

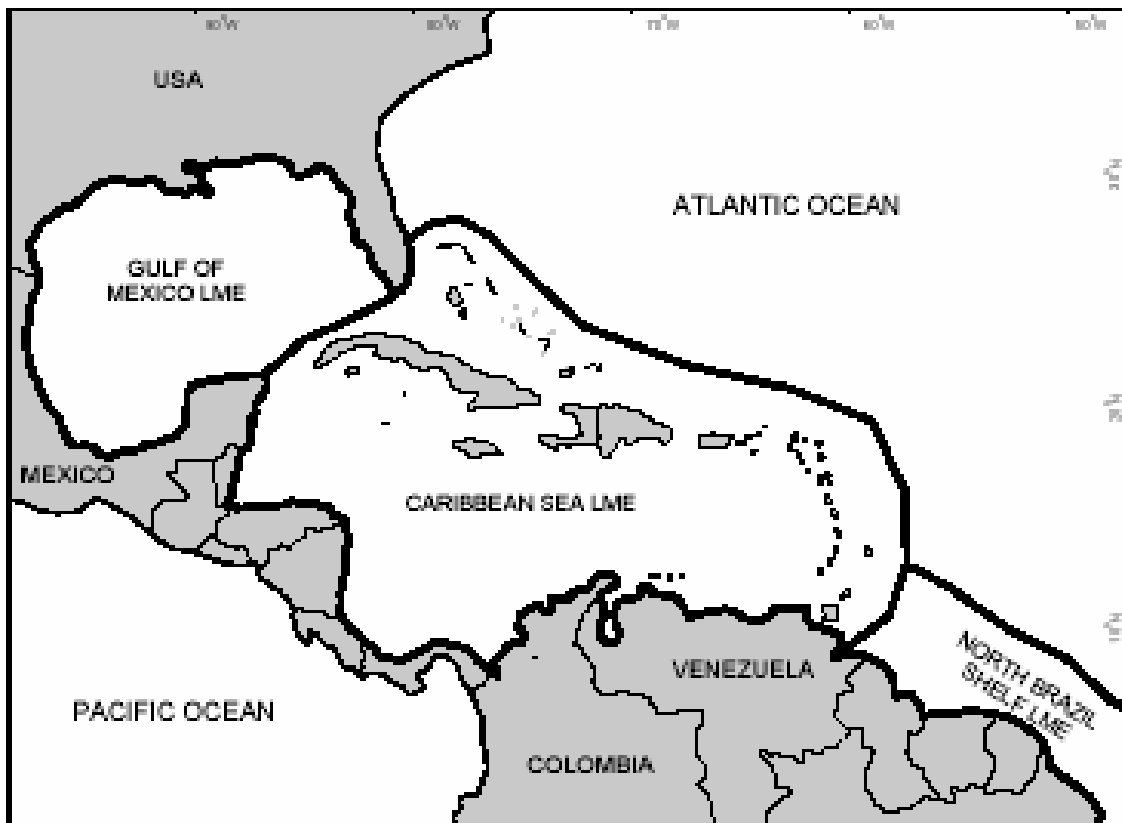


Caribbean Large Marine Ecosystem (CLME) Project

DRAFT

**CLME Full Project Component 4:
Guianas-Brazil Shrimp and Groundfish
Pilot Project**

Prepared by:
Terrence Phillips, Robin Mahon and Bisessar Chakalall



CLME Project Implementation Unit

Centre for Resource Management and Environmental Studies (CERMES)
University of the West Indies
Cave Hill Campus, Barbados

February 2007

Contents

1	Background.....	1
2	Objectives	3
3	Activities.....	3
4	Outputs.....	3
5	Management structure and accountability	4
6	Stakeholders and beneficiaries.....	4
7	Long-term sustainability strategy	4
8	Replicability.....	4
9	Monitoring and evaluation.....	4
10	Co-funding	5
11	References.....	5
12	Appendix 1.....	7

1 Background

The shrimp resources in the Guianas–Brazil sub-region support one of the most important export oriented shrimp fisheries in the world. These resources include four of the larger penaeids (southern brown shrimp *Penaeus subtilis*, pink spotted shrimp *P. brasiliensis*, southern pink shrimp *P. notialis* and southern white shrimp *P. schmitti*) and the smaller seabob shrimp (*Xiphopenaeus kroyeri*), with their general distribution and abundance differing markedly amongst the countries in the region. In general, the brown shrimp, *P. subtilis*, is more abundant in the eastern (Brazil through Suriname) than in the western (Guyana through Venezuela) regions of the shelf, while the pink spotted shrimp, *P. brasiliensis*, is far more important in Guyana and Suriname than in the remaining countries. The species is not caught in the Brazilian fishery and usually very large individuals are caught off the Venezuelan coast, but the species is secondary to *P. subtilis* in the inshore areas of the Gulf of Paria (Ehrhardt, 2001).

Recent work on the brown shrimp and pink-spotted shrimp show a consistent decrease in biomass in recent years, with the decline being attributed to such factors as fishing mortality, increasing fishing close to shore where immature shrimp are caught, and environmental factors possibly linked to rainfall and river outflow. However, there is still need to improve on the quality of data/information as it relates to the fishing capacity, including processing infrastructure, operating in the Guianas–Brazil shrimp fishery and on the intensity and effects of near shore fishing by shrimp trawlers. In like manner, there is need to determine the possible links between recruitment and environment and its likely effects on the fishery. Also, more bio-economic assessments are required as previous work had shown that the current levels of exploitation were above the economic minimum, suggesting that potential revenue was being dissipated. Basic assessment work needs to be done on the seabob as this species is now being targeted by the industrial trawl fleets in countries such as Guyana and Suriname. In addition, there is need to evaluate the effectiveness of the management tools, such as effort control, closed areas and closed seasons being used in the shrimp fisheries, and determine how they can be improved (FAO/WECAFC, 2001).

The groundfish resources in the Brazil-Guianas shelf region are important for commercial and social reasons. Commercially there is a strong domestic market demand for affordable and accessible fish protein together with a source of valuable foreign exchange when exported, with social reasons including the reliance of many rural fishers on artisanal fishing as a means of livelihood. In the past, there has been considerable confusion as to the value of the groundfish fishery as a whole, with shrimp being perceived as the most important resource in the region because of the foreign exchange that it generates. As such, groundfish have been ignored or given only limited attention because most landings are consumed domestically with its earnings unaccounted for.

The few groundfish species that are exported in any appreciable amount are red snapper (*Lutjanus purpureus*), lane snapper (*L. synagris*) and green weakfish (*Cynoscion virescens*), with red snapper being arguably the most important groundfish in the region as its distribution range is throughout the area and it is primarily exported. Export quality fish are beginning to be recognised as important, and management issues are now being addressed. There are, however,

other species with minor export potential, but considerable social importance. Rural fishers are dependent on a sustainable harvest of resources to ensure social stability as domestic sales contribute to their economic security.

The groundfish resources are harvested by various countries using a variety of fishing gears which each targeting a number of species. These fisheries are therefore multigear, multispecies and multinational. Fishing methods can be classified as industrial or artisanal depending on the level of mechanisation. Industrial fleets are dominated by trawlers and large pot/line vessels and are often owned internationally (Booth *et al.* 2001).

The results of assessments of a limited number of groundfish species indicate high levels of exploitation with most stocks being fully exploited and frequently overexploited, but despite a desire for sustainable utilization, management has been seriously hindered by a lack of comprehensive and reliable information on many important species (FAO/WECAFC, 2001). For example, even though the red snapper fishery, which started in 1940, is one of the most important fisheries in the region between eastern Venezuela and northern Brazil, not much is known about the stock structure and fishing effort being applied. The identification of the structure and fishing effort would contribute significantly to more effective management (Charuau, *et al.* 2001).

The extent of IUU fishing in the Guianas–Brazil sub-region is unknown, but it is recognized that such activities can be detrimental to the management of the fisheries in the area, in terms of its impact on the assessment of the resources, management and economic returns.

For the countries of the Guianas–Brazil sub-region, fisheries administration is under the Ministry of Agriculture in all the countries except Brazil, where the responsibility is shared between the Ministry of Agriculture, responsible for development, issuing of licences and for the economic aspects, and IBAMA (Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis), responsible for conservation and management and for enforcement. In most countries fisheries research is also conducted by the national fisheries administration, which is under the Ministry of Agriculture. Brazil and Venezuela have delegated fisheries research to specialised agencies. In Brazil CEPNOR (Centro de Pesquisa e Extensão Pesqueira do Norte do Brasil) is responsible for research in the North of Brazil (Atlantic Ocean and Amazon Basin), while in Venezuela FONAIAP (Fondo Nacional de Investigaciones Agropecuarias), a specialised research agency under the Ministry of Agriculture has the responsibility for fisheries research. In French Guiana, IFREMER (Institute Français pour l' exploitation de la mer) is responsible for research and it provides scientific advice on all aspects of fisheries to the French Ministry of Agriculture, which is responsible for conservation and management, including monitoring control and surveillance (Chakalall, *et al* 2002).

Regional and sub-regional organizations such as the FAO/WECAFC and CRFM having been actively promoting fisheries management and development in the Guianas–Brazil subregion. The Member States of FAO/WECAFC include Brazil, French Guiana (EU/France), Suriname, Guyana, Venezuela and Trinidad and Tobago, while those of the CRFM include Suriname, Guyana and Trinidad and Tobago. This approach to promoting fisheries resource assessment and

management in the sub-region was viewed as an effective one, despite some shortcomings, and its continuation recommended (FAO/WECAFC 2001).

2 Objectives

The purpose of the shrimp and groundfish pilot project is to establish a regular regional management cycle for the shared shrimp and groundfish stocks of the Guianas – Brazil shelf that utilizes the best available information from all sources, develops a regional management plan, provides advice to a legitimate decision-making body, makes transparent decisions and implements them in timely fashion.

Specific objectives include:

- Identifying and engaging the full range of stakeholders in each stage of the cycle;
- Establishing and operating the stages of the cycle; and
- Enhancing linkages between the regional cycle and other relevant cycles at lower and higher levels.

3 Activities

The following activities are proposed as being necessary to achieve the objectives described above:

- Stakeholder analysis including assessment of their capacity to take part in the regional management process.
- Specification of and obtaining stakeholder agreement upon appropriate management cycles for shrimp and groundfish.
- Technical sessions of the FAO/WECAFC Working Group on Shrimp and Groundfish Resources in the Guianas – Brazil Shelf.
- Identification and support of meetings of an appropriate regional political forum for decision-making.
- Research to fill gaps identified by the cycle. See Appendix 1.

4 Outputs

1. A regional management plan that identifies:

- Processes by which management will be reviewed, decisions taken and management implemented, including:
 - Roles and responsibilities of stakeholders at all levels.
 - Linkages among stakeholders.
- Actions to be taken by national and regional management organizations to achieve sustainable use of the shrimp and groundfish resources and achieve WSSD targets, including:

- Promotion of an ecosystem-based management approach for shrimp and groundfish.
- Information gaps that need to be filled to improve management.

2. Implementation of two full cycles of the process, including:

- Review and adoption of the plan according to the processes.
- Implementation of key actions.
- Review and evaluation of implementation.

5 Management structure and accountability

The Project will be led by WECAFC. Implementation partners will include, but not be limited to, CRFM, IFREMER, national fisheries departments and related agencies, fishing industry representatives. There will be a Project Steering Committee comprising representatives from these agencies. WECAFC will be accountable to the PRU for all funds and pilot project outputs.

6 Stakeholders and beneficiaries

Stakeholders are national governmental and regional intergovernmental management agencies, boat owners, fishers, vendors, processors retailers, exporters and all persons engaged in associated support activities. Beneficiaries are all who earn a living, either in whole or in part from the utilization of the shrimp and groundfish resources as well as the consumers who will be assured a good supply of fish protein. The countries of the sub-region will also be able to maintain or increase their foreign revenues from the sale of products from these resources.

7 Long-term sustainability strategy

The strategy for long-term sustainability is foremost to develop a process that is appropriate to the value of the resources and the capacity of the participating countries. It is envisaged that once the policy cycles have been established and operated, stakeholders will begin to appreciate their value and to recognize the benefits that can be derived. It is however, likely that it will take longer than two years for this to become self-supporting and that follow-on funding will be necessary for this to become established as a fully-self supporting process. During the period of implementation, alternatives to direct government support will be explored. Discussions will be pursued with stakeholders to encourage them to supporting the processes required for transboundary management of shrimp and groundfish resources.

8 Replicability

The establishment of a functional policy cycle with appropriate linkages to national and local entities as well as to regional and global cycles will provide an example that can be adapted to other situations of shared fishery resources.

9 Monitoring and evaluation

A programme of monitoring and evaluation will be developed based on GEF indicators for resource status, governance processes and environmental pressures.

10 Co-funding

Partner	Role	
WECAFC	Overall coordination of pilot project. Ad Hoc Working Group on Shrimp and Groundfish Resources of the Guianas – Brazil Shelf	
Caribbean Regional Fishery Mechanism	Coordination among CRFM countries and technical input	
IFREMER	Technical input	
Countries	Participation in process and implementation of decisions	
Fisher organizations, vendors, processors/exporters	Participation in process	

11 References

Booth, A., Charuau, A., Cochrane, K., Die, D., Hackett, A., Lárez, A., Maison, D., Marcano, L.A., Phillips, T., Soomai, S., Souza, R., Wiggins, S. and Yspol, M., 2001. Regional assessment of the Brazil-Guianas groundfish fisheries. FAO Fisheries Report 651:22-36.

Chakalall, B., K. Cochrane and T. Phillips, 2002. Regional Conference on the Sustainability of Fisheries in the Brazil – Guianas Shelf, Paramaribo, Suriname, 5 – 7 March 2002: Existing Approaches to Fisheries Management in the Brazil – Guianas Shelf. WECAFC/B-G/1/4. 20 p.

Charuau, A., Cochrane, K., Die, D., Lárez, A., Marcano, L.A., Phillips, T., Soomai, S., Souza, R., Wiggins, S. and Yspol, M. (2001). Regional Assessment of red snapper, *Lutjanus purpureus*. FAO Fisheries Report 651:15-21.

Ehrhardt, N.M., 2001. Comparative regional stock assessment analysis of the shrimp resources from northern Brazil to Venezuela. FAO Fisheries Report 651:1-14.

Fanning, L., R. Mahon, P. McConney, J. Angulo, F. Burrows, B. Chakalall, D. Gil, M. Haughton, S. Heileman, S. Martinez, L. Ostine, Adrian Oviedo, S. Parsons, T. Phillips, C. Santizo, B. Simmons, C. Toro. 2007. A large marine ecosystem governance framework. Marine Policy (accepted)

FAO/WECAFC, 2001. Report of the Meeting of Fisheries Managers and Ministers of the WECAFC Ad Hoc Working Group on Shrimp and Groundfish Resources in the Brazil – Guianas

Shelf. Port of Spain, Trinidad and Tobago, 26-29 March 2001. FAO Fisheries Report. No. 650.
Rome, FAO. 2001. 61 p.

12 Appendix 1

Table I: Interventions to strengthen and establish mechanisms for improving management of the shrimp and ground fish fisheries of the North Brazil Shelf LME.

Scale Level	Policy Cycle Stage				
	Data/Information	Analysis and Advice	Decision Making	Implementation	Review and Evaluation
Local	Data collection systems (catch, effort, biological, social, economic environmental.etc) Record local knowledge.	Include data and information inputs generated by fishing community	Identify and develop mechanisms for management of fisheries at the community level. Improve stakeholder participation (fisher and other relevant community groups) in the decision-making process.	Relevant decisions implemented by fishing community based on the level of decentralized authority with assistance from national level Identify and develop mechanisms to encourage “self-policing”.	Define the indicators. Provide inputs to the policy cycle
	Strengthen relevant local government agencies.	Provide options	Organise and/or strengthen fisher and other stakeholder groups at local level.	With support from national level	Provide inputs to the policy cycle
	Develop programme for awareness building and knowledge sharing (field school approach) among stakeholders.				With support from national level
National		Defined by national level authority with inputs from local level	Options for strengthening national mechanisms for participation in the decision making processes.	Decisions implemented by national level authority e.g strengthen MCS	Define the indicators. Provide inputs to the policy cycle
	Improve on the data collection systems based on feedback from review and evaluation	Undertake analyses for community related and national level fisheries and provide inputs to decision making.	Promote and develop mechanisms to improve intersectoral interface and planning.	By local and national levels	
	Institutional structure, capacities	Undertake analyses and	Update and implement FMPs.	By relevant agencies	Define the indicators.

		provide policy options	Promote an ecosystem-based approach to fisheries management.	Strengthen relevant agencies	
	Awareness building (field school approach) among stakeholders.	Undertake analyses. provide policy options	Establish or strengthen trawler owner, processors and other stakeholder organizations at national level.	By national level	
		Promote intersectoral planning, collaboration/ cooperation.	Integrated ecosystem approach to natural resource use	Implemented by the economic sectors involved	Provide inputs to the policy cycle
Regional	Establish a protocol for sharing data and information involving regional partners (e.g FAO/ WECAFC, CRFM)	Options for the development of a multi-disciplinary shrimp & groundfish working group comprising countries of North Brazil Shelf LME	North Brazil LME approaches to managing shared resources.	Design and establish mechanisms for management of the shared resources.	Define the indicators. Provide inputs to the policy cycle
	Promote and facilitate harmonisation of data collection systems.	Regional Partners (e.g FAO/ WECAFC, CRFM) provide policy advice.	Promote ecosystem-based approach to fisheries management.	Implementation at all levels	Provide inputs to the policy cycle Define the indicators
		Networking of stakeholder groups, NGOs and partners at the regional level for inputs to decision making.	Facilitating stakeholder inputs		

Note: Actions/activities at the local level depend heavily on sustained inputs and technical support from the national level. Similarly, actions at the regional level depend on inputs from the national level. Thus, the national level serves as the pivot around which the local and regional levels revolve and could be described as the primary driver of the proposed Caribbean LME governance framework. Implementation is at all levels and depends on the degree of authority accorded to the jurisdictional levels (Fanning *et al.* 2007).