Chile

** (Translated from the original Spanish)*

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May 2004

INTRODUCTION

According to FAO[1], in 2002 Chile was ranked third by volume of capture of fish, crustaceans, molluscs and others, for a total of over 4.5 million metric tons (about 70 percent destined for reduction), slightly above the 1998-2002 average of 4.4 million metric tons. In terms of aquaculture production it was ranked ninth in the world with 617.3 thousand metric tons (88 percent fish) for that year, well above the five-year period average of 468.2 thousand metric tons.[2]

In the last two decades, Chilean fisheries have been the most dynamic sector of the country and hard currency from exports is ranked second/third in total contribution to the national economy. In 2002, the total value of exported products derived from hydro-biological resources in Chile was US$1 960 million, contributing approximately 9 percent to the total value of Chilean exports and generating approximately 80 000 direct jobs in the industrial sector and 50 000 in the artisanal sector (fishers registered in the National Register of Artisanal Fishers)[3].

Approximately 50 percent of this amount originated from the sale of salmon and trout from aquaculture activities.

The development of the fisheries sector has been accompanied by various problems such as resource overexploitation in some fisheries, conflicts between industrial and artisanal fisheries (and among artisanal fishers) competing for the same resources and environmental pollution in processing plant sites.

INSTITUTIONAL AND LEGAL FRAMEWORK FOR FISHERIES MANAGEMENT

Given the importance of the fisheries sector to the national economy, as reflected in the above figures, Chile has developed a duly structured institution at the level of a Ministerial Under Secretariat directly dependent from the Ministry of Economy, Development and Reconstruction responsible for the rational and sustainable management of the country's hydro-biological resources.

This Under Secretariat for Fisheries (SUBPESCA) has professionals and technicians qualified in the areas of Biological and Oceanographic Sciences and Engineering,[4] as well as in the various divisions under it. Since its creation in 1976, SUBPESCA has been designing and implementing various management policies that currently have the preservation of hydro-biological resources as their main objective.

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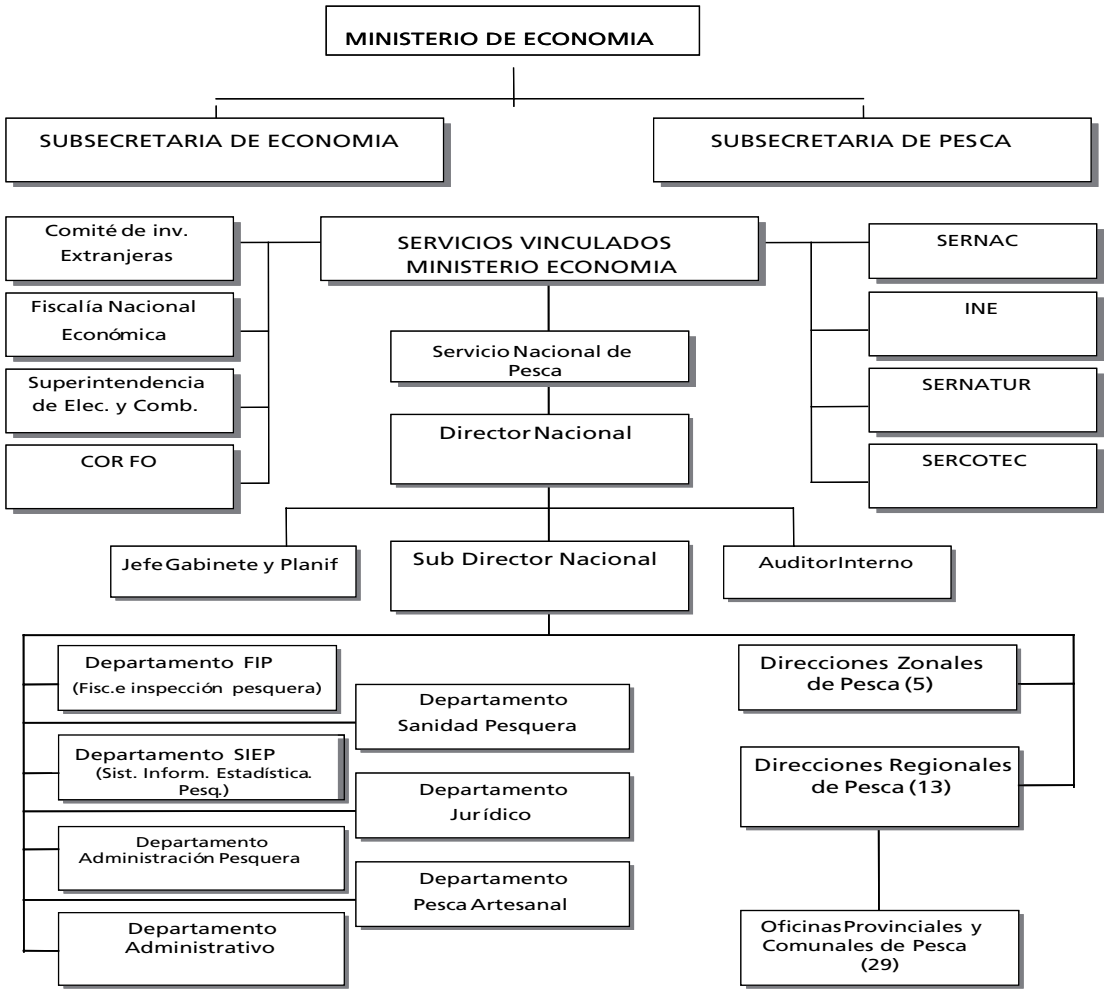
[1] FAO Fishstat Plus 2004: http://www.fao.org/fi/statist/FISOFT/FISHPLUS.asp.

[2] Total fish and aquaculture landings included fish, algae, molluscs, crustaceans and other species. The sharply increasing five-year moving average for aquaculture production is due mainly to the increases in Salmon production from 107 to 265 thousand metric tons in the past five years.

[3] According to "Compendio de la Acuicultura y Pesca de Chile 2002", the latest official figures by SERNAPESCA are for 1993 with 100 384 direct jobs in the industrial sector, in addition to those related to complementary activities. The same source reports that due to reduced capture in recent years, adjustments have been made in the industry resulting in decreased employment in the order of 20 percent. (Page 37)

[4] However, there are no in-house professionals in the areas of Fisheries Administration and Economy or Natural Resources Economy.

FIGURE 1
Organigramme of the Chilean Ministry of Economics



The design and implementation of sectoral management policies and strategies is undertaken pursuant to the norms and regulations contained in and deriving from the General Fisheries Law (LGPA, "Ley General de Pesca"). To this effect, SUBPESCA is supported by the National Fisheries Service (SERNAPESCA, "Servicio Nacional de Pesca") responsible for fisheries monitoring, control, surveillance and enforcement through regional, provincial, and community offices distributed throughout the country in each one of the regions. Surveillance and enforcement activities are also supported by the National Armada and the National Judicial System. For some surveillance and enforcement activities, SERNAPESCA may request the assistance of the General Directorate of Maritime Territory, (DIRECTEMAR, "Dirección General del Territorio Marítimo") of the National Armada and from the national military police ("Carabineros"). Application of fines and other sanctions for infractions to the fisheries regulations is the responsibility of the Judicial System. Other state organisations such as the Marine Under Secretariat ("Subsecretaria Marina"), the Hydrographic and Oceanographic Service of the Armada (SHOA, "Servicio Hidrográfico y Oceanográfico de la Armada"), the National Health, Agricultural and Livestock Service ("Servicio Nacional de Salud, Servicio Agrícola y Ganadero") or semi-state agencies such as the Fisheries Development Institute (IFOP, "Instituto de Fomento Pesquero") collaborate, in their respective areas of competence, on specific SUBPESCA tasks.

In 1991 the Chilean congress approved the revised, coordinated and systematised text of Law 18,892 of 1989 and its modifications, known as the General Fisheries and Aquaculture Law (Ley General de Pesca y Acuicultura) Supreme Decree 430 of 28 September 1991 (LGPA). This law regulates the preservation of all hydro-biological resources and all fisheries harvesting, aquaculture, research and recreational activities occurring in territorial waters, inland waters, territorial sea or economic exclusive zone of the Republic and in the areas adjacent to the latter, over which national jurisdiction exists or may exist in conformity with the laws and international agreements.

The law defines two broad types of fisheries: industrial and artisanal; it reserves for the latter, under certain conditions, the exploitation of an area of 5 n.m. adjacent to the coast. It establishes payment for licenses[5] for industrial fisheries and aquaculture. It defines the powers and functions of the organisations responsible for regulating and managing the fisheries sector, but does not identify the state institution responsible for undertaking the supporting studies to formulate the regulations and evaluate the effects of their application. It establishes fisheries categories according to their level of exploitation as "incipient", "fully exploited"[6] and "recovering"[7]; classifying those occurring at the time; it determines that all of them shall be subjected to global capture quotas and must have management plans. Global fishing quotas for recovering fisheries may be subdivided into individual quotas to be acquired under a public bidding system. It establishes the management techniques that may be used. It creates Fisheries Councils and their function is to assist the Fisheries Administration in identifying management regimes for the fisheries.

This Law was revised in late 2002 under the so-called "Short Law" (Ley Corta), approved in January of this year (2003) and among other measures, it extends "vessel owner catch limits" until 2012 and allows the Under Secretariat for Fisheries to authorise industrial operations within the artisanal fishing area along the coast from regions I through IV for the following species: South American pilchard, anchoveta and Chilean jack mackerel. There are also provisions for dividing the global catch quota between the industrial and artisanal fisheries sectors and 3 percent to 5 percent catch of the global quota is permitted for research. Fishing licenses were increased to 110 percent for permit holders and the Fisheries Management Fund ("Fondo de Administración Pesquero") was created by Law 19,713. (Diario Estrategia, 6 December 2002). Two new laws were enacted in late 2003 for artisanal fisheries management: Law 19907 prohibiting the use of trawl nets and Law 19,923 regulating the Register of Artisanal Fishers for the southern hake fishery.

Despite this, the government is now proceeding with the so-called "Long Law" ("Ley Larga"), expected to be approved in 2004 at the latest. This change in the regulations proposes the incorporation of several modifications to the current LGPA, especially in aspects that were left out of the Short Law and in particular those that manage the artisanal fisheries sector. The provisions include the need for certification of artisanal landings, the use of satellite positioning systems and payment for patents in the semi-industrial sector.

Although the main objective of the current management policy within the context of the LGPA is to preserve fishing resources, the instruments used also seek to promote their rational use (and economic efficiency) by establishing mechanisms and regulations to prevent the problems of free access such as fishing overcapacity and to foster the best possible harvesting yield and to promote any activities where the country may have competitive advantages (aquaculture, management areas, etc).

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[5] Licenses are locally known as patents

[6] Fully exploited fishery: There is no surplus of the productive stock of the exploited species.

[7] Recovering fishery: Any fishery subject to closure for more than three years due to overexploitation.

Thus, the main industrial fisheries are regulated through various mechanisms, among them: Individual Transferable Quota Systems for Patagonian Toothfish (*Dissostichus eleginoides*) and blue squat lobster (*Cervimunida johni*) allocated by public bidding systems, and Global Quotas, determined through biological criteria of sustainable yield and allocated under mechanisms to promote economic efficiency. One of the most recent modifications to LGPA, is the establishment of "vessel owner catch limits", which[8] precisely improves this aspect since it enables global quotas allocated to vessel owners to be captured at the time and with the type and number of vessels they deem most appropriate, thus avoiding the so-called "fish derby" and allowing a more efficient use of the fleet (effort).

In the artisanal fisheries sector, sustainability criteria are complemented with others relative to equity and participation. In this sector quotas were also established using biological criteria by species (under the so-called Artisanal Exploitation Regime) and once assigned by areas and regions, they are distributed by fishing grounds, organisations and vessels or other criteria according to participation mechanisms greed between the authority, the fishers and their organisations (the recently enacted Artisanal Extraction Regime).

Perhaps one of the most noteworthy policies relative to artisanal fisheries in recent years is the implementation of the Benthonic Resource Management Area and Exploitation Regime (AMERB, "Régimen de Áreas de Manejo y Explotation de Recursos Bentónicos"), which promises to become an effective mechanism not only for resource allocation but also for sustainable and equitable use among artisanal fishers, as well as for solving problems deriving from free access. The preliminary performance assessment of this policy (in effect for six years) although reporting successes and problems, leads to the conclusion that it does satisfy equity, economic efficiency and biological sustainability criteria and substantially improves fishing and coastal community participation in the benefits generated by hydro-biological resources (ICSED 2002; Text box 1).

Fisheries activities are also subject to non fisheries legislation such as the Environmental Bases Law ("Ley de Bases del Medio Ambiente"), Law No 19,300 of 1994 that regulates, among others, discharge of residues from fisheries product processing plants and transportation of raw materials from the landing sites to the plants; the National Park and Protected Area System (SNASPE, "Sistema Nacional de Parques y Areas Protegidas)", including marine areas that limits access to the hydro-biological resources in them; the Maritime Concessions Law ("Ley Sobre Concesiones Marítimas") that regulates among others, any particular use or beaches and land in state beaches within an 80 m strip from the highest tide line to the littoral coastline, as well as the concession of rocks, seabeds, portions of water within and outside bays and the concession of navigable rivers and lakes by vessels over 100 metric tons.

All of these influence artisanal fisheries activities (the establishment of fishing grounds, landing sites and management areas, among others) and industrial fisheries (the establishment of net and gear shops, shipyards, processing plants, etc). It should be noted that manipulation, transformation, transportation, storage and sale of fisheries products are subject to control and oversight of the National Health Service, responsible for the quality and condition of products for human consumption, and for certifying sanitary and quality conditions of export products and of cultivation systems and ecosystems where several institutions participate, including the Agriculture and Livestock Service and the National Standardisation Service. In addition, there are police regulations directly related to the transportation, handling and storage of fisheries products subject to biological closures, declared to be endangered or others.

[8] This tool called "catch limit per vessel owner" (LMCA) allows matching fishing effort with the renewal capacity of the resources while maximising profit for vessel owners.

BOX 1

Benthonic Resource Management: A Promising Experience in Chile

Efforts to improve social and economic performance of artisanal fisheries and to promote the sustainable use of the country's hydro-biological resources led the Chilean Government to establish the Benthonic Resource Management and Exploitation Area Regime (AMERB, "Régimen de Áreas de Manejo y Explotación de Recursos Bentónicos").

This new management strategy basically consists in granting rights of access and exclusive use of the benthonic resources to legally constituted communities of artisanal fishers, upon presentation of a request, a baseline study and a management plan. It is a fundamental change in the approach to address resource allocation problems arising from market inefficiencies and failures in an open economy and which on behalf of the "common good" provides a regulatory framework to guarantee free access in the use, exploitation and conservation of renewable fisheries resources that almost invariably results in biological overexploitation and fisheries overcapitalisation.

Along the Chilean littoral, there are important banks of benthonic species known as "Loco" (*Concholepas concholepas*), "Lapas" (*Fisurella nigra*) and "Erizos" (*Loxechinus albus*), all of high commercial value and exploited by artisanal fishers. About a decade ago, "Loco" was introduced to the Asian market and its commercial value rapidly led to intense extraction under a free access regime that endangered the resource. The introduction of access restrictions, closures, and controls through the AMERB regime was an attempt to prevent the risk of collapse due to the incentives provided by the resource's high price and low extraction cost. The regulation has been relatively successful not only in conservation but also in generating significant economic benefits for the fishers and the country in terms of employment and hard currency.

Current exports of processed "locos" and "lapas" total approximately 1 500 metric tons for a value of US$18 million - an important income for artisanal fishers. The socio-economic performance assessment of the AMERB regime, recently undertaken by the Inter-American Centre for the Development of Sustainable Ecosystems (ICSED), showed that by increasing the economic and social benefits to organised artisanal fishing communities, this management policy results in greater participation of fishers in managing the resources.

The study had an integrated (inter-disciplinary) approach that considered biological, technological, economic and institutional aspects, among others. The study determined that the essence of the AMERB mechanism is the creation of positive incentives through the allocation of exclusive rights: assuring rent benefits of limiting extraction to levels consistent with the sustainable yields. The study determined that the management areas were capable of generating an average gross return per fisher oscillating between US$1 800-2 000 per year, which compared to the average US$350-500 received by the fishers from their normal activities, constitutes significant additional income.

Implementation of AMERB in Chile only began a few years ago. Some problems are still to be solved including illegal extraction, allocation systems that are equitable and consistent with the biological productivity of the various areas, training needs and solutions of conflicts relative to the appropriate use of the coastal area. However, the AMERB regime seems to provide an attractive management model for solving important problems in the artisanal fisheries sector of other countries in the region, which under a timid and erroneous policy of free access, have gradually seen the collapse of most resources on which they base the income and lifestyle.

Source: Agüero Max. January 2002. "Seguimiento y Evaluación Socio-Económica de las Áreas de Manejo y Explotación de Recursos Bentónicos: Síntesis". Serie Documentos Divulgativos ICSED. Santiago. ICSED-SERCOTEC.

For example, "loco" or false abalone (*concholepas concholepas*), is subject to control, inspection, confiscation and fines for infractions to the laws and regulations in force.

STATUS OF THE FISHERIES

Chile extends approximately from 18º to 56º latitude south, and enjoys one of the most productive ecosystems in the world (the Greater Humboldt Current Marine Ecosystem) that constitutes one of the largest upwelling systems, resulting in a abundance and variety of marine fisheries resources, mainly pelagic and demersal species. On the other hand, environmental conditions in the southern part of the country feature highly productive pristine waters, that have enabled the development of salmon cultivation grounds which in recent years has become the main export product for the Chilean fisheries sector and in 2001 it equalled the total value generated by all capture fisheries combined.

The very long 80 000 km. coastline (counting the areas around the islands in the austral zone) provides habitats for diverse species of fish, molluscs and crustaceans.

There are three large zones in the close to 4 700 km. of continental coastline. Fisheries in the North Zone (corresponding to Regions I and IV) target small pelagic species, some of which are shared with Peru, including anchoveta (*Engraulis ringens*), South American pilchard (*Sardinops sagax*), Chilean jack mackerel (*Trachurus murphyi*) and saury (*Scomber japonicus peruanus*). Together, these species constitute approximately 90 percent of total national landings mainly destined for the manufacturing of fishmeal and fish oil and a small portion is used for conserves.

In the Central South Zone (Regions V to IX) the same species predominate, with the addition of demersal or semi-pelagic species such as the South Pacific hake (*Merluccius gayi gayi*) and the Patagonian grenadier (*Macruronus magellanicus*), plus small crustaceans including shrimp and prawns and various molluscs such as taquilla clams (*Mulinia* spp.), Dombey's tagelus (*Tagelus dombeii*), giant jackknife (*Ensis macha*) and macha clam (*Mesodesma donacium*).

In the Austral South Zone (Regions X to XII), demersal resources prevail including Southern hake (*Merluccius australis*), conger (*Geniterus blacodes*), Patagonian grenadier (*Macruronus magellanicus*) and Patagonian toothfish (*Dissostichus eleginoides*). The most important species landed are benthonic (algae, echinoderms and molluscs). A significant portion of benthonic resources are exported, among them Gracilaria seaweeds (*Gracilaria* spp.), an echinoderm, the Chilean sea urchin (*Loxechinus albus*) y various molluscs such as Chilean mussel (*Mytilus chilensis*), "cholga" (*Alaucomya ater*), "almeja" (*Venus antiqua*) and "culengue" (*Gari solida*). The fish landed include several tens of thousands of metric tons of anchoveta and sardine, mainly captured by artisanal fishers. On the other hand, demersal resources landed by industrial and artisanal fisheries include Southern hake (*Merluccius australis*) and Patagonian toothfish (*Dissostichus eleginoides*), as well as Patagonian grenadier. These last three species are used for fresh-chilled or frozen products.

Nevertheless, significant banks of benthonic resources are located along the coast, including false abalone, limpet and echinoderms together with some fine species fisheries, for national consumption and for export, currently exploited by artisanal fishers through the Benthonic Resource Management Area and Exploitation Regime.

In 2002 landings totalled 4.5 million metric tons (3.3 million from industrial fleets and 1.2 million metric tons from artisanal fishers). In addition, official records include 617 000 metric tons harvested from aquaculture, 87 percent salmon and trout. The largest fisheries target small pelagic fish (anchoveta, jack mackerel and scad), for fishmeal and oil production, a total of about 3.4 million metric tons (80 percent of the total landed); demersal and semi-pelagic fish (various hakes) contribute 301 000 metric tons processed for fresh and frozen products, various algae (243 000 metric tons) for gel production, echinoderms (60 000 metric tons) and molluscs (49 000 metric tons)

TABLE 1
Main pelagic and demersal species by sector (2001)

Species	Industrial	Artisanal	Total
Jurel (Jack mackerel)	1 619 605	30 328	1 649 933
Anchoveta	642 305	210 484	852 789
Caballa (Mackerel)	357 974	7 057	365 031
Sardina Común	48 909	275 561	32 447
Merluza Común (Hake)	88 979	32 494	121 473

Source: "Anuario Estadístico de Pesca 2001"

for fresh and frozen products. Industrial vessels, predominant in the anchoveta, jack mackerel and scad fisheries are not as prevalent in demersal and semi-pelagic species and are completely non existent in the harvest of algae, echinoderms and molluscs, an important target of artisanal fisheries. In 2002, the total value of hydro-biological exports was US$ 1,960 million, representing about 9 percent of the total value of Chilean exports. Approximately 50 percent of this amount was from the sale of cultivate salmon and trout.

The main pelagic and demersal species mentioned above, with the exception of mackerel, are fully exploited[9] and access of new entrants to the fisheries has been suspended. Benthonic resources, on the other hand, are currently under the Benthonic Resource Management Area and Exploitation Regime, where management and usufruct are allocated to communities of organised fishers (legally constituted and upon presentation of a State of Baseline Situation and a Management and Exploitation Plan for the Area), throughout the country (See inset; M. Agüero 2003).

Capture fisheries in Chile consist of two large groups: industrial fisheries mainly harvest pelagic species for processing. Catches are made by vessels over 50 metric tons authorised to fish outside the 5 mile area reserved exclusively for artisanal fisheries. In 2001 a total of 356 vessels operated, a 16 percent decrease from 2000 with 428 vessels, which in turn represents a 10 percent reduction from 1999 where 474 vessels operated. Of the total fleet operating in 2002, 70 percent were purse seiners (248 vessels), followed in order of importance by 69 trawlers. Industrial landings in 2001 were 2,951,500 metric tons, equivalent to approximately 63 percent of total landings in the country and represent a 15.7 percent decrease from industrial landings in 2000.

The industrial sector comprises approximately 50 large fisheries companies and most are represented in the National Fisheries Association (SONAPESCA, "Sociedad Nacional de Pesca").

In 2001 a total of 459 processing plants were registered, which produced approximately 1,580 000 metric tons of finished products, excluding production from factory vessels. Fishmeal and frozen products represented 80 percent of the raw materials and 73 percent of production.

Artisanal or small scale fisheries concentrate their activities on a broad range of mainly demersal and benthonic resources. Harvesting is from vessels under 50 metric tons and less than 18 m long. This category also includes "coastal collectors" who do not own boats and harvest molluscs, algae and other species in the intertidal zone.

The artisanal sector in 2001 consisted of approximately 38 000 registered fishers and 9 753 registered vessels. Total landings for the period were 1 014 800 metric tons, an increase of 3.5 percent over 2000.

Aquaculture in Chile mainly concentrates on species of Salmonidae and its spectacular growth in the last 20 years has made Chile the number one producer of trout in the world and one of the main producers and exporters of Atlantic and Coho

[9] For management purposes, the state of fisheries resources in Chile is classified according to their level of exploitation into fully exploited, recovering and incipient fisheries.

TABLE 2
Number and types of artisanal fishers by region (2001)

Category	Region												Total
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
Pescador Artesanal	840	945	869	1 925	2 968	197	929	6 440	433	8 206	1 658	2 298	27 708
Buzo Manscador	345	522	404	1 137	523	128	92	1 470	41	4 464	639	568	10 333
Recolector de Orilla	178	332	288	471	115	367	85	445	13	310	0	4	2 608
Armador	366	443	319	855	682	49	195	1 605	150	3 324	553	642	9 183
Vessels	412	475	329	911	735	50	208	1 737	159	3 430	591	716	9 753

Source: "Anuario Estadístico de Pesca 2001"

salmon. The growth and economic importance of this activity is evidenced by the fact that in the last decade salmon cultivation represented 1.8 percent of export sales in 1991, 5.4 percent in 2000 and between only 1999 and 2000 total exported volume increased by 33 percent. Atlantic salmon production for the same period increased by 50 percent. The main export destination is Japan with imports in 2000 of 110 000 metric tons representing approximately 97 percent of coho salmon and 92 percent of trout exports.

According to Central Bank figures[10] the fisheries sector contributes 1.5 percent of the GDP, although this figure does not include the contribution of post-capture value chains, thus considerably underestimating the real impact of all activities related to the capture and processing of fisheries resources in Chile, particularly given the relative importance of the fishmeal, fish oil and frozen industries.

MANAGEMENT PROCESSES AND INSTRUMENTS

Fisheries management in Chile is the responsibility of the Under Secretariat of Fisheries. However, in the process of design, identification, discussion and approval of the various laws and regulations related to this sector, the Under Secretariat of Fisheries does not act alone but has participation from a large range of institutions, stakeholder groups and individuals who contribute from the proposal stage to the approval and execution of the laws and regulations. There is direct involvement of the National, Zonal and Regional Fisheries Councils, who make proposals / recommendations on various aspects of fisheries management such as quotas, closure periods, gear regulations, allocations, restrictions, etc. Researchers from universities and academic centres, consultants and international organisations participate in scientific studies and policy recommendations. Artisanal and industrial fisher organisations also influence decisions through participation of their associations in the respective National, Zonal or Regional Fisheries Organisations, discussions in the Senate or Congress Chambers and through public pressure media (strikes, fora, newspapers, radio and television programmes, etc.).

Until 2003, resolutions about proposed tools were strongly influenced by the composition of the Councils, where corporate interests clearly predominated to the detriment of artisanal fisheries. A clear example of biased representation can be found in the share allocated to artisanal fisheries in total catch quotas, where historical records were used even though they exhibited serious limitations in coverage and completeness. The nature of these Councils, the lack of technical support and the intervention of large economic power groups has resulted in heated debates.

COSTS AND REVENUES OF FISHERIES MANAGEMENT

Fisheries management costs in Chile are funded from national budget allocation to the Under Secretariat of Fisheries, SERNAPESCA and the Fisheries Development

[10] 2003 http://www.ine.cl/11-pib/PIB_real_por_actividad.xls

Institute (IFOP). SUBPESCA and SERNAPESCA receive additional funds from fishing permits and patents for the Fisheries Research Fund (FIP) and other activities. Aside from the national budget allocation, IFOP obtains funds for services rendered in projects undertaken for FIP, CONICYT, FONDECYT and international development agencies.

The SUBPESCA budget for 2002 was approximately CH billion $9 (US$12.8 million), while the SERNAPESCA budget for the same period was approximately CH $5 billion (US$7.14 million); the Fisheries Research Fund finances research projects that serve as foundation for the management measures in the various fisheries, although 90 percent focus on biological, fisheries and oceanographic issues and its budget for 2002 was CH $2.1 billion (US$3 million), and it also received funds from regional fisheries research projects channelled through regional governments and national funds assigned through various arrangements including FONDECYT, FOSIS, FNR and others. A substantial increase in available funds was observed in the period 1992 – 2002, especially when accessed in pubic bidding systems.

Management, surveillance, monitoring and enforcement costs have also increased in the period as other requirements have also increased, for example supervision, conflict resolution and new modifications and changes to the regulations.

PARTICIPATION IN REGIONAL AND GLOBAL FISHERIES ARRANGEMENTS

Chile was one of the precursors of the Law of the Sea, leading to the establishment of the concept of Economic Exclusive Zones that is later included in the Law of the Seas that Chile signed in 1952 (Declaration of Santiago). Since then it has actively participated in its discussions and agreements.

Chile has also adopted the principles of the Code of Conduct for Responsible Fisheries and the Precautionary Approach (Aquaculture Environmental Regulations) establishing and applying decrees that assign quotas in conformity with international agreements. It has also adopted the International Plan of Action for Reducing Bycatch of Seabirds by Longliners and to this effect, it made a diagnosis of the situation through a project financed by FIP (FIP 2001 – 31); in addition it has made a second call for bids to implement the International Plan of Action for the Conservation and Management of Sharks, studies have been carried out relative to the two main species of sharks in the country, mako and "azulejo". Quotas have been established for rays and access to this fishery has been closed. Regarding the International Plan of Action for Managing Fishing Capacity, vessel owner catch limits have been established. With respect to the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, Chile leads the coordination of the group of countries jointly attacking the problem through the use of alert and denunciation protocols, identifying satellite positioning systems as fundamental to the optimisation of this network.

At the regional level, Chile is an active member of the Permanent Commission of the South Pacific (CPPS, "Comisión Permanente del Pacífico Sur") that groups the four countries of the Pacific coast of South America (Colombia, Ecuador, Peru and Chile). It is also a member of the Working Group on Small Pelagic Fisheries in collaboration with Peru and the CAPMAD-SELA Project (Ecuador, Peru and Chile); it is a member of the Latin American Economic System (SELA, "Sistema Económico Latinoamericano") and of the FAO COFI Sub-Committee on Aquaculture.

At the inter-regional level, it is an active member of the Asia Pacific Economic Commission (APEC), and of the Convention for the Conservation of Antarctic Marine Living Resources (CCMALR).

It has recently signed and adopted the Galapagos Agreement adopted by Colombia, Ecuador, Peru and Chile, in the context of the UN Fish Stocks Agreement.

SUMMARY AND CONCLUSIONS

Fisheries and aquaculture in Chile are of great economic and social importance, significantly contributing to the generation of hard currency, employment and food for human consumption.

Along its coast there are several types of industrial and artisanal fisheries, of which the most important by volume landed are small pelagic fish (anchoveta, jack mackerel, scad and sardine) mainly destined to the production of fishmeal and oil. However, the importance of artisanal fisheries should not be underestimated, as there are the main suppliers to local markets and generate hard currency as well; echinoderm exports alone were worth US$58 million in 2002.

Capture fisheries and aquaculture in Chile are regulated through the General Fisheries and Aquaculture Law and its amendments. The most important fisheries have management plans that include a global quota system and catch limits per vessel owner, spatial and temporal restrictions (closures), gear restrictions and other sanitary and environmental norms. The most important species are under the Fully Exploited Fisheries Regime and issuance of new fishing permits is closed. In addition, the Benthonic Resource Management Area and Exploitation Regime (AMERB) and the Artisanal Extraction Regime are actively implemented for the artisanal sector with active participation of communities of organised fishers.

The responsibility for fisheries management falls with the Under Secretariat of Fisheries, dependent from the Ministry of Economy, Development and Reconstruction, which through its oversight entity SERNAPESCA, undertakes all monitoring, control and surveillance activities as well as collection, recording and production of the corresponding statistical information. Scientific research pertaining to the state of the fisheries, technological development and management is financed through projects of the various organisations such as FIP, FONDECYT, FOSIS, SERCOTEC, FNR, etc.; this research is mainly carried out by the Fisheries Development Institute and on a secondary basis, by universities, consultants and private researchers.

Chile actively participates in several sub-regional and global fisheries arrangements and makes efforts to comply with their respective mandates.

APPENDIX TABLES

Current Management of Marine Capture Fisheries in Chile (2001)

Level of Management	% Fisheries Managed	% with Fisheries Management Plan	% with Published Regulations	Trends in the number of Managed Fisheries over ten yrs.
National	90 - 95	85 - 90	75 - 85	Increasing
Regional	90 - 95	85 - 90	75 - 85	Increasing
Local	90 - 95	85 - 90	75 - 85	Increasing

Summary information for three largest fisheries (by volume) in Chile (2001)

Category of Fishery	Fishery	Volume mil metric tons	Value* mil USD	% of Total Volume Caught**	% of Total Value Caught**	Covered by a Management Plan? (Yes/No)	# of Participants	# of Vessels
Industrial	1 Jurel	1 619	-	55	-	Yes	-	109
	2 Anchoveta	642	-	22	-	Yes	-	125
	3 Caballa	357	-	12	-	No	-	n.d
Artisanal	1 Sardina Comun	276	-	35	-	Yes	-	998
	2 Anchoveta	210	-	27	-	Yes	-	1040
	3 Merluza Comun	32	-	4	-	Yes	11000 (Inscritos)	3471
Recreational	1 Trucha Arcoiris	n.d	n.d	n.d	n.d	n.d	n.d	n.d
	2 Trucha Café	n.d	n.d	n.d	n.d	n.d	n.d	n.d
	3 Salmon	n.d	n.d	n.d	n.d	n.d	n.d	n.d

* Value in 2002 U.S. Dollars.

** % values are based on totals for each category of fishery.

Nota: # de participantes: no disponible. Sin embargo para el 2001, se calculan aprox. un total de 37.780 pescadores artesanales inscritos y 9.753 naves; no hay cifras oficiales de empleo para pesca industrial. En el informe "Pesca y Acuicultura Chile 2001", (technopress@aqua.cl) se menciona un total de empleos directo aportados por el sector industrial de 67.057 (periodo 94 –99) con una baja del 20% para los últimos anos.

Use of Fishery Management Tools within the three largest fisheries in Chile

Category of Fishery	Fishery	Restrictions				License/ Limited Entry	Catch Restrictions	Rights-based Regulations	Taxes/ Royalties	Performance Standards
		Spatial	Temporal	Gear	Size					
Industrial	1 Jurel	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
	2 Anchoveta	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
	3 Caballa	No	No	No	No	Yes	No	No	No	No
Artisanal	1 Sardina Comun	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
	2 Anchoveta	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
	3 Merluza Comun	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Recreational	1 Trucha Arcoiris	Yes	Yes	No	No	Yes	Yes	No	No	No
	2 Trucha Café	Yes	Yes	No	No	Yes	Yes	No	No	No
	3 Salmon	Yes	Yes	No	No	Yes	Yes	No	No	No

Nota: No se encontraron regulaciones para la pesqueria de la caballa dado que solo en el ultimo ano se incremento significativamente su desembarque.

Costs and Funding Sources of Fisheries Management within the three largest fisheries in Chile

Category of Fishery	Fishery	Do Management Funding Outlays Cover			Are Management Funding Sources From		
		R&D	Monitoring & Enforcement	Daily Management	License fees in fishery	License fees from other fisheries	Resource rents
Industrial	1 Jurel	Yes	Yes	Yes	Yes	Yes	No
	2 Anchoveta	Yes	Yes	Yes	Yes	Yes	No
	3 Caballa	Yes	Yes	Yes	Yes	Yes	No
Artisanal	1 Sardina Comun	Yes	Yes	Yes	Yes	Yes	No
	2 Anchoveta	Yes	Yes	Yes	Yes	Yes	No
	3 Merluza Comun	Yes	Yes	Yes	Yes	Yes	No
Recreational	1 Trucha Arcoiris	Yes	Yes	Yes	Yes	Yes	No
	2 Trucha Café	Yes	Yes	Yes	Yes	Yes	No
	3 Salmon	Yes	Yes	Yes	Yes	Yes	No

Nota: La administración pesquera obtiene fondos y sufraga sus gastos con aportes del presupuesto nacional, cobro por licencias y derechos de pesca de especies especificas. No se distinguen fondos por pesquerías. No se aplica aun el cobro por derecho de pesca bajo el concepto de "renta del recurso".

Compliance and Enforcement within the three largest fisheries in Chile

Category of Fishery	Fishery	VMS	On-board observers	Random dockside inspections	Routine inspections at landing sites	At-sea boarding and inspections	Other (please specify)
Industrial	1 Jurel	Yes	No	Yes	Yes	No	Sistema de Registro y Posicionamiento de Naves Pesqueras (CMC)
	2 Anchoveta	Yes	No	Yes	Yes	No	Sistema de Registro y Posicionamiento de Naves Pesqueras (CMC)
	3 Caballa	Yes	No	Yes	Yes	No	Sistema de Registro y Posicionamiento de Naves Pesqueras (CMC)
Artisanal	1 Sardina Comun	Yes	No	Yes	Yes	No	
	2 Anchoveta	Yes	No	Yes	Yes	No	
	3 Merluza Comun	Yes	No	Yes	Yes	No	
Recreational	1 Trucha Arcoiris	Yes	No	Yes	Yes	No	
	2 Trucha Café	Yes	No	Yes	Yes	No	
	3 Salmon	Yes	No	Yes	Yes	No	

Nota: CMC es el Centro de Monitoreo Satelital que procesa y analiza la información geo referenciada de las naves captada por el sistema. Se inicio el ano 2000. Ha permitido incrementar el numero de inspecciones mensuales a naves industriales de 145 en el 2000 a 5618 inspecciones en el 2002, mejorando significativamente el cumplimiento de la normativa.

Capacity Management within the three largest fisheries in Chile

Category of Fishery	Fishery	Does overfishing exist?	Is fleet capacity measured?	Is CPUE increasing, constant or decreasing?	Have capacity reduction programmes been used?	If used, please specify objectives of capacity reduction programme
Industrial	1 Jurel	No	No	Constant	Yes	Stock preservation
	2 Anchoveta	No	No	Constant	Yes	Stock preservation
	3 Caballa	No	No	Increasing	No	
Artisanal	1 Sardina Comun	No	No	Constant	No	
	2 Anchoveta	No	No	Constant	No	
	3 Merluza Comun	No	No	Decreasing	No	
Recreational	1 Trucha Arcoiris	No	No	Unknown	No	
	2 Trucha Café	No	No	Unknown	No	
	3 Salmon	No	No	Unknown	No	

Colombia (Pacific)

* *(Translated from the original Spanish)*

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May 2005

INTRODUCTION

This document provides a general overview of the management of industrial, artisanal and recreational fisheries in the Colombian Pacific, including the legal and institutional framework and its interrelation with international agreements and conventions relative to responsible fisheries and coordination of activities with other private and public sector stakeholders.[1]

Management implies a series of steps including enacting laws to regulate access to the resources; restricting fishing vessels, gears and methods; training for users and dissemination of measures implemented; establishing dispute resolution mechanisms; defining the ways to acquire the right to enter a fishery; implementing control and surveillance measures, and identifying management funding sources.

POLICY FRAMEWORK

In general terms, the benefits sought from fishing activities are: food security, regional development, economic wealth, and job generation. Although the Colombian fisheries law do not specifically define these as management objectives, it does establish the role of the State in terms of "regulating the integrated management and rational harvesting of the fisheries resources for the purpose of ensuring their sustainable use"[2]. By guaranteeing sustainable fisheries development, it is possible to comply with the objectives stated above.

The General Fisheries Law (Estatuto General de Pesca), Law 13 of 1990, and its Regulatory Decree 2256 of 1991 provide the legal framework for fisheries management in Colombia at the national level and, although several attempts were made between 1998 and 2002 to revise and amend them, agreement on these revisions between the public and private sectors has not been reached. The General Fisheries Law was enacted before the Political Constitution of Colombia (1991) and prior to some important international agreements signed in the 90s pertaining to responsible fisheries, conservation and protection of straddling and highly migratory fish species, fishing vessels on the high seas, foreign trade, and the environment.

However, the measures contained in the international agreements accepted by Colombia have been adopted through resolutions and agreements of the board of directors of the fisheries authority. In addition, there are other laws relating to the environment, foreign trade, vessel flagging, and port and coastal zone management enacted by the corresponding authorities. The most relevant are:

- Law 99 of 1993 - Establishes the Ministry of the Environment (Ministerio del Medio Ambiente), reorganises the public sector in charge of the management and conservation of the environment and renewable natural resources, reorganises

[1] Unless otherwise stated, the data presented in this review are from Beltran (2000[a], 2000b) and INPA (multiple).

[2] Law 13 of 1990 – Estatuto General de Pesca (General Fisheries Law), Article 1.

the National Environmental System – SINA (Sistema Ambiental Nacional) and establishes other provisions;
- Law 07 of 1991 - General criteria for the regulation of foreign trade, creation of the Ministry of Foreign Trade, of the Foreign Trade Bank and of the Economic Modernisation Fund; and
- Law 730 of 2001 - Establishes the norms for the registration and flagging of vessels and crafts for maritime transportation and commercial and/or industrial fishing.

LEGAL FRAMEWORK

The General Fisheries Law designates the Ministry of Agriculture and Rural Development (Ministerio de Agricultura y Desarrollo Rural) as the governing entity of the national fisheries policy and the National Institute of Fisheries and Aquaculture (Instituto Nacional de Pesca y Acuicultura - INPA) as the implementing agency. However, the agricultural sector restructuring process of 2003 eliminated the INPA (by Decree 1293 of 21 May 2003) and its functions were assigned to the new Colombian Institute of Rural Development (Instituto Colombiano de Desarrollo Rural - INCODER), also responsible for agrarian reform, land management, and rural development functions previously undertaken by three other simultaneously eliminated entities.

Fisheries management is led by INCODER but other authorities are involved, such as the Ministry of the Environment (definition of resources and volumes to be fished, closures, reserve areas and fishing prohibitions in national parks and environmental protection areas), the Navy (ensures national sovereignty over maritime waters), the Maritime General Directorate (regulates vessel flagging and issues navigation licenses), the National Police and the Security Administration Department - DAS (drug control and verification of crew documents), and the National Revenue and Customs Directorate – DIAN (prevention of contraband of fishing products and other goods).

Since several authorities participate in the management process, each one is autonomous in its own area of competence, which means that the application of sanctions and fines for violations to fisheries laws are independent from those imposed by the respective civil or military authorities.

STATUS OF THE FISHERIES

Fishing is one of the most important activities in the Colombian Pacific. The most representative resources are tuna species (*Thunnus albacares, T.obesus, T. alalunga, T. thynus, Euthynus lineatus* and *Katsuwonus pelamis*); shallow and deep water shrimp species (genus *Penaeus, Xiphopenaeus* and *Trachypenaeus*); small pelagics such as Pacific anchoveta (*Cetengraulis mysticetus)* and thread herrings (*Opisthonema* spp.*)*; by-catch species (snappers, groupers, meagres, mackerel, marlin, hake, escolars and sharks, among others), promising offshore species (mahi mahi and giant squid) and small artisanal fisheries molluscs (black ark, clams and conch) as well as crabs.

In 2001, industrial and artisanal fisheries in the Pacific captured 109 691 metric tons with a value of US$ 87.6 million; comprising 65 percent of the total national catch (including inland fisheries).

Relative to other zones, more regulatory and non-regulatory management measures have been established in the Pacific, given the high commercial and biological importance of the species, as well as their impact on international fisheries management (particularly in the case of tuna) and the significant contribution to the generation of employment and wealth (i.e. there are 102 small and midsize enterprises with 366 vessels and 13 500 artisanal fishers with 6 500 boats).

Tuna species are the foundation of industrial activities; most of the vessels fish in the Eastern Pacific Ocean and, after crossing the Panama Canal (at an approximate cost of US$ 15 000), land in Cartagena and Barranquilla in the Atlantic, where the

largest five processing plants in the country are located. Since this fishery is regulated by national laws as well as by those implemented by the Inter-American Tropical Tuna Commission (IATTC), these species have not suffered overfishing and captures are still growing.

The shallow water shrimp species are overexploited, particularly whiteleg shrimp (*Penaeus vannamei*), and captures are split 70 percent by artisanal fishers and 30 percent by the industrial fleet; while deep water shrimp species are targeted only by industrial boats. The shrimp fisheries are characterized by a large number of management measures (permits, quotas, annual closures, restricted access and vessel replacement, regulations to industrial and artisanal nets, and payment of dues and fees). Although these fisheries have been regulated for over ten years, stock recovery is still not evident; implying excessive fishing capacity and resulting in continuing conflicts between the industrial and artisanal sub-sectors; therefore, incentives have been provided to promote the conversion of boats to target by-catch species.

Small pelagics are captured to manufacture fishmeal and fish oil. Although there are indications of high volumes of thread herring, Pacific anchoveta is at maximum exploitation levels; thus leading to the implementation of an annual closure of this fishery. As there are only two companies in the port of Tumaco that harvest Pacific anchoveta and there is no artisanal fishery, this fishery has few if any conflict issues; however, the access of new vessels to this fishery is restricted and, like in other fisheries, it is subject to other management measures such as permits, quotas, and payment of fees (dues and taxes). The importance in managing these resources rests not only in their economic value but also in their ecological role, as they are part of the first level in the trophic chain.

MANAGEMENT ACTIVITY

To ensure the sustainable use of Colombian fishery resources, the National Fisheries Authority (NFA) implements management and development measures (both regulatory and non-regulatory) based on multi-disciplinary research (i.e. biological-fisheries, socio-economic, and environmental). Regulatory measures are associated with the norms (laws, agreements and resolutions) established to control access to fisheries resources; non-regulatory measures aim to train and raise awareness among the users about the need for responsible fishing and compliance with fisheries regulations.

Regulatory measures issued by INCODER pertain to fishing fleet control (vessel number, size and type, and duration of affiliation or lease contracts of foreign flagged vessels to national companies with fishing permits); allocation of fishing quotas to permit holders and a resource fee for artisanal fishers; closures over the resources and fishing grounds; reserve areas and areas exclusively for artisanal fisheries; minimum catch sizes; regulation of artisanal fishing gear and methods; authorisation to fish (authorisations, permits, patents, licenses, safe conducts and concessions); inspection visits to capture, marketing and mobilisation sites; establishing sanctions and amount of fines for infractions to fisheries regulations.

Frequently used non-regulatory measures include: awareness-raising campaigns and distribution of information materials about the legislation and regulatory measures issued periodically; formation of strategic alliances and stakeholder meetings with the users, civil, and military authorities to design and implement management activities as well as to issue the respective norms; training courses on sustainable use and responsible fishing; technical assistance and technology transfer, and evaluation of national and international conventions, agreements, and norms related to these activities.

In the Colombian Pacific about 40 percent of the fisheries are regulated by one or several management measures, most of them implemented in the last ten years, although somewhat less dynamically in the last five years. Unfortunately, the long INPA transformation process and the lack of available financial resources limited

the possibility of undertaking effective fishery monitoring activities related to these management measures. The most relevant management measures include:

- Annual closures: Since 1991 for shallow and deep water shrimp (20 January to 20 March) and since 1992 for Pacific anchoveta (1 November – 31 December). The entry of new vessels to these fisheries was also restricted;
- Minimum size limits for female black ark (*Anadara tuberculosa*) was determined in 2000;
- Fishing gear and methods for selective capture and to eliminate impacts on species renewability: In 1995 for artisanal and recreation fisheries of marlin, sailfish, swordfish and other associated species. In 2000 for the northern Pacific zone (Chocó);
- The use of turtle excluder devices (TEDs) is mandatory since 1996 for the Pacific trawl net shrimp fishery. Marine turtle by-catch in the shrimp trawl net fishery was prohibited in 1992;
- In 1994, Colombia ratified its accession to the La Jolla Agreement (1992) and participation continues in the International Dolphin Conservation Program of the IATTC. Regulations for vessels over 400 metric tons fishing for tuna in the eastern Pacific Ocean (EPO) were established in 1992 and dolphin mortality limits for this fleet were set in 2000. The yellowfin tuna closure was implemented in 1998 (November 26 – December 31) and 1999 (December 2 – 31) for the Colombian fleet fishing in the EPO, as agreed by the IATTC;
- The use of boats up to 5 metric tons for commercial artisanal fisheries was determined in 1992. In 1996 the characteristics of artisanal fisheries boats were defined and fishing with trawl nets in the Pacific and Atlantic Oceans was regulated and their use is prohibited within the first nautical mile;
- In 1995 the Pacific littoral was zoned into four fisheries resources management areas and the first nautical mile was segmented for the exclusive use of artisanal fishers; and
- Since 1993, quotas are allocated to commercial marine fishing permit holders, based on global quotas of the fishing resources in each ocean (see Table 1).

Although agreement among the fisheries management authority and other governmental organisations, groups of interest and artisanal fishers is frequent, it is not indispensable for the design and implementation of management measures, except in the cases established by law, such as: annual determination of the volumes susceptible to fishing by species, closures, reserve areas and, as appropriate, minimum catch size (together with the Ministry of Agriculture and Rural Development and the Ministry of the Environment, Housing and Land Development) and the coordination of control and surveillance activities (with the Navy and DIMAR). This strategy has allowed learning about the concerns of the participants, facilitating the management process and improving the levels of cooperation and commitment, although it does not always alleviate the conflicts between industrial and artisanal fishers.

TABLE 1
2001 Fishing quotas in the Colombian Pacific

Resource group	Species	2001 Quota (tonnes)
Shallow water shrimp	Whiteleg, tiger, and titi shrimp	3 400
Deep water shrimp	Cauliflower, red, and brown shrimp	1 200
Oceanic fish	Yellowfin tuna, skipjack, bigeye, mahi mahi, and other species	150 000
Medium pelagic fish	Mackerels, scads, escolars, and "carecaballo"	9 000
Demersal fish	Groupers, hakes, snappers, sharks, "espejuelo", "palometa", and "colorado"	5 900
Small pelagic fish	Pacific anchoveta and thread herring	45 000
Total Pacific		**241 500**

COSTS AND REVENUES OF FISHERIES MANAGEMENT

Management activities related to research and development, supervision, monitoring and control, and day-to-day management are financed from National Government resources and funds collected by INCODER. This income originates from payments by commercial fisheries users (fees, dues, and fines), from the sale of goods and services produced by INCODER (specifically the sale of ova, larvae, and fingerlings for aquaculture, the provision of technical assistance to users, and others arising from the Institute's ordinary activities).

Although the General Fisheries Law states that all revenues of INCODER belong to the Institute, the total is not fully allocated to it; thus, increasing its dependency on National Government resources. In Colombia, resources collected by government entities are concentrated in the Ministry of Revenue and Public Credit, with an annual reallocation of such resources based on the national priorities.

This implies that, although income from fisheries should be proportionally reinvested in the sector, in practice this is not the case; resulting in difficulties to implement investment projects in management and research. This trend follows the eleven years of INPA management in which the budget was ever lower, regardless of increased budgetary needs, not only due to increases associated to inflation but also because of the growing needs of the management process itself.

IMPLEMENTATION OF GLOBAL FISHERIES MANDATES AND INITIATIVES

Although the fisheries legislation does not establish mechanisms to implement global mandates and initiatives, those accepted by Colombia are adopted by administrative acts of INCODER, the Ministry of Agriculture and Rural Development or of the Environment, Housing and Development, as appropriate. The most relevant in the Pacific region are dictated by IATTC in the International Dolphin Conservation Program and the regulation for vessels over 400 metric tons in the tuna fishery. In addition, the country is currently studying the appropriateness of subscribing the Galapagos Agreement promoted by the Permanent Commission of the South Pacific – CPPS (Comisión Permanente del Pacífico Sur) relative to strengthening management measures in the area around the economic exclusive zone (EEZ) in the Eastern Pacific.

Despite the above-mentioned institutional weaknesses, there is a real willingness to formally comply with the mandates contained in the Code of Conduct for Responsible Fisheries (FAO, 1995a), the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea (UNCLOS) of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, as well as the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (FAO, 1995b), since although norms have been issued to implement some of their principles, this has not been done with the specific purpose of complying with the above-mentioned agreements.

Regarding the International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks), the project "Assessment of Shark Stocks in the Colombian Pacific" was formulated in 2003 but has not been implemented because of the impasse caused by the dismantling of INPA and the creation of INCODER. With respect to the International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (IPOA-Seabirds), no action has been undertaken yet.

Although the International Plan of Action for the Management of Fishing Capacity (IPOA-Capacity) has not been implemented as such, the country has taken some measures in the Pacific, including limiting entry and replacement of vessels into the shallow water shrimp (1993) and small pelagics (1992) fisheries and promoting their conversion to target by-catch species, and preference to national flag vessels in the allocation of fishing quotas when target stocks are decimated.

PARTICIPATION IN REGIONAL FISHERY BODIES

- Organización Latinoamericana de Desarrollo Pesquero (OLDEPESCA, "Latin American Organisation for Fisheries Development"), created in 1982 by the Sistema Económico Latinoamericano (SELA, "Latin American Economic System"). Membership consists of 14 Latin American countries, including Colombia;
- Comisión Permanente del Pacífico Sur (CPPS, "South Pacific Permanent Commission"), created in 1982 to coordinate regional initiatives aimed at the conservation of marine resources within 200 miles of the coasts of the four member countries: Chile, Ecuador, Peru and Colombia;
- Centro para los Servicios de Información y Asesoramiento sobre la Comercialización de los Productos Pesqueros en América Latina y El Caribe (INFOPESCA, Information and Advisory Center for Marketing Fisheries Products in Latin America and the Caribbean). Colombia has been a member country since 2000, by virtue of Law 498 of 4 March 1999; and
- Inter-American Tropical Tuna Commission (IATTC). Colombia is an observer country since 1991 and has not attained membership due to lack of favourable agreement of all its members.

SUMMARY AND CONCLUSIONS

In the last twelve years, Colombia has undertaken several management actions aimed at preserving or recovering the sustainable harvesting of its main commercial fisheries resources. Despite recognition of the need to expand the scope of action in the field by the public and private sectors, there have been legislative, institutional, financial and logistical limitations to strengthen management activities jointly with the stakeholders.

Another noticeable weakness has been lack of coordination between research and management processes within the fisheries institutions, as research should be the basis for regulatory and non-regulatory measures. Therefore, a considerable portion of the norms in force are based on indications, partial statistical data, and observation of fisheries evolution, but not on solid scientific evidence or socio-economic and environmental studies. It is frequent for research to start from the initiatives of scientists and/or users, but the majority do not arise from a joint assessment process with the management area.

Based on the lessons learned from INPA, it is expected that these weaknesses will be improved by the creation of the Fisheries and Aquaculture Subdivision within INCODER. INCODER will orient its actions to management with sub-processes identified in the areas of: implementation and monitoring of management measures and identification of research needs; authorisation of fisheries and aquaculture activities requested by the users; design and implementation of control and surveillance measures; and opening and updating a general registry of fishers, processing plants and vessels authorised to fish. In addition, this Subdivision has a multidisciplinary group for the research required for management.

On the other hand, it is necessary to reform the General Fisheries Law to adapt it to the real dynamics of the sector in the national and international context, thus providing the fisheries authority with the required tools to reassess, adjust or strengthen the management measures currently implemented. In addition, it is necessary to improve knowledge of the global mandates and initiatives enacted since the 90s, not only due to the obligations the country has to fulfil but also to learn from and analyse the experiences from other countries and regions, in order to improve State actions, raise awareness and educate the fishers (industrial and artisanal) and other government and private actors directly and indirectly related with the sector.

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To complement the primary information required for this work, personal interviews were conducted with:

- Abraham Alberto Villaneda J. – Marine Biologist. Fisheries Management and Development Specialist. Corporación Andina para el desarrollo del medio ambiente, la pesca y la acuicultura – CORMAPA (Andean Corporation of Environmental, Fisheries and Aquaculture Development).
- Miryam Larrahondo M. – Marine Biologist. Management Group Coordinator – INCODER Fisheries and Aquaculture Subdivision.
- Argiro Ramírez A. – Marine Biologist. Research Group Coordinator – INCODER Fisheries and Aquaculture Subdivision.
- Carlos Barreto R. – Marine Biologist. Professional in charge of fisheries statistics –INCODER Fisheries and Aquaculture Subdivision.

APPENDIX TABLES

Current Management of Marine Capture Fisheries in Colombia Pacific

Level of Management	% Fisheries Managed	% with Fisheries Management Plan	% with Published Regulations	Trends in the number of Managed Fisheries over ten yrs. (increasing/decreasing/unchanged)
National	70	40	40	Increasing
Regional	65	40	40	Increasing
Local	50	30	30	Increasing

Summary information for three largest fisheries (by volume) in Colombia Pacific (Year 2001)

Category of Fishery	Fishery	Volume mil tonnes	Value* mil USD	% of Total Volume Caught**	% of Total Value Caught**	Covered by a Management Plan?	# of Participants	# of Vessels
Industrial	1 Tunas	71.5	464 549	65	60	Yes	25	68
	2 Small pelagics	27.7	77 661	25	7	Yes	2	11
	3 Shrimps	2.2	12 432	2	26	Yes	75	106
Artisanal	1 Benthic	2.0	5 026	37	36	No	2 600	1 300
	2 Pelagics	2.0	9 370	35	38	No	400	175
	3 Crustaceans	0.8	6 911	23	40	Yes	10 000	5 000
Recreational	1 Sailfish	0.0027	11	34	33	No	170	45
	2 Marlin	0.0023	10	30	33	No	170	45
	3 Swordfish	0.0018	8	33	33	No	170	45

* Value in 2002 U.S. Dollars.
** % values are based on totals for each category of fishery.

Use of Fishery Management Tools within the three largest fisheries in Colombia Pacific

Category of Fishery	Fishery	Restrictions				License/ Limited Entry	Catch Restrictions	Rights-based Regulations	Taxes/ Royalties	Performance Standards
		Spatial	Temporal	Gear	Size					
Industrial	1 Tunas	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No
	2 Small pelagics	Yes	No	Yes	No	Yes	Yes	No	Yes	No
	3 Shrimps	Yes	No	Yes	No	Yes	Yes	No	Yes	No
Artisanal	1 Benthic	No	No	Yes	No	No	No	Yes	No	No
	2 Pelagics	No	No	Yes	No	No	No	Yes	No	No
	3 Crustaceans	Yes	No	Yes	No	No	No	Yes	No	No
Recreational	1 Sailfish	No	No	Yes	No	Yes	No	No	Yes	No
	2 Marlin	No	No	Yes	No	Yes	No	No	Yes	No
	3 Swordfish	No	No	Yes	No	Yes	No	No	Yes	No

Costs and Funding Sources of Fisheries Management within the three largest fisheries in Colombia Pacific

Category of Fishery	Fishery	Do Management Funding Outlays Cover			Are Management Funding Sources From		
		R&D	Monitoring & Enforcement	Daily Management	License fees in fishery	License fees from other fisheries	Resource rents
Industrial	1 Tunas	Yes	Yes	Yes	Yes	Yes	No
	2 Small pelagics	Yes	Yes	Yes	Yes	Yes	No
	3 Shrimps	Yes	Yes	Yes	Yes	Yes	No
Artisanal	1 Benthic	Yes	Yes	Yes	Yes	Yes	No
	2 Pelagics	Yes	Yes	Yes	Yes	Yes	No
	3 Crustaceans	Yes	Yes	Yes	Yes	Yes	No
Recreational	1 Sailfish	Yes	Yes	Yes	Yes	Yes	No
	2 Marlin	Yes	Yes	Yes	Yes	Yes	No
	3 Swordfish	Yes	Yes	Yes	Yes	Yes	No

Compliance and Enforcement within the three largest fisheries in Colombia Pacific

Category of Fishery	Fishery	VMS	On-board observers	Random dockside inspections	Routine inspections at landing sites	At-sea boarding and inspections	Other
Industrial	1 Tunas	Yes	Yes	Yes	Yes	Yes	No
	2 Small pelagics	Yes	No	Yes	Yes	Yes	Random inspections to the fishing tasks
	3 Shrimps	Yes	No	Yes	Yes	Yes	Random inspections to the fishing tasks
Artisanal	1 Benthic	Yes	No	Yes	Yes	Yes	No
	2 Pelagics	Yes	No	Yes	Yes	Yes	No
	3 Crustaceans	Yes	No	Yes	Yes	Yes	No
Recreational	1 Sailfish	No	No	No	No	No	Supervisors in the competitions
	2 Marlin	No	No	No	No	No	Supervisors in the competitions
	3 Swordfish	No	No	No	No	No	Supervisors in the competitions

Capacity Management within the three largest fisheries in Colombia Pacific

Category of Fishery	Fishery	Does overfishing exist?	Is fleet capacity measured?	Is CPUE increasing, constant or decreasing?	Have capacity reduction programmes been used?	If used, please specify objectives of capacity reduction programme
Industrial	1 Tunas	No	No	Increasing	No	
	2 Small pelagics	No	No	Decreasing	Yes	To recover the small pelagics stocks
	3 Shrimps	Yes	No	Decreasing	Yes	To recover the shrimps stocks
Artisanal	1 Benthic	No	Yes	Constant	No	
	2 Pelagics	No	Yes	Constant	No	
	3 Crustaceans	Yes	Yes	Decreasing	No	
Recreational	1 Sailfish	No	No	Constant	No	
	2 Marlin	No	No	Constant	No	
	3 Swordfish	No	No	Constant	No	

Ecuador

** Translated from the original Spanish*

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December 2003

INTRODUCTION

This summary strives to present the outstanding aspects and the most important conclusions from the questionnaire (the "Questionnaire") on the "Current Status of Marine Capture Fisheries Management" developed by FAO, pertaining to fisheries in Ecuador.

Fisheries in Ecuador started well before the arrival of Spaniards in America in the late 15th Century, as a subsistence activity among coastal indigenous communities using rudimentary methods. As an industrial activity, that is, an enterprise exploiting the fishery for profit, it began in the early 20th Century, strengthened in the 50s and by the 80s and 90s it had become one of the most important activities at national level due to the generation of foreign currency from exports and the creation of jobs. Unfortunately, as will be seen later, this important activity has received almost no support from most government administrations.

POLICY FRAMEWORK

The information included in the questionnaire uses the following criteria to define (1) national fisheries as occurring along the coast of continental Ecuador; (2) regional fisheries as occurring exclusively within the marine reserve area of the Galapagos Islands, and (3) local fisheries as occurring in small coastal communities of Ecuador. These terms, however, are not defined in the national legislation.

The first General Fisheries Law approved in 1974 when Ecuador was under a military dictatorship, had the fundamental objective of fostering the development of fisheries through tax incentives and promoting the creation of integrated enterprises. Fishing activities were only permitted in favor of national or mixed capital companies, in which at least 51 percent had to be owned by Ecuadorians.

There were some minor reforms in 1978.

The first significant reforms were undertaken in 1985, during the Leon Febres Cordero administration, with the introduction of some concepts relating to the cultivation of bio-aquatic species in captivity (shrimp farms); others were administrative in nature, like the separation of the Under-Secretariat of Fisheries Resources (Subsecretaría de Recursos Pesqueros) and the General Directorate of Fisheries (Dirección General de Pesca) from the Ministry of Natural Resources, enabling the President to administratively relocate these entities under any other Ministry (since that year they are part of the Ministry of Trade and Industry); new fisheries infractions were included such as the destruction of mangroves; the scope of certain tax benefits was expanded; fine amounts that had been eroded due to inflation were updated, etc.

Most tax benefits included in the Fisheries Law were eliminated in 1989, during the administration of President Rodrigo Borja,

Restrictions to foreign capital investment in fish and shrimp companies were eliminated in 1997.

In 1998 the new Special Regime Law for the Conservation and Sustainable Development of the Province of Galapagos severed jurisdiction and competency from the

National Council for Fisheries Development (CNDP, Consejo Nacional de Desarrollo Pesquero), and thereby from the Under-Secretariat of Fisheries Resources and the General Directorate of Fisheries and granted them to the National Inter-Institutional Management Authority of the Galapagos Marine Reserve (Autoridad Interinstitucional de Manejo de la Reserva Marina de Galápagos) and the General Directorate of the Galapagos National Park (Dirección General del Parque Nacional Galápagos).

In 2002, towards the end of Dr. Gustavo Noboa's administration, the fisheries authority, by consensus of all fish and shrimp sector stakeholders, an extensive legal reform project was submitted to and is currently being studied by the National Congress. This bill of law is supported on the fundamental concept of sustainable development of fisheries and the principles of responsible fishing; new fisheries infractions are introduced; new sanctions are established for fisheries products processing plants; the amount of sanctions for infractions are increased; the composition of CNDP is reformed, increasing the number of private sector participants from one to three, among others. Approval of these reforms would be a significant contribution for the development of sustainable fishing activities, in accordance with the modern principles that prevail in responsible fisheries.

New General Regulations to the Fisheries Law were also issued by Presidential Decree, updating the previous (1985) and merging several secondary norms that were scattered before.

LEGAL FRAMEWORK

The fisheries authorities are:

- The Ministry of Foreign Trade, Industry, Fisheries and Competitiveness
- The National Council for Fisheries Development (CNDP)
- The Under-Secretary of Fisheries Resources
- The General Director of Fisheries
- Fisheries Inspectors

The Minister of Foreign Trade, Industry, Fisheries and Competitiveness is responsible for directing and executing fisheries policy through the Under-Secretariat of Fisheries Resources (Art. 14 of Law).

The National Council for Fisheries Development (chaired by the Minister or the Under-Secretary of Fisheries Resources) consists of five representatives of the public sector and three representatives of the private sector (industry, artisanal and aquaculture). Its most important functions are to guide the country's fisheries policy; issuing an opinion before the submission of bills of law and regulations, as well as Ministerial Agreements prohibiting, limiting or conditioning fishing activities in any phase (Art. 12 and 20).

In practice, the Under-Secretary of Fisheries Resources is the highest political authority and is responsible for compliance with and enforcement of the laws and regulations pertaining to fisheries at the national level (Art. 15, a, Law).

The General Directorate of Fisheries is the specialized agency responsible for control of the fishery, the fishing industry and marketing (Art. 16, 92). The General Director of Fisheries is the natural Judge of fisheries infractions.

Finally, the Fisheries Inspectors act under the supervision of the General Director of Fisheries, and are empowered to carry out *in situ* verifications and to judge minor infractions.

Therefore, the two most important officials are the Under-Secretary of Fisheries Resources and the General Director of Fisheries; both report to the Ministry of Foreign Trade, Industry, Fisheries and Competitiveness and are appointed by the Minister. However, in practice, the Minister has traditionally allowed the Under-Secretary to select the General Director of Fisheries to ensure that both officials can coordinate their activities.

Regarding fishing activities in the Galapagos Islands, since 1998 the area has been under the control of the National Inter-Institutional Management Authority of the Galapagos Marine Reserve, chaired by the Minister of Environment. Since that year, all industrial fishing activities have been prohibited in Galapagos and only artisanal fishing is allowed, resulting in serious conflicts with the continental industrial fisheries sector.

The reciprocal influence or inter-relation between the Ministry of Foreign Trade, Industry, Fisheries and Competitiveness and the Ministry of Environment is focused on their two subsidiary bodies: the National Inter-Institutional Management Authority of the Galapagos Marine Reserve (AIM) and the National Council for Fisheries Development. The Ministry of Foreign Trade, Industry, Fisheries and Competitiveness participates in the AIM, chaired by the Minister of Environment. On the other hand, since 2002, the Minister of the Environment also participates in the CNDP that is chaired by the Minister of Foreign Trade, Industry, Fisheries and Competitiveness or the Under-Secretary of Fisheries Resources.

Outside these environments there is no other inter-relation between both Ministries, beyond any voluntarily actions undertaken for common purposes.

STATE OF THE FISHERIES

It is estimated that Ecuador exploits 118 species representing about one fourth of the diversity of known marine fish. Most of these species (115) are exploited by the artisanal fleet and about 20 by the industrial fleet.

Tuna and large pelagics are captured by the artisanal fleet within the 200 mile exclusive economic zone (EEZ) and by the industrial fleet within and outside this area. The latest data available indicate that in the year 2000 the capture was almost 600 000 tons with a gross value of US$350 million, for a contribution to the GDP of between five and six percent, the highest portion contributed by the tuna fishery. Small pelagics represent the most important fishery by volume, while the tuna and large pelagics fisheries are by far the most important in value.

MANAGEMENT ACTIVITIES

The National Council for Fisheries Development (CNDP) is the entity responsible for deciding fishery management measures. This body consists of public (5) and private (3) participants. The Under-Secretary of Fisheries Resources chairs this organization and at the same time directs and executes fisheries policies, with the scientific advice of the National Fisheries Institute (Instituto Nacional de Pesca). Although the law provides decisions are made by majority, consensus is traditionally sought so that management measures can be supported and respected by all sectors.

In Ecuador, about 20 marine species are under management (including those regulated by Regional Fisheries Organizations (RFOs), such as the Inter-American Tropical Tuna Commission (IATTC), for around 17 percent of the commercially exploited species. It should be noted, however, that they represent over 90 percent of the total volume and value of Ecuadorian fisheries.

The number of species under management has not varied in the last ten years. In the last five years there has been a substantial increase in regularity and compliance. These recent changes or improvements have been influenced by various factors such as the noticeable reduction in catch per unit of effort (CPUE); better awareness among participants of the principles of the FAO Code of Conduct for Responsible Fisheries; commercial pressure by international markets, among others.

Some stocks of the various fisheries are periodically assessed by the National Fisheries Institute to determine their condition; however, the severe economic limitations result in a lack of the necessary credibility among participants. This has resulted in overfishing of some small pelagics, which is not the case for tuna and large

pelagics which are fully exploited. Regarding the shrimp trawler fishery, the most important commercial species (white shrimp) is over-exploited; red, brown and "titi" shrimp are fully exploited; deep water shrimp is at mid exploitation; finally, the so-called "pomada carapachudo" shrimp is barely exploited. Special mention should be made of lobster and sea urchin which are also overexploited.

The Ecuadorian Constitution, the Fisheries Law and other pertinent legal provisions establish an appropriate juridical framework for the fisheries authorities to adopt the necessary measures for the recovery of marine stocks and to ensure the sustainability of the fisheries. For this purpose, the authorities have used several management tools such as time and area closures, limiting the access of new participants into some fisheries, gear restrictions (driftnets, mesh size, mandatory use of turtle excluder devices [TEDs]), etc.

These management tools have not undergone significant changes in the last ten years, except for the promotion of participatory management throughout Ecuador, with particular emphasis on the Galapagos Marine Reserve. Participatory management has been fostered because it guarantees a good degree of acceptance of other decisions made by the responsible authorities.

Some fishing methods and gears are expressly prohibited such as the use of monofilament, building dams in rivers, use of explosives and toxic substances and, in general, the use of fishing gear other than permitted.

Introduction of the above-mentioned management tools have enabled maintaining some fisheries, including tuna, at acceptable levels. In other cases such as shrimp and small pelagics, apparently they have not been enough to allow tangible biomass recovery.

The most important obstacles to more effective fisheries management include: lack of a medium- and long term policy and vision by the authorities and the private sector; lack of political stability; lack of economic resources for research, planning and control; corruption at certain administrative and judicial levels, especially in relation to enforcement of management measures.

COSTS AND FUNDING OF FISHERIES MANAGEMENT

In the last ten years and more specifically since 2000, funding for fisheries management has increased substantially, not thanks to the central government that has actually reduced budget allocations, but rather to the actions of the fisheries authorities. At the end of 1999, about 95 percent of the resources in the Under-Secretariat of Fisheries Resources and the General Directorate of Fisheries budget were from funds assigned by the Central Government and five percent con self-financing activities. In 2002, approximately 70 percent of the public fisheries sector budget is financed from self-financing activities. Given the lack of resources from the central government, in the period 2000-2002 the fisheries authorities decided to implement a special norm enabling the collection of fees for all services to the users of the resources. The change from a national currency (Sucres) to a strong currency such as the US dollar allowed, through the implementation of this new self-financing system, to avoid the loss in value that had been occurring through the years.

IMPLEMENTATION OF GLOBAL MANDATES AND INITIATIVES

UNCLOS and Other International Instruments

UNCLOS – Ecuador began the process for accession to the United Nations Convention on the Law of the Sea towards the end of 2002. An excessively nationalistic policy of many years had prevented making this decision before. This process is estimated to conclude in 2004.

Ecuador has not signed the "Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea Relating to the Conservation

and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks" or "New York Agreement".

The "Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas" was signed and ratified by Ecuador.

FAO Plans of Action. The following are the steps taken by Ecuador for implementation of the various Plans of Action adopted by FAO:

International Plan of Action for the Management of Fishing Capacity

Within the scope of the tuna fishery, Ecuador promoted and strongly supported the "*Resolution on the Capacity of the Tuna Fleet Operating in the Eastern Pacific Ocean (EPO)*", adopted by the 69th ordinary session of the Inter American Tropical Tuna Commission (IATTC) held in Manzanillo, México in June 2002. This resolution was intensely negotiated for two years in that organization. It is believed that, although imperfect, it represents a significant step forward for limiting the tuna fleet fishing in the EPO.

At the national level, the lack of incentives from the Ecuadorian State has prevented and continues to prevent the implementation of national plans of action to reduce fishing effort in the various fisheries including marine shrimp, small pelagics and other species captured by the oversized artisanal fleet.

International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing

Almost no legislation to this effect exists in Ecuador. There is legislation prohibiting the landing of fish captured by foreign vessels not complying with the management measures dictated by Regional Fisheries Organizations (Ex. IATTC, AIDCP).

Regarding the tuna fishery, the private sector is in the process of accessing and supporting the actions developed by the Japanese Organisation for Promotion of Responsible Tuna Fisheries (OPRT).

International Plan of Action for the Conservation and Management of Sharks

Shark "finning" has been prohibited in Ecuador for many years. The sale of shark fins is conditioned upon verification of the rest of the carcasses.

International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries

The incidence of sea bird bycatch in the Ecuadorian longline fisheries has not been demonstrated, so far making the implementation of actions called for under this Plan of Action unnecessary.

PARTICIPATION IN REGIONAL FISHERY BODIES (RFBS)

Ecuador is a member of the following fisheries management organizations: Inter-American Tropical Tuna Commission (IATTC), Inter-American Convention for the Protection and Conservation of Sea Turtles, Agreement on the International Dolphin Conservation Program (AIDCP) and the Latin American Organisation for Fisheries Development (Oldepesca).

Ecuador has been a very active participant in these organizations, with the exception of OLDEPESCA, as that entity has a very passive attitude and very limited influence over fisheries management.

Article 3 of the Fisheries Law establishes that "For the purposes of research, exploitation, conservation and protection of bio-aquatic resources, the provisions set forth in this law, in international agreements Ecuador is a party to and in the principles

of international cooperation shall be observed". Pursuant to this provision, it is the obligation of the fisheries authority, by the mechanisms described above, to implement any regulations adopted by RFOs through norms such as decrees or ministerial agreements.

SUMMARY AND CONCLUSIONS

Despite the fact that fisheries activities represent the second largest private exports in Ecuador (bananas are first), this is an activity carried out by the private sector with hardly any State support.

It is absurd that for an activity that jointly (marine capture and aquaculture) generated over US$ 1 billion in 1999, not even 0.1 percent of the total State budget is allocated to the management, control and research of fisheries and aquaculture.

Ecuador has serious political and economic that are reflected in all productive activities and fisheries is not the exception.

The highest authorities of the fisheries sector (Under Secretary of Fisheries Resources and General Director of Fisheries) hold political appointments, and are frequently designated without taking their background into account and this sometimes results in an alarming lack of continuity. As an example, during the present administration there have already been two Fisheries Directors in ten months and a third is about to be designated.

To overcome both core problems, lack of resources and lack of continuity in the fisheries authority, a deep legal reform would be required to give independence to the fisheries authorities through the creation of a more autonomous body, outside the reach of political appointments, thus establishing a more technical and stable fisheries authority. The sector should be allocated government funds proportionate to the level of production and exports and the resources obtained from self-financing activities should be legally reinforced. Profound reforms such as these are difficult in countries where short term policies prevail and the political scenario is dominated by political parties with little credibility.

REFERENCES

The information included in this document and in the questionnaire has been extracted from the following documents:

- Plan de Ordenamiento de la Pesca y Acuicultura del Ecuador (Fisheries and Aquaculture Management Plan) Prepared by consultants Luis Arriaga Mosquera and Jimmy Martínez Ortiz, funded by Loan Agreement BIRF 4346-EC, by the Ministry of Foreign Trade, Industry, Fisheries and Competitiveness and the Under-Secretariat of Fisheries Resources. Year 2002.
- Competitiveness Study of the "Tuna and Pelagics" Sub-sector. Study by the company Iber-Geo International S.L., funded by Loan Agreement BIRF 4346-EC, by the Ministry of Foreign Trade, Industry, Fisheries and Competitiveness and the Under-Secretariat of Fisheries Resources. Year 2002.
- Ley de Pesca y Desarrollo Pesquero.
- Reglamento General a la Ley de Pesca y Desarrollo Pesquero y Texto Unificado de Legislación Pesquera.
- FAO Country Report. http://www.fao.org/fi/fcp/fcp.asp.

APPENDIX TABLES

Current Management of Marine Capture Fisheries in Ecuador

Level of Management	% Fisheries Managed	% with Fisheries Management Plan	% with Published Regulations*	Trends in the number of Managed Fisheries over ten yrs. (increasing/decreasing/unchanged)
National	33- 67	< 33	33 – 67	Increasing
Regional	33 – 67	< 33	33 – 67	Increasing
Local	< 33	< 33	< 33	increasing

* In other cases of managed fisheries where no regulations have been published , licences with conditions/rules are issued to participants under the Fisheries Act
** Only one fishery is concerned

Summary information for three largest fisheries (by volume) in Ecuador

Category of Fishery	Fishery	Volume tons	Value* US$ million	% of Total Volume Caught**	% of Total Value Caught**	Covered by a Management Plan?	# of Participants	# of Vessels
Industrial	Pelágicos Pequeños	41 7170	18	70	5	No	896	143
	Atunes	171 709	293.2	29	83	Yes	1 229	82
	Camarón de Arrastre	6 000	40	1	11	No	1 197	215
Artisanal	Atunes y otros pelágicos grandes	25 200	37.6	69	n.a.	No	50 400	14 000
	Demersales	7 600	n.a.	21	n.a.	No		
	Tiburones	3 600	9	10	n.a.	No		
Recreational	Pesca deportiva de altura	n.a.	n.a.	n.a.	n.a.	No	n.a.	n.a.
	Buceo con Arpón	n.a.	n.a.	n.a.	n.a.	No	n.a.	n.a.
	Pesca deportiva de playa	n.a.	n.a.	n.a.	n.a.	No	n.a.	n.a.

* Value in 2002 U.S. Dollars.
** % values caught and % volume caught are based on totals for each category of fishery.
n.a: not available

Use of Fishery Management Tools within the three largest fisheries in Ecuador

Category of Fishery	Fishery	Restrictions				License/ Limited Entry	Catch Restrictions	Rights-based Regulations	Taxes/ Royalties	Performance Standards
		Spatial	Temporal	Gear	Size					
Industrial	Pelágicos Pequeños	No	Yes	No	No	Yes	No	No	No	No
	Atunes	Yes	Yes	No	No	Yes	Yes	No	No	No
	Camarón de Arrastre	No	Yes	Yes	No	Yes	No	No	No	No
Artisanal	Atunes y otros pelágicos grandes	No	No	No	No	Yes	No	No	No	No
	Demersales	No	Yes	Yes	No	Yes	No	No	No	No
	Tiburones	No	No	No	No	Yes	No	No	No	No
Recreational	Pesca deportiva de altura	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	Buceo con Arpón	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	Pesca deportiva de playa	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

n.a: not available

Costs and Funding Sources of Fisheries Management within the three largest fisheries in Ecuador

Category of Fishery	Fishery	Do Management Funding Outlays Cover			Are Management Funding Sources From		
		R&D	Monitoring & Enforcement	Daily Management	License fees in fishery	License fees from other fisheries	Resource rents
Industrial	Pelágicos Pequeños	Yes	Yes	Yes	Yes	No	No
	Atunes	No	No	Yes	Yes	No	No
	Camarón de Arrastre	Yes	Yes	Yes	Yes	No	No
Artisanal	Atunes y otros pelágicos grandes	Yes	Yes	Yes	Yes	No	No
	Demersales	Yes	Yes	Yes	Yes	No	No
	Tiburones	Yes	Yes	Yes	Yes	No	No
Recreational	Pesca deportiva de altura	Yes	Yes	Yes	Yes	No	No
	Buceo con Arpón	Yes	Yes	Yes	Yes	No	No
	Pesca deportiva de playa	Yes	Yes	Yes	Yes	No	No

n.a: not available

Compliance and Enforcement within the three largest fisheries in Ecuador

Category of Fishery	Fishery	VMS	On-board observers	Random dockside inspections	Routine inspections at landing sites	At-sea boarding and inspections	Other
Industrial	Pelágicos Pequeños	No	No	Yes	Yes	Yes	
	Atunes	No	Yes	Yes	Yes	Yes	
	Camarón de Arrastre	No	No	Yes	Yes	Yes	
Artisanal	Atunes y otros pelágicos grandes	No	No	Yes	No	Yes	
	Demersales	No	No	Yes	No	Yes	
	Tiburones	No	No	Yes	No	No	
Recreational	Pesca deportiva de altura	No	No	Si	No	Si	
	Buceo con Arpón	No	No	Si	No	Si	
	Pesca deportiva de playa	No	No	Si	No	No	

* May be required to take observer on board. There is no observer programme.
n.a: not available

Capacity Management within the three largest fisheries in Ecuador

Category of Fishery	Fishery	Does overfishing exist?	Is fleet capacity measured?	Is CPUE increasing, constant or decreasing?	Have capacity reduction programmes been used?	If used, please specify objectives of capacity reduction programme
Industrial	Pelágicos Pequeños	Yes	Yes	Constant or decreasing	Yes	The purchase of fishing licenses for the fishery
	Atunes	Yes	Yes	Constant or decreasing	Yes	The purchase of fishing licenses for the fishery
	Camarón de Arrastre	Yes	Yes	Constant or decreasing	Yes	The purchase of fishing licenses for the fishery
Artisanal	Atunes y otros pelágicos grandes	Yes	No	Constant or decreasing	No	n.a.
	Demersales	Yes	No	Constant or decreasing	No	n.a.
	Tiburones	Yes	No	Constant or decreasing	No	n.a.
Recreational	Pesca deportiva de altura	n.a.	No	n.a.	No	n.a.
	Buceo con Arpón	n.a.	No	n.a.	No	n.a.
	Pesca deportiva de playa	n.a.	No	n.a.	No	n.a.

n.a: not available

Peru

** (Translated from the original Spanish)*

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September 2003

INTRODUCTION

Fisheries management in the Peruvian legislation is defined as the set of norms and actions implemented to manage a fishery based on the most recent knowledge of its biological, fisheries, economic and social components. The management measures that enable the development of fishing activities and the rational use of the hydro-biological resources are described in the "Ley General de Pesca[1]" (General Fisheries Law), approved in December 1992. Under the Peruvian legal system, the specific norms are contained in the regulations to each Law and, to this effect, the Regulations to the General Fisheries Law[2] set forth all of its procedures, including the basic norms of fishing activities (research, extraction, processing), fishing rights, artisanal fishing activities, fishing by foreign flag vessels, etc. In addition, when some fisheries are to be managed as distinct units because of their biological characteristics and/or socioeconomic importance, there are Management Plans, currently known as Fisheries Management Regulations (ROPs) approved by Supreme Decrees. Fisheries without FMRs are managed pursuant to the provisions of the Regulations to the General Fisheries Law. Fisheries legislation also includes the "Ley de Promoción y Desarrollo de la Acuicultura"[3] (Aquaculture Promotion and Development Law) and its respective Regulations.

POLITICAL FRAMEWORK

The Political Constitution of Peru establishes that maritime jurisdiction covers the ocean adjacent to its coasts up to a distance of 200 nautical miles measured from the base lines established by law[4], and that renewable and non renewable resources are the heritage of the Nation and the State has a sovereign right to their exploitation[5]. The conditions for their use and granting them to third parties are regulated by the Organic Law[6]. In addition, the Political Constitution of Peru also provides that the State determines the national environmental policy and promotes the sustainable use of the natural resources and is obligated to promote the conservation of biological diversity and of natural protected areas[7].

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1 Law Decree N° 25977.
2 Supreme Decree N° 012-2001-PE.
3 Law Nº 27460.
4 Political Constitution of Peru (1993), Article 54.
5 Political Constitution of Peru (1993), Article 66.
6 Political Constitution of Peru (1993), Article 66. This provision establishes the hierarchy for the general law that regulates the sustainable use of natural resources and of the specific regulatory laws for each particular resource. The term "Organic" is taken to mean, in this context, that its legislative approval or derogation requires a qualified majority of the members of the Congress of the Republic, thus ensuring greater stability of its provisions. Therefore, the "Ley Orgánica para el Aprovechamiento Sostenible de los Recursos Naturales" (Law Nº 26821) ratifies the "Ley General de Pesca" (Law Decree Nº 25977) (General Fisheries Law).
7 Political Constitution of Peru (1993), Article 67.

The "Ley Orgánica para el Aprovechamiento Sostenible de los Recursos Naturales" (Organic Law for the Sustainable Use of Natural Resources), Law Nº 26821, regulates the sustainable use of natural resources, as they are heritage of the Nation, establishes the conditions and modes of granting to third parties, in compliance with the mandate contained in Articles 66º and 67º of the country's Political Constitution and in conformity with that set forth in the Environment and Natural Resources Code and the international conventions ratified by Peru, with the objective of promoting and regulating the sustainable use of renewable and non renewable natural resources; and which provide the appropriate framework to foster dynamic investment in balance with economic growth, the conservation of natural resources and of the environment.

The above-mentioned norm defines natural resources as: "any component of nature, susceptible to being used by human beings to satisfy their needs and with an actual or potential market value…", and establishes the limitations to granting and the sustainable use of natural resources, indicating that the State shall ensure that granting such right to the sustainable use of natural resources, is done in harmony with the national interests, the common good and within the limits and principles established by said law, the special laws and the corresponding regulations.

These norms also establish important principles for resource management including conflict resolution, indicating that special laws regulating the sustainable use of natural resources shall determine the priority of rights, the procedures and the administrative and government entities responsible for solving controversies or conflicts that may arise from resource management among the sectors, or among them and third parties. In addition, other principles refer to granting rights over natural resources to others and the economic compensation for their use.

To this effect, and as applicable to bio-aquatic resources, the General Fisheries Law-Law Decree Nº 25977 of 21 December 1992, modified by Law Decree Nº 25999 establishes that the Peruvian State shall regulate fishing activities, promote their sustainable development, as a source of food, employment and income and ensure the responsible use of hydro-biological resources; economic benefits are to be managed in harmony with environmental preservation and biodiversity conservation.

The current General Fisheries Law (1992) was inspired in the principles of the Code of Conduct for Responsible Fisheries and is a step forward from the previous General Fisheries Law Nº 24790, of 6 January 1988[8].

The Regulations to the current General Fisheries Law were approved by Supreme Decree Nº 01-94-PE[9], and have been substituted by the current one in force, approved by Supreme Decree Nº 012-2001-PE[10] and provides that hydro-biological resources are classified according to their degree of exploitation.

[8] The first General Fisheries Law, enacted by Law Decree Nº 18810, of 25 March 1971, was the first legal instrument establishing the conditions for exercising fisheries activities in Peru. The objectives for the activity were expressed as social interest and optimum exploitation of living resources. Maximum productivity, improving nutrition indices for the majority and fair distribution of the economic benefits of the fishery among the State, the investor and the worker.

Law Nº 24790 of 6 January 1988 is the General Fisheries Law, an expression of the political context of the times, but with further elaboration of the legal principles regulating fishing activities. It limited the participation of foreign fleets, conditioning it to the signature of international agreements between governments. It favored artisanal fisheries by granting exemptions from sales tax and other fiscal requirements and any other duties including customs tariffs.

Various supplementary regulations pertained to management measures regarding minimum capture size, net size, mesh size, types of vessels and gears, as in the case of the tuna fleet, the trawler fleet and the squid fleet.

This Law was in force for almost five years, but was revised because the text was not consistent or realistic, as it did not contain concrete promotional measures, as opposed to that contained in the texts of from neighboring countries. This Law did not solve the fundamental problems derived from the co-existence of state and private companies.

[9] 14 January 1994, subjected to subsequent modifications.

[10] 13 March 2001.

When specific fisheries are to be managed as distinct units, Fisheries Management Regulations (ROPs, "Reglamentos de Ordenamiento Pesquero"[11], formerly Fisheries Management Plans (POPs, "Planes de Ordenamiento Pesquero" are dictated. The following are currently in force:

- POP for the promotion of New Fisheries – R.M N° 575-98-PE (02.12.98)
- ROP for Giant Squid – D.S N° 013-2001-PE (30.03.01)
- ROP for Tuna – D.S N° 14-2001-PE (30.03.01)
- ROP for Jack Mackerel and Scad – D.S N° 24-2001-PE (12.06.01)
- ROP for Deep Water Cod – R.M N° 236-2001-PE (04.07.01)
- ROP for Hake – D.S N° 016-2003-PRODUCE (30.05.03)

Since 2001, the country has undertaken a regionalisation process with obvious implications for fisheries management, in conformity with the Organic Law for Regional Governments, which has established and regulated, among others the areas of competence and functions of Regional Governments; constitutional competencies include promoting and regulating fisheries and environmental activities and/or services pursuant to the Law. The exclusive competencies include promoting the sustainable use of forestry resources and biodiversity. Shared competencies specify the promotion, management and regulation of economic and productive activities within the scope and level of the sectors, among them fisheries and sustainable management of natural resources and improving environmental quality.

LEGAL FRAMEWORK

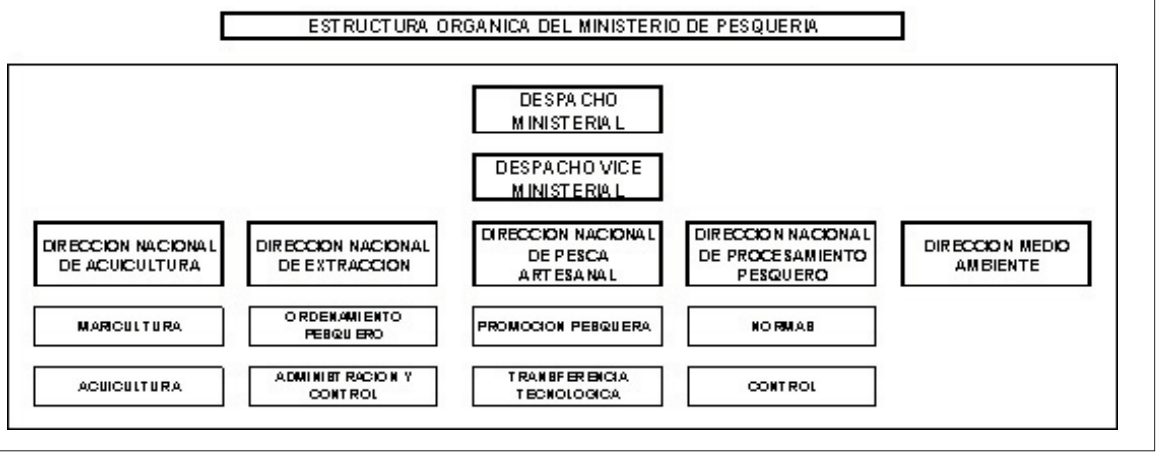
Law Nº 27779 – Organic Law Modifying the Organisation and Functions of Ministries (Ley Orgánica que Modifica la Organización y Funciones de los Ministerios), issued 11.07.02 restructured the entities regulated by the Law of the Executive Power (Ley del Poder Ejecutivo), defined the number of Ministries and formed the Ministry of Production by merging the Industry Sub-Sector that was a part of the former Ministry of Industry, Trade and International Trade Negotiations with the former Ministry of Fisheries. The current functions of the Ministry of Production relative to the Fisheries Sub-Sector are to formulate, approve and supervise the national policies applicable to fisheries cultivation and extraction activities, marine and inland hydro-biological resources as well as productive activities. The scope of the Ministry of production includes the technical-regulatory actions of national application and it acts as the Executive and Technical-Regulatory Body of the Executive Power in the area.

For the purposes of management, fisheries and aquaculture activities include all actions that are directly or indirectly related to the utilisation of living marine and inland resources; thus the purpose or vision of the Ministry of Production is to promote productivity in extractive and productive activities under its scope, making them competitive in the domestic and external markets, while maintaining a focus on rational resource use, environmental protection, benefits to the population and contributing to the sustainable development of the country.

The organic structure of the Ministry (Figure 1) includes the office of the Vice-Minister of Fisheries, the authority immediately under the Minister of Production in the Fisheries Sub-Sector and has the competency to formulate, execute and direct fisheries policies. It is responsible for ensuring the rational exploitation of natural resources and preservation of the environment, in addition to guiding and supervising the activities of Decentralised Public Entities in the fisheries sub-sector. Within the country's decentralisation process, it supervises the activities of the competent bodies of regional governments, in accordance with the national policy of the Fisheries Sub-Sector and the guidelines emanating from the Office of the Minister.

[11] The ROPs are now approved by a higher ranking legal norm (Supreme Decree), Fisheries Management Plans –POPs, used to be approved by Ministerial Resolution of the Ministry of Fisheries.

FIGURE 1
Organizational structure of the Fisheries Ministry



At the same time, the Vice-Ministry of Fisheries includes the National Directorates of Aquaculture; Artisanal Fisheries; Fisheries Extraction and Processing; Monitoring, Control and Surveillance; and Fisheries Environment. In addition, it includes the Sanction Appeal Committee of the Vice-Ministry of Fisheries.

Regarding fisheries management responsibilities, the National Directorate of Fisheries Extraction and Processing is the technical-regulatory organisation responsible for proposing, implementing and supervising the policies relative to the development of fisheries extraction and processing, ensuring rational exploitation the preservation of the environment. Its functions include formulating and proposing standards relative to the application of management systems for extractive and processing activities, to guarantee adequate conservation, control and responsible harvesting of hydro-biological resources, based on technical-scientific information and socio-economic aspects; it is the entity responsible for the technical evaluation of requests to undertake fisheries extraction activities by the national and foreign fleet, as well as processing activities at the national level and for granting the corresponding authorisations, permits and licenses.

Regarding enforcement of fisheries regulations, the National Directorate of Monitoring, Control and Surveillance (DINSECOV), of the Vice-Ministry of Fisheries is the technical and regulatory organisation responsible for proposing, implementing and supervising the policy of the sub-sector relative to the monitoring, control and surveillance of fisheries and aquaculture activities, as well as for evaluating and applying the corresponding sanctions for infractions to rational exploitation and preservation of the environment. Its functions include programming and executing surveillance and inspection of hydro-biological products in fishing, capture, collection or harvesting, transportation, commercialisation and processing in order to protect rational and sustainable utilisation, to program and execute surveillance and inspection of aquaculture activities, as well as in reserves and conservation units, and to maintain the Satellite Monitoring System (SISESAT) for surveillance of the fishing fleet.

Regarding fisheries and the marine environment, the National Maritime Authority lies within the General Directorate of Harbour Masters and Coast Guard –DICAPI. Law 26620, the Maritime, Riverine and Lacustrine Activities Control and Surveillance Law (Ley de Control y Vigilancia de la Actividades Marítimas, Fluviales y Lacustres), which assigns it to the Maritime, Riverine and Lacustrine Police. The Authority is responsible for exercising control to prevent and mitigate the effects of pollution in the ocean and navigable rivers and lakes and in general over anything that may cause ecological damage. It requires compliance with provisions pertaining to fisheries,

guano-producing birds and other natural resources of the aquatic medium and authorises and oversees scientific research activities of national and foreign vessels carried out within its aquatic jurisdiction.

In addition, DICAPI works in the evaluation, management, prevention and reduction of ocean pollution caused by vessels and aquatic facilities and by activities undertaken in such environment and that originated from land, which is the exclusive competence of the Maritime Authority, in coordination with the sectors involved. Through the Directorate of Aquatic Interests it formulates the provisions necessary for the efficient protection of aquatic interests, as well as for compliance of national and international standards that are mainly established by the International Maritime Organisation (IMO), a specialised organisation of the United Nations exclusively responsible for maritime affairs, in particular maritime safety and prevention of marine pollution.

The procedure to sanction infractions deriving from the exercise of large and small-scale fisheries and aquaculture activities and for environmental infractions deriving from the exercise of these activities, is established within the scope of the Vice-Ministry of Fisheries of the Ministry of Production. It is exercised by DINSECOVI and supplemented by the Sanction Appeal Committee, the entity charged with leading and developing the administrative appeal process to recourses presented against sanction resolutions by the fisheries sub-sector.

Regarding the legal framework of the environmental legislation, the enactment of the Environmental and Natural Resources Code (1990) and the implementation of the National Environmental Council – CONAM (1994), implemented the process of articulation of the environmental competencies in the country, among sectoral and local units. However, it is necessary to continue strengthening this task, to enable true trans-sectoral environmental management.

The National Natural Resources Institute - INRENA, created by Law Decree Nº 25902 of 27 November 1992, in an integrated and multi-disciplinary Decentralised Public Organisation of the Ministry of Agriculture; it has national competence in close relation with Local Governments, Agrarian Organisations, Farming and Native Communities and Public and private Institutions. It is the national authority for natural resources and rural environment. INRENA is the public entity responsible for implementing and promoting actions necessary for the sustainable use of renewable natural resources, conservation of wildlife diversity and protection of the rural environment, through basin-based and integrated land management; establishing strategic alliances with the social and economic actors involved.

STATE OF THE FISHERIES

Although fishing activities are as old as the presence of humans in what is now Peru, industrial pelagic fishing activities began towards the mid fifties. In the 60s, the anchoveta fishery grew four-fold, from 3.5 million to 12 million metric tons. However, at the beginning of the 70s, excess catch due to fleet and processing overcapacity, together with the El Niño 1972-73 event, led to the collapse of this fishery. At the beginning of the 90s, after a prolonged period, the activity recovered and the anchoveta fishery reached levels comparable to those in the 60s. The 1997-98 El Niño event again threatened the anchoveta fishery and catches for 1998 declined to 1.2 million metric tons. In contrast to the 1972-73 period, the fishery recovered rapidly and in 1999 anchoveta extraction was 6.6 million metric tons; however, the industry had economic problems caused by financial debts and low fishmeal and fish oil prices, the main Peruvian fisheries export products. A substantial increase, albeit vacillating, in the capture of anchoveta has been observed in recent years, 9.6, 6.4, and 8.1 million metric tons for 2000, 2001, and 2002, respectively. This figure represented 85 percent of all pelagic fisheries and the rest was made up by jack mackerel (10 percent); mackerel (2.4 percent); longnose anchovy (1.8 percent) and others (0.8 percent).

TABLE 1
Catch and Landings Data (metric tons)

Species grouping	2001	2002
Total	**7 955 955**	**8 743 201**
Sub-total Fish	**7 823 088**	**8 544 994**
Pelagics	7 512 315	8 368 025
Anchovies	6 358 217	8 104 729
Other Species	1 154 098	263 296
Demersals	188 326	113 673
Hake	125 065	46 250
Other Species	63 261	67 423
Other Fish	122 447	63 296
Other groups	**132 867**	**198 207**
Crustraceans	4 463	5 762
Molluscs	120 783	184 022
Miscelleneous Aquatic Animals	2 116	2 247
Plants	5 505	6 176

Source: FAO FishStat,2004

The second most important is the demersal fishery with bottom trawl nets and mainly targeting hake. This fishery began in the 60s, and since then landing have increased due mainly to the participation of factory trawlers. In 1978 the catch was somewhat higher than 300 000 metric tons, of which 150 000 were captured by the purse seine fleet. This level of catch placed the hake stock in a delicate situation for the next few of years; one decade later the capture was 79 000 metric tons and in 1996 it reached 235 000 metric tons; the capture then decreased to 32 000 metric tons (1999), up to 125 000 metric tons in 2001, but down again to 46 250 metric tons in 2002. The current delicate state of the hake stock has motivated the implementation of a consistent recovery program consisting mainly of management measures to reduce fishing pressure and redirecting the fleet towards other species.

Then resources that support the small-scale coastal fisheries are very diverse and include approximately 220 species, of which about 80 percent are fish, 17 percent invertebrates, 2 percent algae and 1 percent other resources. This fishery takes place in around 180 fishing coves along the Peruvian littoral and the main destination of the capture is direct human consumption. Captures for 2001 totalled close to 320 000 metric tons, including coastal resources, fish, molluscs, crustaceans, echinoderms and plants, mainly extracted by artisanal or coastal fishers.

Other fisheries are developing through the diversification of traditional capture and processing techniques, since specialised vessels are required for this change, particularly in the case of giant squid or "pota", tuna and deep water cod. In addition, some potential resources have been identified such as deep water shrimp ("langostino rojo") and king crab or "cangrejo grande", which could support new fisheries in the future.

MANAGEMENT ACTIVITIES

Fisheries management is defined as the set of norms and actions for managing a fishery on the basis of updated knowledge of its biological, economic and social components. The responsibilities for fisheries management fall in the Ministry of Production – Vice-Ministry of Fisheries and are the following:

- To formulate fisheries policy at the national level;
- To approve fisheries, aquaculture and environmental regulations;
- To supervise and control compliance with the above-mentioned regulations;

- To manage and control the rational exploitation of hydro-biological resources;
- To plan and promote the expansion and development of the fishing sector;
- To foster, guide and promote scientific and technological research.

The purpose of fisheries management is to promote the development of sustainable fishing as a source of food, employment and income and to ensure the responsible harvesting of hydro-biological resources. In addition, to optimise the economic benefits deriving from it in harmony with preservation of the environment and conservation of biodiversity.

The fisheries management systems are determined as a function of each fishery. Management measures are adopted on the basis of available scientific evidence and socio-economic factors and include: access regimes, total allowable catch, fishing seasons and areas, closures, regulation of the magnitude of fishing effort, fishing methods, minimum catch sizes and other regulations required by the preservation and rational exploitation of hydro-biological resources. It also includes monitoring, control and surveillance measures. The scope of application of the management systems can be total (national), by geographic areas or by stock units.

As mentioned above, according to the Regulations to the General Fisheries Law, fisheries management is approved through Regulations[12], that have the purpose of establishing the regulation principles, norms and measures applicable to the hydro-biological resources that should be managed as differentiated units. Most fisheries are currently regulated through such Fisheries Management Regulations (ROPs). On the other hand, those fisheries that are not specifically considered in the fisheries management regulations are regulated by the norms contained in the Regulation to the General Fisheries Law and other applicable provisions.

The State, as the entity responsible for fisheries management, has the power to limit access to certain resources or activities of the sector for management reasons or to ensure responsible harvesting of hydro-biological resources or to protect the environment. Access to a hydro-biological resource can also be limited by a specific extraction or processing system. In addition, the State has the power to authorise through a general regulation the extraction of underexploited or unexploited, opportunity or highly migratory resources. In this manner, it could be said that all fishing activities are covered by some form of fisheries management or are in one way or another regulated in the country.

In order to regulate access to fisheries, management systems classify the state of the resources according to their degree of exploitation, as follows:

- Unexploited, when there is no exploitation of the resource;
- Underexploited, when there is a surplus margin in the level of exploitation of the resource;
- Fully exploited, when the maximum sustainable yield has been achieved in the exploitation of the resource;
- Recovering, in the cases when a resource is affected by the impact of biological and oceanographic conditions adverse to its ecosystem that may endanger its sustainability. The Ministry of Fisheries (now Ministry of Production) upon receipt of a report by the Institute of the Sea -IMARPE, may declare it to be recovering and establish provisional extraction regimes for said resource and/or the resources that share the same habitat, such as mechanisms to regulate fishing effort that will enable permanent monitoring of the stock development in the fishery and ensuring sustainability.

Among the main resources currently exploited, anchoveta and sardine are fully exploited, jack mackerel, scad and other pelagics are considered to be underexploited

[12] Specific hierarchy of legal norm. This article modified the original denomination of Fisheries Management Plans established in the previous Regulation to the GFL.

and hake has been declared to be recovering. The resources that support artisanal fisheries are difficult to classify, since they probably constitute several sub-stocks and are at different levels of exploitation, depending on the different areas where they are extracted. In general, it could be inferred that most of these resources are fully exploited according to the yields of artisanal fisheries.

The participation of stakeholders in fisheries management is not specifically regulated, but is considered in practice and exercised through consultations between the management entity and various associations or organisations before establishing or enforcing fisheries regulations.

As part of the process and in order to achieve integrated and harmonic development, it is believed that fisheries research should be aimed at obtaining and permanently providing the scientific basis for management. Research activities are promoted by the State, particularly those carried out by specialised public organisations of the Sector and Universities, as well as the initiatives of the private sector. The main institution undertaking marine research activities is the Peruvian Institute of the Sea - IMARPE- responsible, among others, for scientific research of marine resources and ecological interaction factors and for providing to the Ministry of production the scientific basis for the rational management of marine resources.

Fisheries regulations establish a prohibition to fishing activities without concession, authorisation, permit or license or in contravention of any provisions regulating fishing activities. Extracting, processing or commercializing unauthorised resources or doing so in areas other than specified in the authorisations, concessions, etc., or in reserved or prohibited areas or resources under closures or of sizes smaller that authorised is also prohibited.

The prohibitions also include the use of unauthorised fishing gear, procedures or devices, as well as carrying on board or using fishing gear or systems different from those authorised. Some infractions to these prohibitions, given their seriousness, are considered to be crimes, among them the use of illegal fishing methods such as explosives, toxic materials or contaminating substances and other elements that may endanger human life or the resources themselves and the prohibition even includes carrying them on board.

COSTS AND FUNDING OF FISHERIES MANAGEMENT

The fisheries legal framework considers within its Basic Norms that the management of hydro-biological resources, pursuant to the provisions of Article 66 of the Political Constitution, Articles 4 and 20 of the Organic Law for the Sustainable Exploitation of Natural Resources and Articles 2, 44 and 45 of the Law, that given their condition of heritage of the Nation, that these are managed by the State which should participate in the benefits resulting from their exploitation.

In addition, State expenditures to guarantee conservation and responsible exploitation of hydro-biological resources, including the costs of research, surveillance, control and fisheries development planning, are part of the costs of exploiting renewable resources and therefore, are covered from payments made for fishing permits and fees received from aquaculture concessions.

IMPLEMENTATION OF GLOBAL FISHERIES INITIATIVES AND MANDATES

Law N° 26839 – the Law for the Conservation and Use of Biological Diversity (Ley sobre Conservación y Aprovechamiento de la Diversidad Biológica) regulates the conservation of biological diversity and the sustainable use of its components pursuant to the provisions of Articles 66 and 68 of the Political Constitution. The principles and definitions of the Convention on Biological Diversity are in force for the purposes of enforcing this Law. To this effect, the State promotes prioritizing actions to preserve ecosystems, species and genes, recognizing those of high ecological, social and cultural

values identified in the National Strategy for Biological Diversity, which constitutes the main planning instrument for compliance with the objectives of the Law and the Convention on Biological Diversity. Implementation of this Law constitutes an example of how the country is immersed in the commitment of complying with obligations arising from global initiatives.

To date Peru has not ratified the United Nations Convention on the Law of the Sea (UNCLOS); however it is in the process of doing so. Application of this important international legal instrument constitutes a customary norm, that is, that without being binding for Peru, since it is accepted by most States, the national legislation, particularly the fisheries area, has been applying it, as it is inspired and to a large extent embraces its principles and puts into practice the concepts consecrated in it. A similar situation arises regarding the Agreement of the United Nations Convention Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks.

Regarding the 1993 FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, Peru deposited its acceptance instrument on 23 February 2001. Peru is also working on the implementation of the International Plans of Action approved to date.

PARTICIPATION IN REGIONAL ORGANISATIONS

Peru participates in various Regional Fisheries Management Organisations such as: IATTC, CPPS, OLDEPESCA, CCAMLR, and COPESCAL. To this effect, the fisheries legislation contains a relevant provision[13] to facilitate the adoption of international agreements and mechanisms to ensure compliance with responsible fisheries principles.

The Inter American Tropical Tuna Commission (IATTC), established by an international convention 1950, is responsible for the conservation and management of tuna fisheries and other species captured by tuna vessels in the Eastern Pacific Ocean. Each member country of IATTC is represented by up to four Commissioners designated by the respective country. Peru is one of the member countries of IATTC.

CPPS, the Permanent Commission of the South Pacific (Comisión Permanente del Pacífico Sur), is the Appropriate Regional Maritime Organisation for the coordination of the maritime policies of its member countries: CHILE, COLOMBIA, ECUADOR and PERU.

OLDEPESCA, the Organización Latinoamericana de Desarrollo Pesquero, substitutes the Action Committee for Sea and Fresh Water Products (Comité de Acción de Productos del Mar y de Agua Dulce) of SELA-CAPMAD/SELA to continue, strengthen and broaden the tasks of fisheries cooperation in Latin America and the Caribbean. Peru is a member and headquarters this organisation.

CCAMLR or the Convention on the Conservation of Antarctic Living Marine Resources entered into force in 1982 as part of the Antarctic Treaty System. The objective of the Convention is the conservation of marine life in the Austral Ocean. This does not exclude its exploitation as long as it is done in a rational manner. Peru is a Party to this Convention, but it is not a member of the Commission.

COPESCAL, the Commission for Inland Fisheries of Latin America, was established in 1976 for the purpose of promoting research for the rational use of continental fisheries resources, advising the Governments of the Region in establishing the scientific basis for the application of fisheries management measures, supporting aquaculture development and promoting training and education to achieve these objectives.

[13] General Fisheries Law, Article N° 7° and 8°.

SUMMARY AND CONCLUSIONS

Due to its geographic location, Peru is privileged with an abundance and diversity of species that inhabit the waters of the greater ecosystem of the Humboldt Current. Therefore, it is a constant challenge for managers and decision makers to optimise resource management and to balance the principle of sustainability with the rational use of the resources. Nevertheless, only a low percentage of species are being commercially exploited.

Another factor affecting the yield of fisheries is the occurrence of El Niño events whereby the availability of traditional resources decreases temporarily, affecting production. Another problem is excess fleet capacity and the debt faced by a significant portion of the private companies involved in the sector. In addition, access to international markets is a challenge, given the restrictions imposed on fishmeal exports. Other problems include high competitiveness among the canning industry and a reduction in the size of the frozen industry, deriving from overexploitation of hake.

Therefore, aware of the great responsibility present in the conservation and good management of the resources, the government has been formulating policies and designing norms and other measures to overcome the problems described above. These management instruments to a great extent reflect the principles contained in international legal instruments relative to responsible fisheries.

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APPENDIX TABLES

Current Management of Marine Capture Fisheries in Peru

Level of Management	% Fisheries Managed	% with Fisheries Management Plan	% with Published Regulations	Trends in the number of Managed Fisheries over ten yrs. (increasing/decreasing/unchanged)
National	100	> 65	100	increasing
Regional	--	--	--	--
Local	--	--	--	--

-- = not available

Summary information for three largest fisheries in Peru (2001)

Category of Fishery	Fishery	Volume Mil metric tons	Value* mil US$	% of Total Volume Caught**	% of Total Value Caught**	Covered by a Management Plan? (Yes/No)	# of Participants	# of Vessels
Industrial	1 Anchoveta	6 400	--	86	--	Yes	13 000	607
	2 Merluza	125	--	2	--	Yes	2 000	68
	3 Jurel-Caballa	899	--	12	--	Yes	4 000	79
Artisanal	1 Peces	190	--	60	--	No	30 000	5 000
	2 Crustaceos	8	--	3	--	No	7 000	0
	3 Moluscos	117	--	37	--	No	--	0
Recreational	1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

-- = not available; n.a. = not applicable
* Value in 2002 U.S. Dollars.
** % values are based on totals for each category of fishery.

Use of Fishery Management Tools within the three largest fisheries in Peru

Category of Fishery	Fishery	Restrictions				License/ Limited Entry	Catch Restrictions	Rights-based Regulations	Taxes/ Royalties	Performance Standards
		Spatial	Temporal	Gear	Size					
Industrial	1 Anchoveta	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No
	2 Merluza	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No
	3 Jurel-Caballa	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Artisanal	1 Peces	No	No	Yes	Yes	No	No	No	No	No
	2 Crustaceos	No	No	--	Yes	No	No	No	No	No
	3 Moluscos	No	No	--	Yes	No	No	No	No	No
Recreational	1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

-- = not available; n.a. = not applicable

Costs and Funding Sources of Fisheries Management within the three largest fisheries in Peru

Category of Fishery	Fishery	Do Management Funding Outlays Cover			Are Management Funding Sources From		
		R&D	Monitoring & Enforcement	Daily Management	License fees in fishery	License fees from other fisheries	Resource rents
Industrial	1 Anchoveta	No	Yes	No	Yes	No	No
	2 Merluza	No	Yes	No	Yes	No	No
	3 Jurel-Caballa	No	Yes	No	Yes	No	No
Artisanal	1 Peces	No	No	No	No	No	No
	2 Crustaceos	No	No	No	No	No	No
	3 Moluscos	No	No	No	No	No	No
Recreational	1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

-- = not available; n.a. = not applicable

Compliance and Enforcement within the three largest fisheries in Peru

Category of Fishery	Fishery	VMS	On-board observers	Random dockside inspections	Routine inspections at landing sites	At-sea boarding and inspections	Other (please specify)
Industrial	1 Anchoveta	Yes	Yes	Yes	Yes	No	No
	2 Merluza	Yes	Yes	Yes	Yes	No	No
	3 Jurel-Caballa	Yes	Yes	Yes	Yes	No	No
Artisanal	1 Peces	No	No	Yes	Yes	No	No
	2 Crustaceos	No	No	Yes	Yes	No	No
	3 Moluscos	No	No	Yes	Yes	No	No
Recreational	1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

-- = not available; n.a. = not aplicable

Capacity Management within the three largest fisheries in Peru

Category of Fishery	Fishery	Does overfishing exist?	Is fleet capacity measured?	Is CPUE increasing, constant or decreasing?	Have capacity reduction programmes been used?	If used, please specify objectives of capacity reduction programme
Industrial	1 Anchoveta	No	Yes	Constant	No	
	2 Merluza	Yes	Yes	Increasing	No	
	3 Jurel-Caballa	No	Yes	Constant	No	
Artisanal	1 Peces	No	No	--		
	2 Crustaceos	No	No	--		
	3 Moluscos	No	No	--		
Recreational	1	n.a.	n.a.	n.a.	n.a.	n.a.

-- = not available; n.a. = not applicable