

3 EXISTING APPROACHES TO FISHERIES MANAGEMENT IN THE BRAZIL-GUIANAS SHELF

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3.1 Legal framework

Developments over the last few years regarding several international initiatives in the fields of fisheries conservation and management have had an impact on the work carried out by national fisheries administrations and on sub-regional, regional and global fisheries bodies and organisations. Such developments include the Agreement to Promote Compliance of International Conservation and Management Measures by Fishery Vessels on the High Seas (Compliance Agreement), The Code of Conduct for Responsible Fisheries, Agenda 21 of the United Nations Conference on Environment and Development (UNCED) and the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UN Fish Stocks Agreement).

3.1.1 The Law of the Sea Convention and living marine resources

The United Nations Convention on the Law of the Sea of 1982 resulted in the global acceptance of a coastal state's authority to manage fisheries within its jurisdiction. This authority created new opportunities and responsibilities for coastal states as well as problems of adjustments to countries operating distant water fleets.

The core of the Law of the Sea Convention on fisheries consists of Articles 61 and 62, which deal with the conservation, management and utilisation of the living resources within the EEZ. Article 61 specifies that the living resources in all economic zones must be managed and conserved to prevent over-exploitation. It requires the coastal state to take measures to maintain or restore populations of harvested species at levels, which can produce a maximum sustainable yield and to determine the "allowable catch of the living resource". The coastal state is required "to take into account the best scientific evidence available" to determine management and conservation measures.

Since coastal states retain the primary responsibility to explore, exploit, conserve and manage the living resources within the EEZ, they have the obligation to ensure that conservation measures and regulations are complied with. Article 73 allows the coastal state to board, inspect, arrest and take judicial action against foreign fishers, within important limitations, in order to ensure compliance with its laws and regulations.

3.1.2 Compliance Agreement

From the point of view of national legislation, perhaps the core provisions of the Agreement to Promote Compliance of International Conservation and Management Measures by Vessels on the High Seas (Compliance Agreement) are those relating to the responsibility of the Flag State and to the gathering and exchange of information.

Article III of the Compliance Agreement is dedicated to the concept of *flag state responsibility* in respect of fishing vessels operating on the high seas. This Article places a general obligation on flag states to take such measures as may be necessary to ensure that vessels flying their flags do not engage in any activity that undermines the effectiveness of international conservation and management measures. They are required not to allow any of their flag vessels to be used for fishing on the high seas unless they have been authorised by the appropriate national authorities and are in accordance with conditions of the authorisation.

The provisions designed to ensure *adequate flow of information* on high seas fisheries activities form the second main pillar of the Compliance Agreement. Flag States will thus be required to maintain detailed records on all vessels authorised to fish on the high seas and to make all such information available to FAO on a “real-time” basis. FAO in its turn will then make the information available to all contracting parties and to global, regional and sub-regional fisheries management organisations.

3.1.3 Code of Conduct for Responsible Fisheries

The Code of Conduct for Responsible Fisheries was adopted by the FAO Conference at its Twenty-eighth Session in October 1995. The Code’s primary purpose is to facilitate the creation of an enabling environment at national, subregional, regional and global levels for enhanced fisheries (including aquaculture) management, to elicit and facilitate the structural changes required in the fisheries sector to ensure that sustainable development practices are pursued and to improve the contribution made by the fisheries sector to food security.

As a voluntary instrument, the Code sets out the principles and international standards of behaviour for responsible practices with a view to ensure the effective conservation, management and utilisation of living aquatic resources, with due respect for the ecosystem and biodiversity. The Code recognises the nutritional, economic, social, environmental and cultural importance of fisheries and the interests of all those concerned with the fishery sector.

Article 7 of the Code deals with various aspects of fisheries management such as management objectives, management framework and procedures, data gathering and management advice, implementation of the precautionary approach, considerations in selecting management measures and effective implementation of responsible management. States should apply, as appropriate, these guiding principles in the management of their fishery resources. According to Article 7.1.1 of the Code “all those engaged in fisheries management should, through an appropriate policy, legal and institutional framework, adopt measures for the long-term conservation and sustainable use of fisheries resources”.

With respect to fisheries management the Code calls on States and sub-regional and regional fisheries management organisations and arrangements to adopt appropriate measures, “based on the best scientific evidence available which are designed to maintain or restore stocks at levels capable of producing maximum sustainable yields, as qualified by relevant environment and economic factors”. Article 7.2.2 of the Code provides examples of the appropriate measures, which include, *inter alia*, that:

- Excess fishing capacity is avoided and the exploitation of stocks remain economically viable;
- The economic conditions under which fishing industries operate promote responsible fisheries;
- The interests of fishers, including those in subsistence, small-scale and artisanal fisheries are taken into account;
- Biodiversity of aquatic habitats and ecosystems is conserved and endangered species protected;
- Depleted stocks are allowed to recover, or where appropriate, are actively restored;
- Adverse environmental impacts on the resource from human activities are assessed and, where appropriate, corrected.

3.1.4 UN Fish Stocks Agreement

The 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UN Fish Stocks

Agreement) was adopted in August 1995. The objective of the Agreement is to ensure the long-term conservation and sustainable use of straddling stocks and highly migratory fish stocks through effective implementation of the relevant provisions of the 1982 Law of the Sea Convention. The main thrust is towards the duties of the Flag State in controlling the activities of its vessels and also the measures it should take to ensure compliance and enforcement of the relevant conservation and management measures. The Agreement deals with the role of sub-regional and regional management bodies and arrangements and cooperation in scientific research. The need for international cooperation in enforcement of conservation and management measures set by sub-regional and regional bodies is stressed. Finally, the Agreement stresses, in Annex I, the Standard Requirements for the Collection and Sharing of Data.

3.2 Regional Cooperation

All the international fisheries agreements mentioned above raise the importance of regional cooperation in fisheries. Perhaps the Code of Conduct for Responsible Fisheries emphasises this need more eloquently for the Guianas-Brazil region and more importantly, provides guidelines on how it could be achieved. Article 7.1.3 of the Code states:

For transboundary fish stocks, straddling fish stocks, highly migratory fish stocks and high seas fish stocks, where these are exploited by two or more States, the States concerned, including the relevant coastal States in the case of straddling and highly migratory stocks, should co-operate to ensure effective conservation and management of the resources. This should be achieved, where appropriate, through the establishment of a bilateral, sub-regional or regional fisheries organization or arrangement.

3.3 Precautionary approach to fisheries

Acceptance of the Precautionary Approach to Fisheries (FAO 1995) is implicit in the Code of Conduct and the steps necessary for responsible fishing when confronted by complexity and uncertainty are well described in the Guidelines to the Precautionary Approach to Fisheries. These Guidelines emphasise that sustainable utilisation requires the application of prudent foresight and suggest that this includes, amongst other attributes, the following:

- (i) The avoidance of changes that are not potentially reversible;
- (ii) The prior identification of undesirable outcomes and of measures that will avoid them;
- (iii) That any necessary corrective measures are implemented without delay and are rapid and effective;
- (iv) That where there is uncertainty, primary attention should be given to conserving the productive capacity of the resource;
- (v) That the fishing and processing capacity should be in harmony with the production potential of the resource, to avoid continual social and economic pressure to over-exploit the resources in order to utilise this capacity; and
- (vi) That all fisheries should be conducted according to an explicit and appropriate management plan and that the administrative and legal framework exists to ensure implementation of the plan.

These themes and others, are also picked-up in the Code of Conduct for Responsible Fisheries which urges States to apply the precautionary approach using the best scientific evidence available, including stock specific target and limit reference points and what actions should be taken if the points are exceeded. Of these, (i), (ii) and (iv) refer more specifically to the resource and require good insight into the status and dynamics of the resource. The series of Brazil-Guianas workshops, under the auspices of the WECAFC *Ad hoc* Working

Group on the Brazil-Guianas Continental Shelf, have been designed to provide such insights, including, where appropriate, identification of reference points and evaluation of the consequence or outcomes of different management strategies. The avoidance of irreversible changes and prior identification of undesirable outcomes and identification of uncertainty, presuppose a certain level of knowledge of the resource. In addition, point (iv) stresses that where there is uncertainty, the doubt should be used in favour of the resources.

3.4 National fisheries legislation

The coming into force of the 1982 Law of the Sea Convention and the recent international initiatives in fisheries mentioned earlier have made it necessary for countries of the Brazil-Guianas region to revise their fisheries legislation.

3.4.1 Brazil

Article 187 of the Federal Constitution of Brazil provides for the definition of an agriculture policy and explicitly includes agro-industrial activities, agriculture and livestock, fisheries and forestry. Article 225 of the Constitution identifies a number of principles that concerns the environment. Included among these principles, are the protection of fauna and the ecological management of species and ecosystems. Both these principles implicitly include fisheries. The responsibility for the application of these principles lies with the “Poder Publico” (the Government).

Legislation 9.649 of 27 May 1998, which deals with the organisation of the Presidential Office (Presidencia de la Republica) and Ministries, established a significant change in the prevailing trend with respect to areas of competence of Ministries. The Ministry of Agriculture and Supply was given the responsibility for promoting agriculture and animal production, including fisheries and rubber. The Ministry of the Environment, Water Resources and Amazonia was given the responsibility for the preservation, conservation and rational use of renewable natural resources. Article 14 of Legislation 9.649 establishes that the “Executive Power” should revise the structure, functions and attributes of IBAMA (Brazilian Institute of the Environment and Renewable Natural Resources) in order to separate the functions of development and promotion of fisheries resources and rubber, with the objective of transferring them to the Ministry of Agriculture and Supply.

As can be observed, Brazil is in a process of change. Through this change the responsibility for the conservation and management of the fisheries resources will lie with IBAMA while the Ministry of Agriculture and Supply will be responsible for fisheries development. The process of decentralisation and federalisation that the Brazilian Constitution requires the design and implementation of innovative and adequate fisheries management plans with an appropriate legal framework. There is a need to clarify and harmonise the existing legal framework with respect to a unified fisheries policy for management and development.

3.4.2 French Guiana

The common fisheries policy of the European Union, which came into effect in January 1983, covers French Guiana as an overseas department of France. The policy calls for common rules for fishing in the maritime waters and co-ordination of structural policies of Member States to promote harmonious and balanced development of the fishing industry (Council Regulation (EEC) No. 101/76). Member States could have exclusive fishing access to waters up to six miles or in some cases twelve miles from the shore. Provision is made for the European Council to adopt the necessary conservation measures for fish stocks in the Maritime waters of one or other Member State. These measures could include restrictions to the catching of certain species, to areas, to fishing seasons, to methods of fishing and fishing gear.

Even though EU regulations may apply, the Member State could pass legislation concerning the conservation and management of its fishery. These include, *inter alia*, temporary bans for

regulating the fishing of certain species to limit catch by vessel and by species or species groups, determining minimum size, regulating mesh size and technical characteristics of vessels. Member States of the Commission will have to be notified of these laws, regulations and administrative rules.

3.4.3 Guyana

Fisheries in Guyana are regulated by the Fisheries Act of 1957, the Fisheries Regulations of 1959, the Fisheries (Pin Seine) Regulations of 1962, the Fisheries (Aquatic Wildlife Control) Regulations of 1966 and by the Maritime Boundaries Act of 1977. In 1986, the Government of Guyana, through the Fisheries Division, obtained technical assistance from FAO in drafting a new fisheries act and regulations but they were never debated. A new fisheries act, which takes into consideration recent international instruments such as the 1982 Law of the Sea Convention, was drafted in 1998 with technical assistance from FAO. The new act, which has been circulated for comments, should be brought before the Guyana Parliament before the end of 1999 for debate and adoption. The new act would impact on the entire fisheries sector (marine, inland and aquaculture) and deal with areas such as the management of local and foreign fishing activity within the EEZ, control of fishing effort in the industrial shrimp fishery, closed areas and seasons, regional cooperation, access agreements, fisheries research and monitoring and surveillance.

3.4.4 Suriname

Fisheries in Suriname are regulated by the Decree on Marine Fishery, Decree C-14, in force since 1st January 1981. This legislation has been revised and a new fisheries law was drafted in 1992 with technical assistance from FAO. Unfortunately, it has not yet been promulgated. The new draft law stipulates the elaboration of annual management plans for the fishery types, in which all regulatory measures will be established. This approach should allow fisheries managers to adapt to the changing conditions of exploitation.

Regulations currently in force pertain to registration, annual fees, reporting, closed areas and destination of catch (see Section 3.8).

3.4.5 Trinidad and Tobago

The existing legislation, the Fisheries Act of 1916, was found inadequate as a legal basis upon which a modern fisheries management system can be structured.

In June 1995, a draft Fisheries Management Act and Policy Directions for Marine Fisheries in Trinidad and Tobago in the 1990s, were prepared with the technical assistance of FAO. The Act provides the framework for the management of both local and foreign fishing activity in the waters under the jurisdiction of Trinidad and Tobago. One of the major objectives as outlined in the draft National Marine Fisheries Policy was to provide for a move from a system of uncontrolled, free access to the fisheries resources towards a system of controlled access. Policy would be dependent upon the preparation of Fishery Management Plans based on the best available scientific and socio-economic information. The revised legislation was also intended to take into consideration the Government's participation in international agreements and national responsibilities for management of the resources of the Exclusive Economic Zone.

This draft Act, which should facilitate fisheries management, data collection, licensing, registration and enforcement, was circulated in 1997 to fishers and stakeholders in the fisheries sector for comments. The draft Fisheries Management Act has not yet been promulgated.

3.4.6 Venezuela

Trawl fisheries in Venezuela have been regulated by the joint resolutions of the Ministry of Agriculture (MAC/DGSPA/No. 46) and Ministry of the Environment (MARNR/DAA/No. 103)

from 30th January 1980. The fishing areas for the trawling fleet and the ones reserved to the artisanal fishers are specified, both in the coastal zone and in the island territories. A second resolution (MAC/DGSPA/No. 391) from 13th December 1990 (Annex III) regulates the activity of the trawling fleet in the Gulf of Venezuela, establishing a closed season from 15th December to 8th January and from 15th August to 10th September. Now all these resolutions are under study, in order to establish up-to-date norms for this fishery.

3.5 Institutional structure

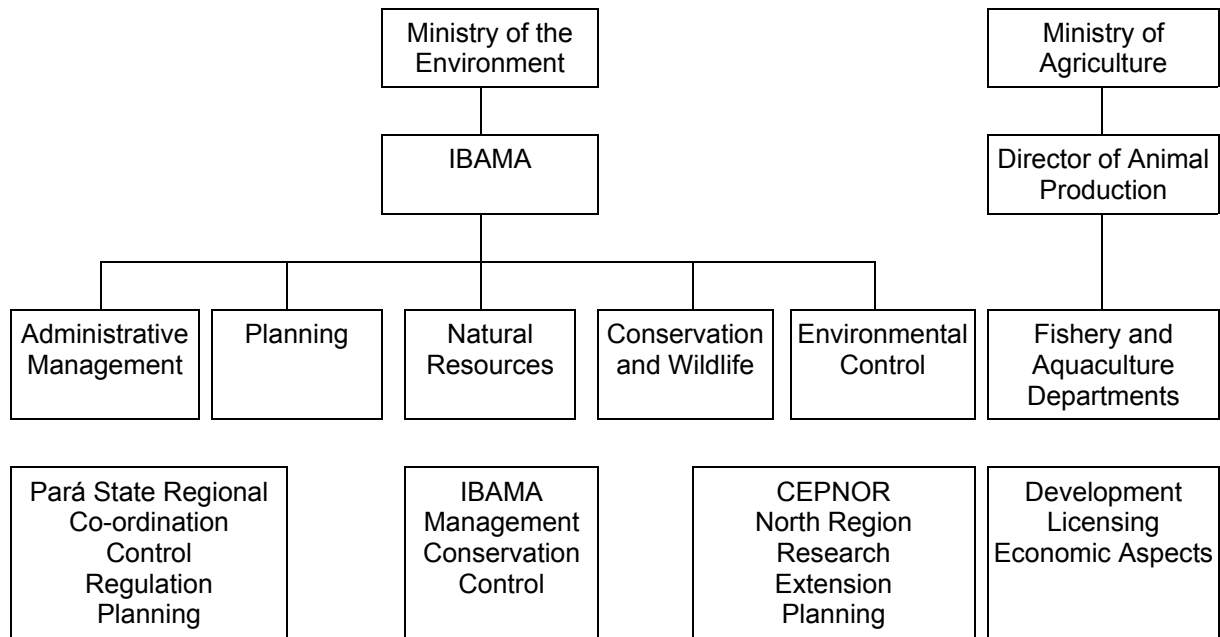
Figure 3.1 provides the basic institutional structure for fisheries management and development in the countries of the sub-region. Fisheries administration is under the Ministry of Agriculture in all the countries except Brazil, where the responsibility is shared between the Ministry of Agriculture, 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. Brazil is currently in the process of restructuring its fisheries administration and the organogram presented in Figure 3.1, which is under discussion by the Brazilian Government, was agreed in April 1999. It is anticipated that the final structure and functions and the inter-relationships between the three principal agencies should be ready by the end of 1999.

In most countries fisheries research is conducted by the national fisheries administration, which is under the Ministry of Agriculture. Only 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). 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.

In most countries either the navy, air force, army or coast guard have been delegated the responsibility for monitoring, control and surveillance. This is done in collaboration with the national fisheries administrations, through agreements with the appropriate line agencies, which is the Ministry of Agriculture in most countries and IBAMA in Brazil.

BRAZIL



FRENCH GUIANA

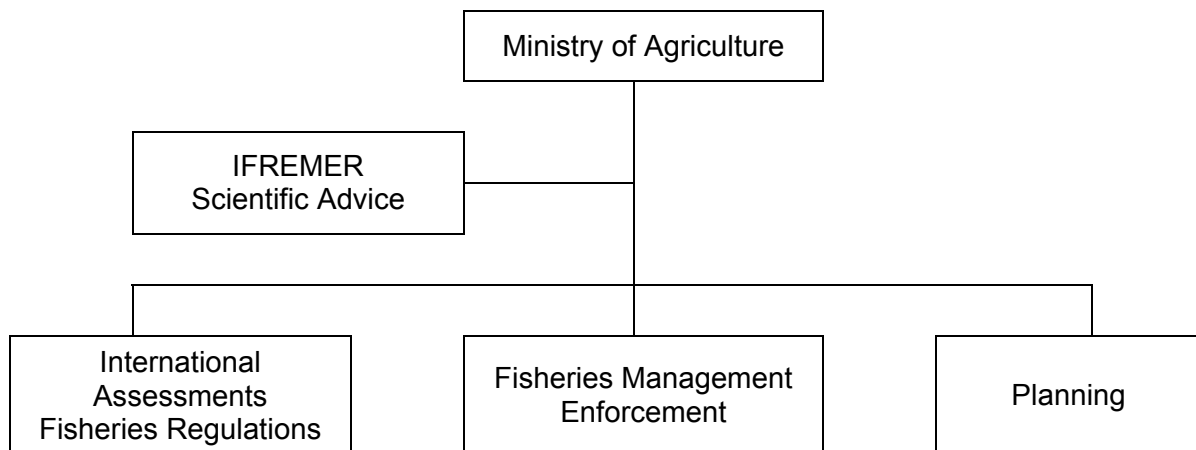


Figure 3.1 Organisation of government for fisheries management for the Brazil-Guianas region, Brazil and french Guiana

GUYANA

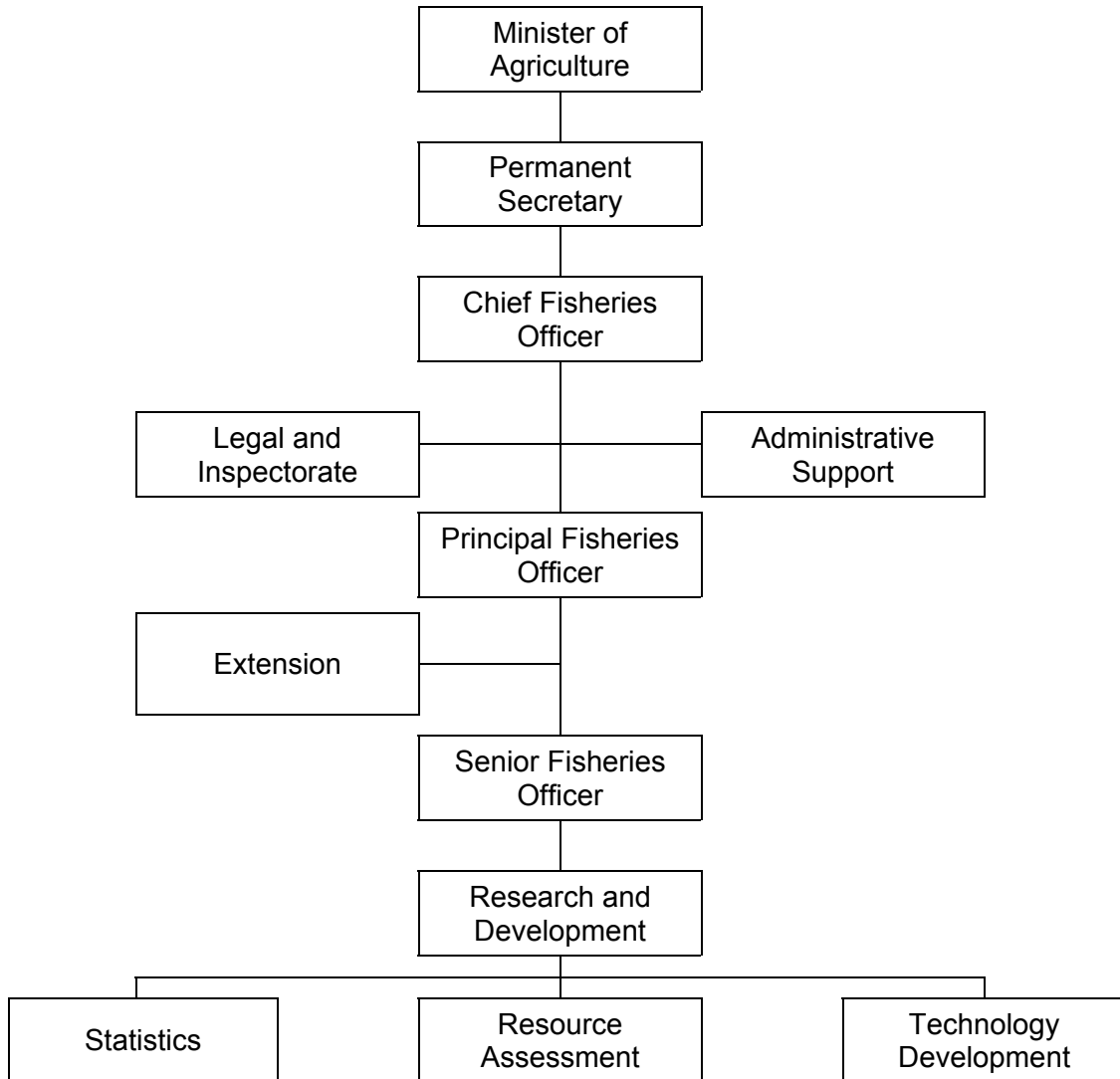
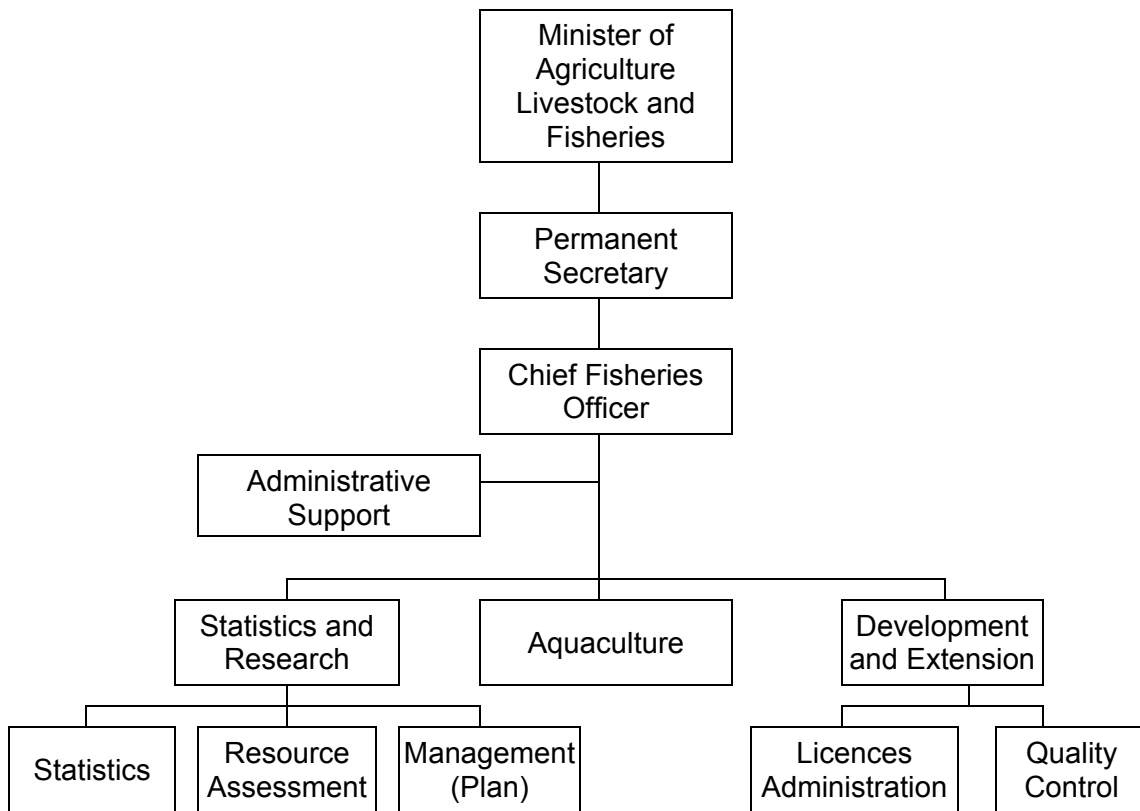


Figure 3.1 (continued) Organisation of government for fisheries management for the Brazil-Guianas region, Guyana

SURINAME



TRINIDAD AND TOBAGO

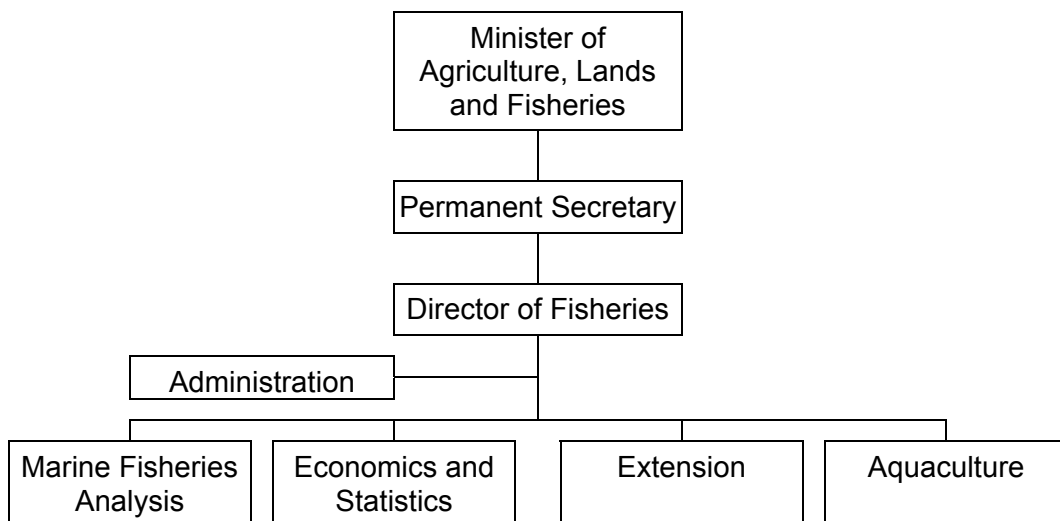


Figure 3.1 (continued) Organisation of government for fisheries management for the Brazil-Guianas region, Suriname and Trinidad and Tobago

VENEZUELA

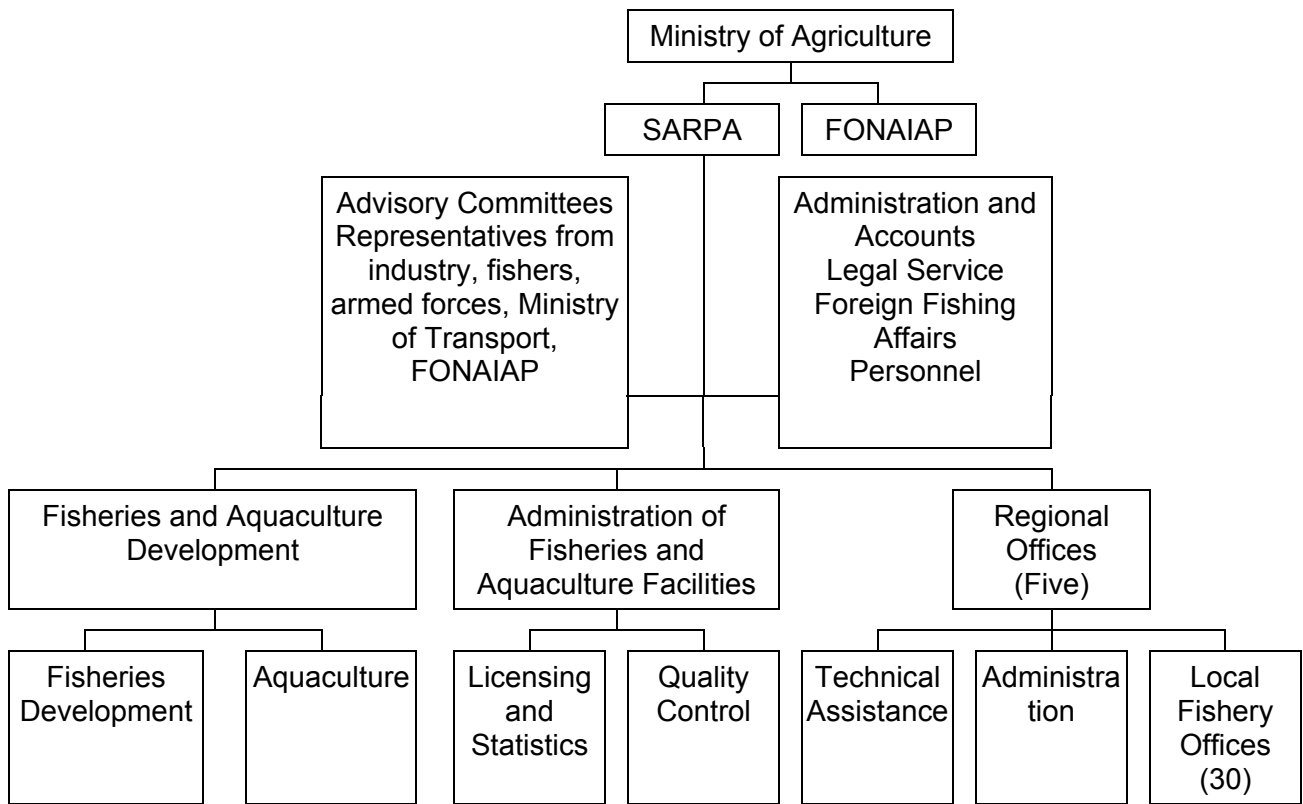


Figure 3.1 (continued) Organisation of government for fisheries management for the Brazil-Guianas region, Venezuela

3.6 Current management goals

The countries of the Brazil-Guianas region have set the primary goal of fisheries management as the long-term conservation of the resource (Table 3.1), i.e. maintaining the capacity of the resource at or about the level at which they are providing maximum sustainable yields (MSY). For the majority of fish stocks in the region it is not known whether MSY has been reached or not.

The other major goal is to maximise economic benefits derived from the fishery through revenue (licence fees), foreign exchange earnings and employment creation. The countries of the Brazil-Guianas region also place emphasis on food production and on the contribution of fisheries to national food security.

Table 3.1 Management goals

Country	Management Goals
Brazil	Prevention of overfishing Increasing production Contribution to employment Long-term conservation of the resource Better utilisation of bycatch
French Guiana	Long-term conservation of the resource Optimising yield per recruit
Guyana	Long-term conservation of the resource Increasing benefits for the country (foreign exchange earnings) Generating employment Contributing to national food security Optimising profitability of the industry
Suriname	Long-term conservation of the resource Maximising foreign exchange earnings Generating employment Producing food protein
Trinidad and Tobago	Long-term conservation of the resource Controlling access (proposed in new draft legislation, 1995)
Venezuela	Long-term conservation of the resource Improving profitability of the industry Developing the Guyana area

3.7 Fishery management issues

Table 3.2 provides a summary of current fishery management issues identified by the countries of the region. It should be pointed that initially (in 1984) the countries of the Brazil-Guianas region placed emphasis on the shrimp fishery primarily because of the economic

value of this fishery. However, with time this emphasis has gradually shifted to the main commercial finfish species that are currently being harvested and in 1998 ten species were identified for assessment. A number of countries have identified the growing lucrative snapper fishery as one that needs to be addressed collectively, given the current exploitation patterns by boats from within the sub-region.

The majority of countries identified the protection of known nursery areas and recruitment overfishing as areas of concern, primarily because current regulations were not enforced.

Conflicts between different user groups, especially between artisanal and industrial fishery sectors, were also identified as an area of concern. In several countries of the region the artisanal fishery is very important from the social and economic perspective. The artisanal fishery of the region produces approximately 70% of the finfish landed, the major portion of which is for national consumption.

Conflicts also arise between fishers exploiting different resources on the same fishing grounds. Some countries cited fishing gear interaction (e.g. between gillnets and trawls) as an area of conflict.

3.8 Current management regulations

Table 3.3 contains a summary of the current management regulations with respect to shrimp and ground fish fisheries in the countries of the Brazil-Guianas region. These include closed areas and seasons, effort limitation and gear specifications.

The shrimp fishery in the Brazil-Guianas region is the most important and lucrative fishery and probably for this reason more serious attempts have been made at managing this fishery. For example, all the countries have placed a cap on the number of industrial shrimp trawlers to limit effort. Two countries, Brazil and French Guiana, have determined TACs for the shrimp fishery, while Venezuela has restricted shrimp fishing to 16 000 fishing days per year. Most countries have established closed areas and/or closed seasons for industrial trawling.

With respect to selectivity no minimum length or weight has been determined for the penaeid shrimps and for the commercial finfish species currently being harvested. Selectivity is only related to gear specifications.

With the exception on the limit to the number of snapper boats operating in French Guiana and Guyana, no serious attempts have been made to restrict effort in the finfish fishery, especially in the dominant small-scale sector. As a matter of fact, enforcement of the regulations is one of the main deficiencies of the current management system.

Up until 1996 and subsequent WECAFC workshops, no studies had been done to demonstrate the impacts of current management regulations on the status of the fishery resources in the area.

Table 3.2 Fishery Management: Issues

COUNTRY	CONSERVATION	EFFORT	ECONOMICS	POTENTIAL CONFLICTS	UNDER-UTILISED RESOURCES
Brazil	<ul style="list-style-type: none"> - Impact of artisanal fishing - Protection of nursery areas - Enforcement 	<ul style="list-style-type: none"> - Re-evaluate optimal level of effort - Control of illegal fishing - Impact of trawlers smaller than 18 metres length - Quasi-monopoly licences 	<ul style="list-style-type: none"> - Efficiency of national fleet (poor transfer of technology from rented boats) - Impact of artisanal fishing 	<ul style="list-style-type: none"> - Artisanal (finfish) fishermen: gear destruction - Aquaculture: use of coastal areas - Artisanal (shrimp) fishermen: sequential fishing 	<ul style="list-style-type: none"> - Bycatch
French Guyana	<ul style="list-style-type: none"> - Overfishing - Recruitment 		<ul style="list-style-type: none"> - Year to year yield fluctuations 		<ul style="list-style-type: none"> - Bycatch - Large sizes - <i>P. brasiliensis</i>
Suriname	<ul style="list-style-type: none"> - Recruitment - Overfishing - Protection of nursery areas - Enforcement 	<ul style="list-style-type: none"> - Definition optimal level of effort - Control of illegal fishing and transshipment 	<ul style="list-style-type: none"> - Heavy operating costs, in foreign currency - Year-to-year yield fluctuations 	<ul style="list-style-type: none"> - Artisanal fishermen: (gillnetters): loss of gear 	
Guyana	<ul style="list-style-type: none"> - Overfishing - Enforcement 	<ul style="list-style-type: none"> - Definition optimal level of effort - Control of illegal fishing and transshipment - Interference with finfish and seabob trawling 	<ul style="list-style-type: none"> - Heavy operating costs, in foreign currency - Year-to-year yield fluctuations 	<ul style="list-style-type: none"> - Artisanal fishermen: (gillnetters): loss of gear 	
Venezuela	<ul style="list-style-type: none"> - Enforcement 	<ul style="list-style-type: none"> - Optimal level of effort unknown - Control of illegal fishing and transshipment - Overlapping finfish and shrimp trawling activities 			<ul style="list-style-type: none"> - Bycatch - Parts of area (Orinoco estuary and South coast)
Trinidad and Tobago	<ul style="list-style-type: none"> - Recruitment - Overfishing 	<ul style="list-style-type: none"> - Optimal level of effort unknown - Illegal fishing - Need to reduce effort 	<ul style="list-style-type: none"> - Economic over-exploitation 		

Adapted from Charlier, 1992.

Table 3.3 Summary of current management regulations by fishery or species

BRAZIL

Species	Minimum length (mm)		Minimum weight (g)		Closed Areas	Seasons	TAC	Effort Limitation (Vessels)	Gear	Licence Fee (p.a.)	Other	Comments
	L _{tot.}	L _{tail}	W _{tot.}	W _{tail}								
Penaeid Shrimp					No shrimp trawling in coastal zone up to 10 miles in Amapá, Pará and Maranhão. Area between latitude 00° 20' N and 01° 10' N and longitude 47° 00' W and 47° 55' W.	Dec - Jan	4 600 t	Licensed vessels limited to 250, 105 fished in 1998	Trawl net 45 mm cod-end TEDs	Depends on LOA of vessel; R\$640 for vessels 20-24 m.		The closed area is considered a nursery. Concrete blocks are placed in area to prevent trawling. Licence renewable annually; submission of catch and effort data on prescribed logbooks a prerequisite. Majority of shrimp vessels 20-24 m LOA
Snapper (<i>L. purpureus</i>)									Traps, 8 cm square mesh; hand lines			Traps introduced in 1997. Two stocks identified genetically, NE Brazil and Northern Brazil; separated by Amazon River

US\$1= R\$1.60

FRENCH GUIANA

Species	Min. length (mm)		Min. weight (g)		Closed Areas	Seasons	TACs	Effort Limitation (Vessels)	Gear	Licence Fee (p.a.)	Other	Comments
	L _{tot.}	L _{tail}	W _{tot.}	W _{tail}								
Penaeid Shrimp					Trawling prohibited 30m isobath shoreward		4108 t (1998)	65 (1998)	Trawl Net, 45 mm cod-end			TACs determined yearly
Snapper (<i>L. synagris</i> <i>Rhomboplites aurorubens</i> <i>L. purpureus</i>)								46	Hand-lines Traps		75% of catch must be landed in Cayenne	41 Venezuelan. The 5 Barbadian boats are not currently fishing

GUYANA

Species	Min. length (mm)		Min. weight (g)		Closed Areas	Closed Seasons	TAC	Effort Limitation	Gear	Licence Fee (p.a.)	Other	Comments
	L tot	L tail	W tot.	W tail								
Penaeid Shrimp					Trawling prohibited 18m isobath shoreward			100	Trawl 45mm cod end TEDs	G\$ 157 000 for foreign boats and G\$ 37 000 for locally owned boats Note: 1 US\$ = G\$ 170 approx.	Each penaeid shrimp vessel is required to land a minimum of 16t of finfish bycatch per annum. Transshipment of catch at sea prohibited	The trawl fleet is demarcated in terms of their operations and the vessel licences indicate the operation- shrimp, seabob/finfish, finfish.
Seabob/ Finfish (mixed)								30	Trawl 45mm cod end TEDs	G\$37 000		Limited to local ownership
Industrial finfish									Stern Trawl			All 6 vessels not currently operating
Snapper (<i>L. purpureus</i>)								35 proposed	hand line, traps			28 vessels currently operating of which 10 leased from Venezuela by local company. Current request from Trinidad for 16 vessels to fish, using traps with 2.5 inch square mesh
Artisanal Finfish (mixed)									Fyke net, gillnet, hook and line, pin seine, traps, cadell	G\$100 per ft LOA. G\$100 per fish pen for fyke net. For snapper vessels, G\$7 500 for Territorial sea licence, G\$30 000 for Fishery Zone Licence.		Mainly small-scale

SURINAME

Species	Min. length (mm)		Min. weight (g)		Closed Areas	Closed Seasons	TAC	Effort Limitation (Vessels)	Gear	Licence Fee (p.a.)	Other	Comments
	L _{tot.}	L _{tail}	W _{tot.}	W _{tail}								
Penaeid Shrimp					no shrimp trawling > 12 fathom	Jan-Jun		No limitation (recommended : 120 in 1986, 100 in 1989 and 90 in 1999)	Trawl net 45 mm cod-end TEDs	US\$7 500 for national and foreign boats	no catfish in bycatch 2% export tax in US\$	Currently all foreign owned
					no shrimp trawling >15 fathom	July-Dec						
Seabob					no trawling > 10 fathom			Maximum 20 boats	45 mm cod end TEDs	US\$1 000	Repatriate US\$1 kg ⁻¹ at Central Bank	
Industrial Finfish (mixed)					no trawling > 25 fathom							
Artisanal Finfish (mixed)									fyke net gillnet hook and line	Variable depending on gear type; US\$2-20		Mainly small-scale
Snapper								maximum 100 boats	hook and line	US\$3 500		Foreign owned and operated through bilateral agreement

TRINIDAD AND TOBAGO

Species	Minimum length (mm)		Minimum weight (g)		Closed Areas	Closed Seasons	TAC	Effort Limitation (Vessels)	Gear	Licence Fee (p.a.)	Other	Comments
	L _{tot.}	L _{tail}	W _{tot.}	W _{tail}								
<i>P. schmitti</i> <i>P. notialis</i> <i>P. subtilis</i> <i>P. braziliensis</i> <i>X. kroyeri</i>					Trawl types I and II 1.8-18.0m isobath; Type III 9.0-41.4m isobath; Type IV 9.0-48.6m isobath, in the Gulf of Paria and in Columbus Channel 8.0-41.4m isobath. No demersal trawling on East coast and from 15 Nov-15 Jan on North coast (nights only) and Saint Déau.			Trawl boats are being maintained at present Type I – 113 Type II – 66 Type III – 9 Type IV – 21	All vessels use four-seamed, flat nets. Types I and II (artisanal) use one stern trawl. Type III (semi-industrial) one stern trawl. Type IV, twin otter trawls and TEDs. Cod-ends: fish trawl 7.5cm; shrimp trawl 3.5cm			
<i>M. furnieri</i> <i>C. jamaicensis</i> <i>C. acoupa</i> <i>M. ancylodon</i>									All finfish species caught by trawl nets, gillnets, longlines, handlines, fishpots			Co-management for demersal trawl fishery; self-imposed penalties by industry for violations.

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Species	Minimum length (mm)		Minimum weight (g)		Closed Areas	Closed Seasons	TAC	Effort Limitation	Gear	Licence Fee	Other	Comments
	L _{tot.}	L _{tail}	W _{tot.}	W _{tail}								
Industrial fleet All species					2 miles from the coast	15 Jan – 15 Dec and 15 May – 15 Jun		Maximum 16 000 fishing days per year. Maximum 235 days at sea per boat	Trawl nets with TEDs	Bol\$2 640 per GRT Note: 1US\$ = Bol\$ 600 approx		
Artisanal trawling All species									> 10 m, 3.5cm total mesh opening			
Artisanal beach seines												(-) Without any regulation

3.9 Regional approach to management

Given the nature of the fishery resources in the Brazil-Guianas region and the shared nature of the majority of the fish species of high economic values that are currently being harvested, a regional approach (See Section 2.0) to management is essential for sustained fisheries production and to achieve the management goals set by the countries. Initially, the following two common goals identified by the countries could serve as the basis for the regional approach:

- The long-term conservation of the resource; and
- The optimisation of economic benefits (revenue, foreign exchange, employment).

The regional approach to management should be based on the precautionary approach to fisheries (Section 3.0) and the Code of Conduct for Responsible Fisheries (Section 1.3), which presupposes a certain level of knowledge of the resource. Since the establishment of the WECAFC *Ad hoc* Working Group on the Brazil-Guianas Continental Shelf in 1984, a number of workshops (1986, 1988, 1992, 1996, 1997, 1998, 1999) on the assessment of the shrimp and ground fish resources and on bio-economic modelling have generated a significant body of knowledge on the resources and their exploitation. The information generated by these workshops should provide a sound scientific base on which to build the regional approach to management.

The 1992 Workshop held in Suriname recognised the need to formalise meetings within a certain framework or mechanism to ensure continuity and to co-ordinate any cooperative investigation programme and agreed that it would be desirable to establish a Scientific Advisory Committee (SAC) for the management of the shrimp and groundfish fisheries in the Brazil-Guianas region. This suggestion should be revisited in the light of the achievements since 1992 by the WECAFC *Ad hoc* Working Group of the Brazil-Guianas continental shelf and the recent international initiatives in the field of fisheries in pursuing a regional approach to fisheries conservation and management in the sub-region. It is recommended that a regional fisheries management organisation or arrangement be formed to facilitate the management of the shrimp and ground fish fisheries of the Brazil-Guianas continental shelf.

3.9.1 Challenges

The major challenges facing fisheries management, as identified by FAO in 1998 through a High Level Panel of External Experts, include:

- Maintaining the contribution made by fisheries to food security, employment, national economic development and recreation;
- Strengthening the base for fisheries management and aquaculture development through improved data collection and scientific assessment so that decisions concerning management and development options could be more rationally based and informed;
- Improving governance and more effective conflict resolution;
- Promoting national capacity building and the strengthening of regional institutions;
- Facilitating greater transparency in fisheries sector decision making at all levels through greater stakeholder participation in national and regional processes;
- Improving access to and the dissemination of, good quality and timely information in the most appropriate formats, in support of responsible fisheries and aquaculture;
- Reducing bycatch and discards through the use of more selective gear and fishing operations and innovative and value-added processing and market development for species currently discarded and expanding and promoting of uniform quality criteria for internationally traded fish and fish products; and

- Integrating coastal area planning and management more effectively.

In the medium to long term the major challenge facing marine fisheries in the Brazil-Guianas continental shelf is improved and responsible management of fish stocks. This will require the regulation of production in a precautionary manner so that excessive effort, leading to overfishing, is not applied to target stocks.

Within the context of marine fisheries management, the following challenges that were highlighted by the international community are relevant to the Brazil-Guianas region:

- The more effective translation of social, economic and biological information into concrete fishery management policy, in which objective policy frameworks and performance criteria are given priority;
- The more explicit recognition and implementation of access rights in both artisanal/small-scale and industrial fisheries so as to reinforce management input and output controls;
- Reducing bycatch and discards through the use of more selective gear and fishing operations
- The management of fleet capacity and the clarification of the role of subsidies to industry which may distort production arrangements; and
- The strengthening of monitoring, control and surveillance (MCS) as a means of ensuring that agreed fishery conservation and management measures are implemented effectively, speedily and as intended;

These challenges can be most effectively addressed through a regional approach to management.