are partners in the Kingdom of the Netherlands. The islands of Bonaire, Saba, and St. Eustatius have become "special municipalities" of Holland

[2]Kingdom of the Netherlands

However, many of these same resources that these islands depend on are under threat. Transboundary Diagnostics Analyses undertaken as part of the CLME Project (GEF ID 1032; 2009 - 2014) identified three transboundary issues that are negatively impacting the region's coastal and marine resources and include: habitat degradation and community modification; unsustainable fisheries and pollution. It was further recognised that with climate change and the associated sea level rise the impact of these three transboundary issues would be further exacerbated.

The World Resource Institute has indicated that 75% of Caribbean coral reefs are at risk from overfishing and pollution. This is now further exacerbated by the introduction into the Caribbean of lionfish, which is known to prey on a number of ecologically and economically important species, such as snappers, groupers, and grunts. Through their potential to reduce fish biodiversity (and thus recreational attractiveness) on coral reefs, the lionfish is another threat to the region's USD 2.1 billion dive tourism industry (Waite 2011).

Review of fisheries catch and associated data, as well as information on biological indicators show high levels of exploitation of many of the region's fishery resources, resulting in many important fisheries now being considered fully-fished or in some cases over-exploited. This has led to declining catch per unit effort (CPUE) in a number of fisheries with many fishers indicating a need to spend more time further offshore to target species that were once readily available inshore (CRFM 2013).

Sources of marine pollution in the CLME$^+$ are linked to a high intensity and diversity of both land-based and marine activities: e.g. tourism, households, industry, agriculture, forestry, mining, shipping, and exploration for oil and gas. At the regional level, the impacts of sediment and nutrient discharges associated with poor land-use practices constitute one of the biggest, and very complex permanent threats to the marine environment in the CLME$^+$ (UNEP-UCR/CEP 2010).

Casual chain analyses (CCAs) undertaken as part of the Transboundary Diagnostic Analysis of the CLME Project identified a number of root causes that contribute to the continued transboundary problems impacting the coastal and marine resources of the CLME$^+$ region. They include:

i) Weak governance (incl. legal and institutional frameworks),
ii) Limited human and financial resources,
iii) Inadequate (access to) data and information/ knowledge,
iv) Inadequate public awareness and involvement,
v) Inadequate consideration of the value of ecosystem goods and services,
vi) Population and cultural pressures, and
vii) Trade and external dependency.

Addressing the identified root causes is key towards ensuring healthy coastal and marine resources, and by extension improved human well-being and can only be achieved through the adoption of ecosystem based management/ ecosystem approach to fisheries (EBM/EAF) within the CLME+ Region and by extension the region's SIDS. EBM refers to the management of ecosystems and natural habitats to meet human requirements to utilize natural resources, whilst at the same time maintaining the biological richness and ecological processes necessary to sustain the composition, structure and function of the concerned habitats and ecosystems. EAF strives to balance diverse societal objectives, by taking into account the knowledge and uncertainties about biotic, abiotic, and human components of the ecosystems and their interactions, whilst applying an integrated approach to fisheries within ecologically meaningful boundaries (Garcia et al. 2003).

In an attempt to address the identified root causes through the adoption of EBM/EAF CLME+ countries, with financial support from the Global Environment Facility (GEF), developed a 10-year regional Strategic Action Programme (SAP) in which the following long-term vision for the region's marine environment was articulated:

> *Healthy marine ecosystems that are adequately valued and protected through robust, integrative and inclusive governance arrangements at regional, sub-regional, national and local levels, which in turn effectively enable adaptive management that maximizes, in a sustainable manner, the provision of goods and services in support of enhanced livelihoods and human well-being.*
> *(CLME+ SAP, p. 17)*

This long-term vision for the CLME+ acknowledges that, in a context of increasing environmental pressures and demands for natural resources − exacerbated by climate change and population growth − a sustained provision of goods and services will require substantial improvements in the coordination of resources use among the different societal groups with a stake in the marine environment (CLME+ Project Document 2015). CLME+ States and territories further recognise that the implementation of ocean governance and management mechanisms is necessary for the restoration of many of the region's coastal and marine resources and the associated societal benefits.

Through the SAP, the countries of the region committed to the implementation of a comprehensive package of six coordinated Strategies and four Sub-Strategies, and a total of 77 priority Actions short (0 - 5 years) and medium (6 - 10 years) term, with an initial focus on governance and management of shared Living Marine Resources (Figure 3).

At the overarching, LME level, the three main strategies under the SAP are:

- **(S1)** *Enhance the regional governance arrangements for the protection of the marine environment*;
- **(S2)** *Enhance the regional governance arrangements for sustainable fisheries*;
- **(S3)** *Establish and operationalise a regional policy coordination mechanism for ocean governance, with an initial focus on shared living marine resources (CLME+ SAP, 2013);*

In order to foster the adoption and implementation of EBM/EAF at the level of the three CLME+ *fishery ecosystem types*, three additional Strategies were incorporated under the SAP.

- **(S4)** *Enhance the governance arrangements for ecosystem-based management of reefs and associated ecosystems (incl. sea grass beds, mangroves, reef slopes and coastal lagoons);*
- **(S5)** *Enhance the governance arrangements for implementing an ecosystem approach for pelagic fisheries;*
- **(S6)** *Implementing EBM/EAF of the Guianas-Brazil continental shelf, with special reference to the shrimp and groundfish fisheries (CLME+ SAP, 2013);*

In addition to this, four Sub-Strategies, focussing on fisheries of key economic and/or social importance in the region have been articulated:

- **(S4A)** *Enhance the governance arrangements for implementing an ecosystem approach for spiny lobster fisheries*;
- **(S4B)** *Enhance the governance arrangements for implementation an ecosystem approach for queen conch fisheries*;
- **(S5A)** *Enhance the governance arrangements for implementation an ecosystem approach for flyingfish fisheries*;
- **(S5B)** *Enhance the governance arrangements for implementation an ecosystem approach for large pelagics fisheries (CLME+ SAP, 2013)*;

The CLME+ SAP which has been politically endorsed by twenty-two countries provides a roadmap towards sustainable living marine resources management through strengthened and consolidated regional cooperation. It combines actions for structural change with capacity building at the regional, national and local levels, high priority management interventions and on-the-ground investments.

The CLME+ SAP has been designed to be an *umbrella programme* and therefore seeks to be a reference framework that would contribute to improved ocean governance and by extension improved societal benefits for all the people within the CLME+.

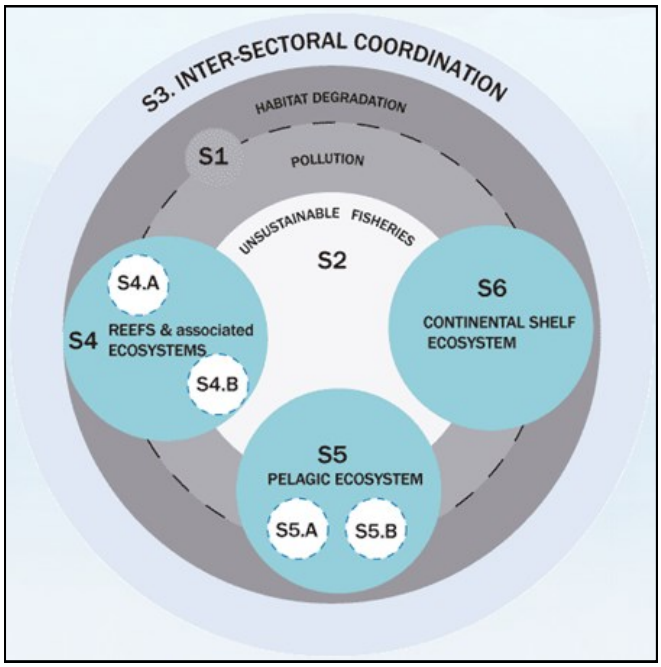

Figure 3. The six strategies and four sub-strategies of the CLME$^+$ SAP.

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