Fishery and Aquaculture Country Profiles

The Federative Republic of Brazil

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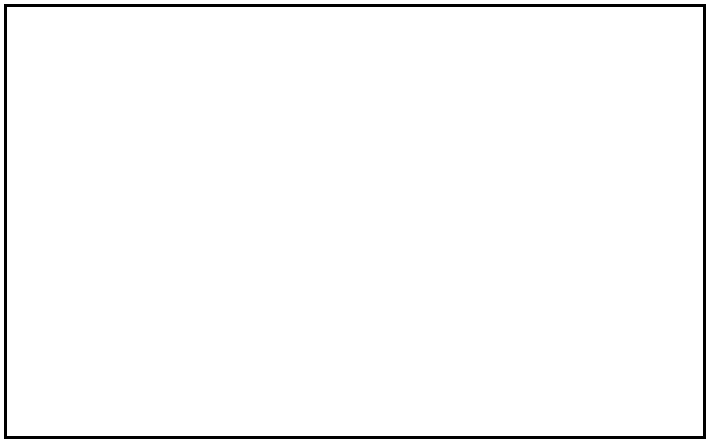


Source of information

- United Nations Geospatial Information Section http://www.un.org/Depts/Cartographic/english/htmain.htm
- Imagery for continents and oceans reproduced from GEBCO, www.gebco.net

Part I Overview and main indicators

Part I of the Fishery and Aquaculture Country Profile is compiled using the most up-to-date information available from the FAO Country briefs and Statistics programmes at the time of publication. The Country Brief and the FAO Fisheries Statistics provided in Part I may, however, have been prepared at different times, which would explain any inconsistencies.

Country brief

Prepared: September 2019

In Brazil, it is estimated that about 3.5 million people are directly or indirectly involved in fisheries and aquaculture. In 2017, total capture fisheries production was estimated at 704100 tonnes. Given the abundance of rich freshwater bodies, more than 30 percent of capture fisheries production come from inland fisheries. The majority (more than 60 percent) of the total fish landings originate from artisanal fisheries, which represent more than 90 percent of the employment in the capture sector. These proportions are higher if only the inland fisheries are considered. In 2017, the latest estimates included a total of 1083778 full-time fishers, 64 percent of them in marine waters were reported. Artisanal fisheries production dominates in the northern regions while industrial fisheries are more important in the southern region. Half of the fishers were reported to be women.

Several coastal fishery resources are fully exploited or over-exploited, generally by industrial fishing. Although some inland fish stocks are also overexploited, it is still possible to increase capture fisheries production from inland waters, given appropriate management plans. In 2017, the fishing fleet was estimated at 108346 vessels, with the large majority under 12 meters in length and about one third without motor.

Aquaculture offers the largest potential to increase fish supplies in the long-term. Brazil, the second largest aquaculture producer in the region, rose from 172500 tonnes produced in 2000 to about 595000 tonnes in 2017, with 86 percent of total aquaculture production from freshwater aquaculture (tilapia, carps and some indigenous Amazonian fish species) and 14 percent from mariculture, dominated by whiteleg shrimp. The contribution of aquaculture in total fish production in 2017 was 46 percent. There is no information available regarding the number of people engaged in the aquaculture.

Brazil is the largest importer of fish in the Latin American region importing worth for USD 1.4 billion in 2017, while the export in the same year was at USD 253 million. Annual per caput consumption, which has been substantially increasing in recent years through massive promotion campaigns, was estimated at about 9.0 kg in 2017.

Membership in Regional Fishery Bodies

- Agreement on the Conservation of Albatrosses and Petrels (ACAP)
- Commission for Inland Fisheries and Aquaculture of Latin America and the Caribbean (COPESCAALC)
- Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)
- International Commission for the Conservation of Atlantic Tunas (ICCAT)
- International Whaling Commission (IWC)
- The Aquaculture Network for the Americas (RAA)

- Western Central Atlantic Fishery Commission (WECAFC)

General geographic and economic indicators

Table 1 - Brazil -General Geographic and Economic Data

		Source
Marine water area (including the EEZ)	3.7 million km²	FAO
Shelf area	0.8 million km^2	FAO
Length of continental coastline	8 400 km	FAO
GDP at purchaser's value (2011)	USD 2 477 billion*	IBGE
GDP per capita (2011)	USD 12 594**	IBGE
Agricultural GDP (2011)	USD 115 billion*	IBGE
Fisheries GDP (2007)	USD 2.06 billion	FAO

*Value converted by FAO as per UN currency exchange rate
**Per capita calculated by FAO and converted as per UN currency exchange rate

		Source
Country area	8 515 770 km^2	FAOSTAT. 2013
Land area	8 358 140 km^2	FAOSTAT. 2013
Inland water area	157 630 km^2	Computed. 2013
Population - Est. & Proj.	207.734 millions	FAOSTAT. 2018
Exclusive Economic Zone (EEZ) area	3 690 321 km^2	VLIZ
GDP (current US$)	1 868 626 millions	World Bank. 2018
GDP per capita (current US$)	8 921 US$	World Bank. 2018
Agriculture, forestry, and fishing, value added	4.36 % of GDP	World Bank. 2018

FAO Fisheries statistics

Part II Narrative

Updated 2010

Part II of the Fishery and Aquaculture Country Profile provides supplementary information that is based on national and other sources and that is valid at the time of compilation (see update year above). References to these sources are provided as far as possible.

Production sector

Fisheries and aquaculture by region

Brazil is a country of continental dimensions that is divided into five main geographical regions: North, Northeast, Southeast, South and Midwest. The following section describes the fisheries and aquaculture sectors in these regions.

Table 3 - Brazil -Fisheries production by region in 2007

Figure 13 - Brazil - Fisheries production (fisheries and aquaculture), by type (marine and inland) and region in 2007l

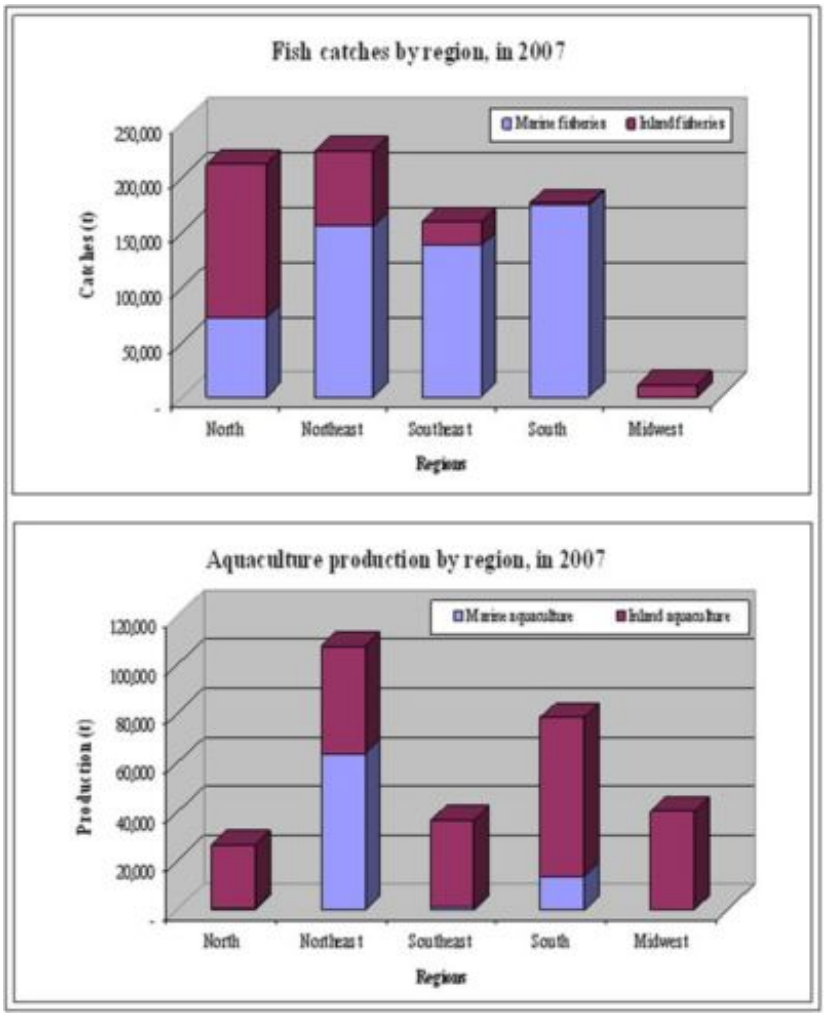
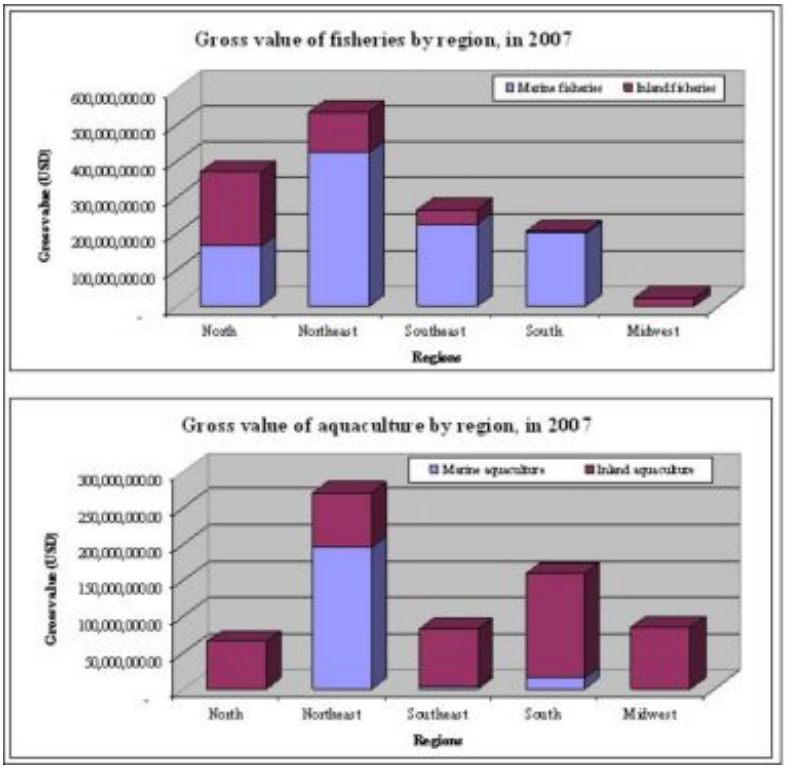


Table 4 - Brazil - Value of fisheries production (in USD) at first sale, by region, in 2007

The Northeast region is the largest in terms of volume of production and revenues generated by fisheries and aquaculture. In 2007 the region produced 331 600 tonnes (31 percent of total Brazilian aquatic production), worth about 805 million US dollars (table 4).In that same year the Southern region was the second largest in terms of fish production (24 percent of the national fisheries production). It was followed by the Northern region (22 percent), the Southeast region (18 percent) and the Midwest region (5 percent) (table 4)

Figure 14 - Brazil - Revenue at the primary level from fisheries production (fisheries and aquaculture), by type (marine and inland) and region in 2007



Profile of Brazilian fishers

Most officially registered Brazilian fishers are active in the north of the country. The Northeast and North regions together represent over three fourth of the professionals in this sector. The remaining fishers are divided among the Southeast, the South and a small number in the Midwest region (Table 5 and Figure 15). Women are a reality in Brazilian fisheries where one in three fishers is a woman. The highest proportion of women is found in the North and Northeast regions.

Table 5 - Brazil - Fishers distribution by region in 2008

Regions	Fishers distribution		
	Males	Females	Total
Brazil	455 980	237 725	693 705
North	139 499	74 687	214 186
Northeast	195 112	124 587	319 699
Southeast	61 721	15 334	77 055
South	46 948	18 667	65 615
Midwest	12 700	4 450	17 150

Figure 15 - Brazil - 2007- Regional distribution of fishers and their catches (t) - Gender distribution of fishers

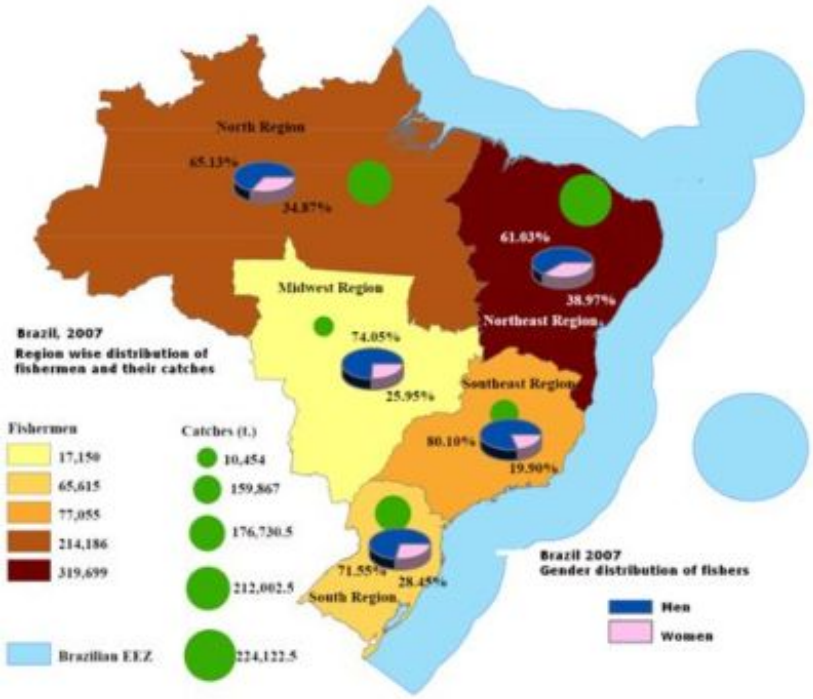


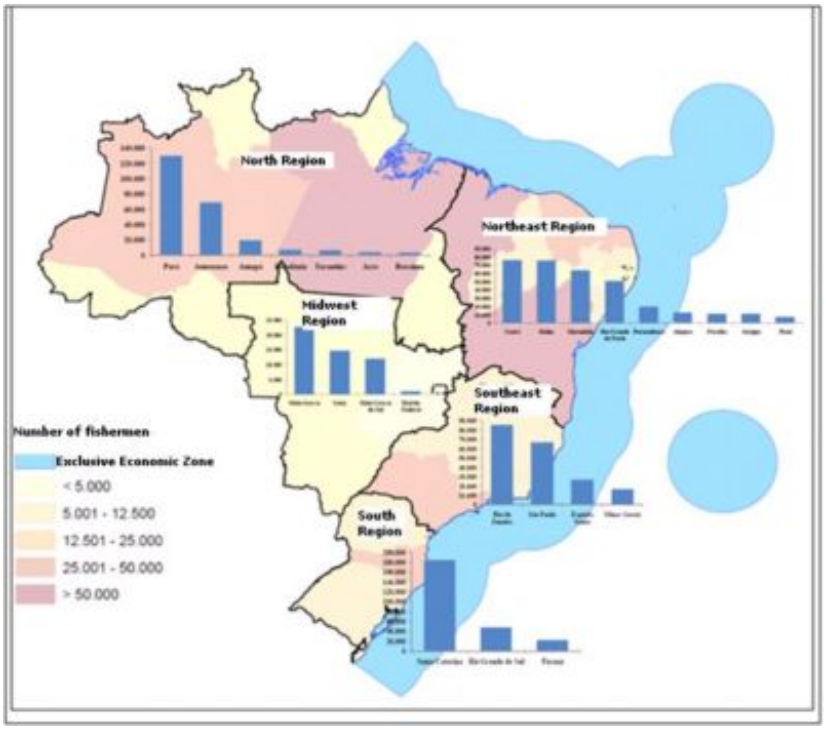
Table 6 states the average production (volume) per fisher by region in 2007, as well as the respective average value (at boat-side) of the catch per fisher.

Table 6 also shows that the Northeast region led the national production of fish supplied by extractive fisheries, followed by the North, South, Southeast and Midwest regions. In terms of productivity, the fishers of the South and Southeast regions were the most productive. These regions also had the highest average annual income per fisher. The fact that fishers in the South produced more than fishers in the Southeast but earned less probably reflects the difference in market values of the types of fish caught in the two regions.The fishers in the Northeast and Northern regions had an average productivity and an average income lower than those in the South and Southeast. The average annual income for a fisher in this part of Brazil was around USD 3 000 in 2007. In the North East region fishers benefited from the relatively high prices of species such as lobster, snapper and tuna. Fishers in the Midwest Region were less productive and had the lowest recorded average annual income per fisher.

Table 6 - Brazil - 2007 – Number of Fishers, Total catches and Gross value (USD) by region

Figure 16 shows the distribution of fishers by state. Four northern states (Pará, Cearea, Bahia and Maranhao) together account for almost 50 percent of the fishers of Brazil. Santa Catarina, in the south, accounts for another 26 percent.

Figure 16 - Brazil -Distribution of Brazilian fishers and fish production by state in 2007



Fish production by fishing sector

Artisanal or small-scale fisheries dominate in the North, Northeast and Midwest regions of Brazil, while industrial fisheries are predominant in the Southeast and South regions. Of the total national capture fisheries production in 2007, 65 percent was landed by small-scale fishers. In the Southeast and the South regions, industrial fisheries accounted for, respectively, 62 percent and 86 percent of landings by capture fisheries. Overall, industrial fisheries produced a total of 277 000 tonnes in 2007, or 35 percent of the total Brazilian capture fisheries production (Table 7).

Table 7 — Brazil -Production of fish by sector and region in 2007

Marine sub-sector

In 2007 marine fisheries accounted for about 50 percent of the recorded Brazilian production. Most of the catch consisted of fish (88 percent), followed by crustaceans (9.4 percent) and mollusks (2.5 percent).Table 8 and Figure 17 show the landings of marine fisheries by region. The Southern region had the highest catch of fish, followed by the Northeast, Southeast and North. It is important to note that in the North all fish caught in estuaries are recorded as inland fisheries. If this had not been the case, especially as regards catches of piramutaba (*Brachyplatystoma vaillantii*), marine catches would have been higher.

Table 8 - Brazil - Marine fisheries production by main species group in 2007l

Figure 17 - Brazil - Marine fisheries production by sector and region in 2007

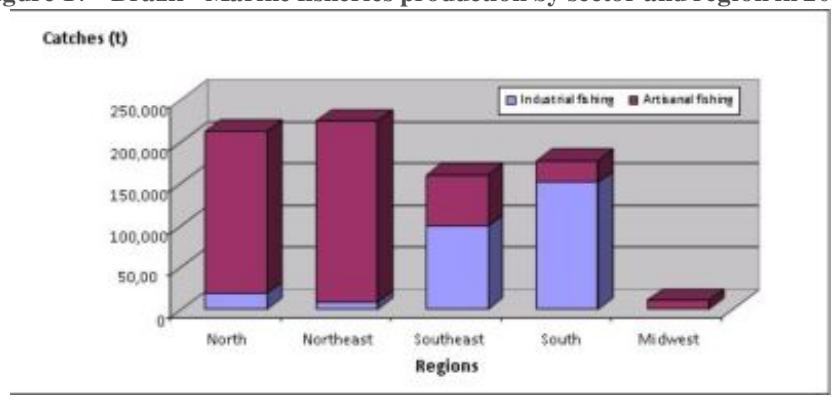
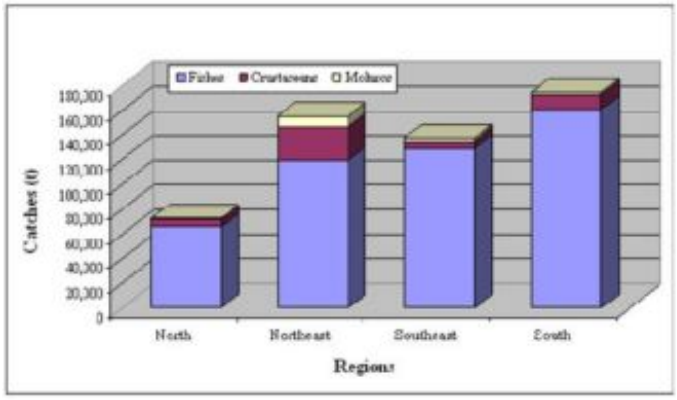


Figure 18 - Brazil - Marine fisheries production by main species groups and region in 2007



Marine fish landings are composed of 172 fish species, 16 crustaceans and 12 mollusks, coming from 37 main families (table 9 and figure 19). Amongst these species some are more important than others. In 2007 the most common species were: (1) “pescadas” and “corvinas” from the Scianidae family; (2) sardines (Clupeidae); (3) tunas and similar species (Scombridae); (4) shrimps from the Penaeidae families; (5) the catfish from the Ariidae family; (6) “tainhas” from the Mugilidae family; (7) fish from the Carangidae families (“arabaiana”, “xareu”, “xarelete”, “garajuba”, etc.); and (8) the group from the red fishes (“pargo”, “guaiúba”, “ariacó”, etc.) from the Lutjanidae family. In 2007 the catch from these eight families ranged from 17 000 t to 110 000 t and represented 69 percent of all the marine fish captured in Brazil.

Figure 19 - Brazil - Marine fisheries landings by main species groups in 2007

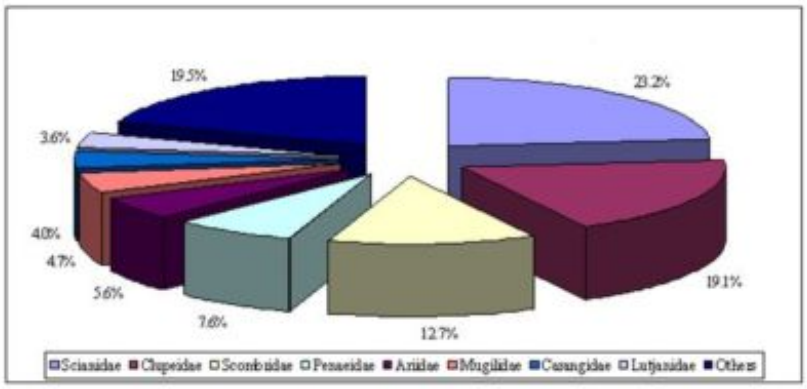


Table 9 - Brazil - Marine fisheries landings by main species groups and region in 2007

Fishing practices/systems

In the Northern region most industrial vessels use trawls, while artisanal fishers use mainly gillnets. In the Northeast region fishing for crustaceans (lobster) is done with traps. Tunas and similar species are caught by pelagic longliners, trawls are used in shrimp fisheries and gill nets for finfish. In the Southeast region purse seines predominate in the sardine fisheries, gill nets are used for finfish, and skipjack are caught mainly by live bait boats. Bottom trawls are used for shrimp, pots and traps for octopus, and traps for deepwater crustaceans (mostly crabs). In the Southern region fisheries are quite similar to those of the Southeast, especially in the use of purse seines, fishing with live bait and the use of gill nets.

Management applied to main fisheries

Brazil, in view of its continental dimensions, has regionalized its fisheries management. However, if the situation of fish stocks warrants it, the stocks are managed jointly by two or more regions. A case in point is the lobster fishery, which occurs along the Atlantic coast of both the Northern and the Northeast states of Brazil.

The main coastal fisheries in Brazil (*inter alia* lobsters, snappers and shrimp in the North, sardines in the South) have been managed by a set of management measures which integrate closed seasons and closed areas, minimum permitted size at landing, gear type and size limitations, and, in some cases, satellite tracking of vessels. In Brazil all vessels with a total length greater than 15 meters (LOA) are subject to satellite tracking. In addition, satellite tracking is compulsory for vessels over 10 meters (LOA) in the lobster fishery.

The following table shows the closed seasons for the main marine fisheries in Brazil:

Table 10 - Brazil - Closed seasons for main marine fish species produced in Brazil

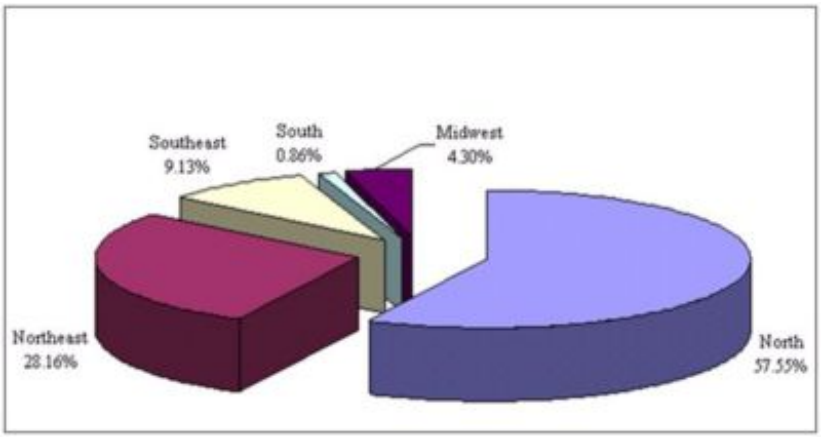
Species	Start	End	Area
Anchova	1/12	31/3	
Pink shrimp/Camarão Rosa (*Farfantepenaeus paulensis*), Southern white shrimp/Branco (*Litopenaeus schmitti*), Atlantic seabob/Sete-barbas (*Xiphopenaeus koryeri*)	15/10	15/2	Area from the border between French Guyana and Brazil up to the border between Piaui (PI) and Ceara (CE)
	1/4	15/5	I – Area from the border between the states of Pernambuco (PE) and Alagoas (A)L to the border between the countries of Mata de São João and Camaçari n the state of Bahia
	1/12	15/1	
	15/9	31/10	II – Area from the border between the counties of Mata de São João and Camalara – Bahia (BA), to the border between the states of BA and Espirito Santo (ES)
Pink shrimp/Camarão Rosa (*Farfantepenaeus paulensis*), Atlantic seabob/sete-barbas (*Xiphopenaeus kroyeri*), Argentine red shrimp/Santana or vermelho (*Pleoticus muelleri*), and Argentine stiletto shrimp/barba ruça (*Artemesia longinaris*)	1/3	31/5	I – Area from the border between the two states of ES and Rio de Janeiro (RJ), to the River mouth of the Stream Chuí - RS
	15/11	15/1	II – Area from the border between the states of ES e RJ, to the border between BA and ES

	1/4	31/5	
Pink shrimp/ camarão rosa (*Farfantepenaeus* *Paulensis*) and Southern white shrimp/camarão branco (*Litopenaeus schmitti*)	15/7	15/11	Lagoon Complex- South of Santa Catarina (SC)
	1/11	31/1	Babitonga Bay - SC
Smoothtail spiny lobster/lagosta Cabo Verde (*Panulirus laevicauda*), Caribbean spiny lobster/vermelha(*Panulirus argus*)	1/12	31/5	Brazilian territorial waters and EEZ - North and Northeast regions
South American rock mussel/Mexilhão (*Perna perna*)	1/12	31/12	ES, RJ, Sao Paulo (SP), PR, SC and RS
Crassostrea spp. (Ostra)	1/9	31/12	From coastal area of SP to the Estuarine Region of Paranaguá- Parana (PR)
Brazilian sardinella/sardinha (*Sardinella brasiliensis*)	1/11	15/2	Area between the Cape of São Tomé – RJ, to the Cape of Santa Marta - SC
	15/6	31/7	
Mugil spp.(tainha)	1/10	31/3	"Lagoa dos Patos" - RS

Inland sub-sector

In 2007 fish production in rivers, lakes and reservoirs amounted to 243 200 tonnes. The Northern region contributed 58 percent of this total, followed by the Northeast (28 percent), the Southeast (9 percent), the Midwest (4.3 percent) and the Southern (0.9 percent) regions (figure 20).

Figure 20 - Brazil - Inland fisheries landings by region in 2007



Inland fisheries catches included 103 species which can be classified into 20 main families). In 2007, catches were mainly from the following families: : (1) catfish of the Pimelodidae family; (2) the "curimatãs" and "jaraquis" (family Curimatidae); (3) the so called "round" fishes ("tambaquis", "pacus" and "pirapitingas") of the Characidae family; (4) the "tilapias" and "tucunarés" of the Cichlidae family; and (5) the "pescadas" (Scianidae family) (table 12 and figure 21). These catches ranged from 19 000 t to 60 000 t and accounted for 76 percent of the inland fisheries catch in 2007.The piramutaba, *Brachyplatistoma vaillantii* (Pimelodidae) is

caught in all sections of the Amazon river but, as mentioned above, most of the catch comes from the Amazon river delta, a brackish water and marine environment. Nevertheless, these catches are also classified as inland water fisheries production.

Figure 21 - Brazil - Inland fisheries. Total catches by taxonomic family in 2007

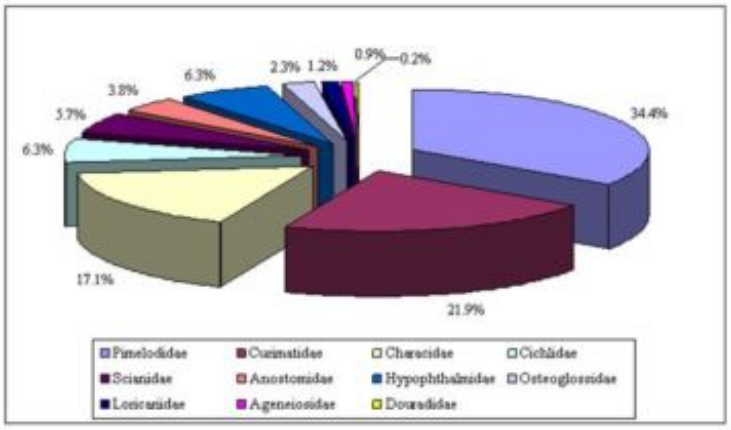


Table 12 - Brazil - Inland fisheries production by region and main taxonomic families in 2007

Aquaculture sub-sector

From 1997 to 2007 Brazilian aquaculture grew by 330 percent to reach a production of close to 290 000 tonnes in 2007. In the same year, inland aquaculture contributed 73 percent and marine aquaculture 27 percent of total aquaculture production.

In 2007, the Northeast region was the largest aquaculture producer in Brazil, with 107 500 tonnes (37 percent of total), while the Southern region was the second largest producer, with 78 400 tonnes (27 percent). The Midwest was in third place with 40 200 tonnes (14 percent), the Southeast in fourth place with 36 700 tonnes (13 percent) and the North in fifth place with 26 300 tonnes (9 percent).

The South region is the largest in terms of inland aquaculture production with 64 500 tonnes (31 percent), followed by Northeast, with 44 000 tonnes (21 percent), the Midwest, with 40 200 tonnes (19 percent), the Southeast, with 35 800 tonnes (17 percent) and, finally, the Northern region, with 26 100 tonnes (12 percent). The Northeast region is the largest region in terms of mariculture production, with 63 500 tonnes (81percent), followed by the South region, with 13 900 tonnes (18 percent). Third comes the Southeast, with 838 tonnes (1 percent) and last the North, with 200 tonnes (0.3percent). The Midwest region has no coastline and thus no marine fish farms.

The main taxonomic groups cultured in Brazil are finfish (73 percent), crustaceans (22 percent), and clams (5 percent). Amphibians and turtles together represent less than 0.25 percent of the total.

In 2007, the main species cultured in Brazil were by volume: tilapia (*Oreochromis niloticus*), with 92 000 tons, whiteleg shrimp (*Penaeus vannamei*), with 65 000 tonnes, carp (*Cyprinus carpio*), with 34 700 tonnes, tambaqui (*Colossoma macropomum*), with 30 600 tonnes, mussel (*Perna perna*), with 12 000 tonnes, the pacu

(*Piaractus mesopotamicus*), with 11 000 tonnes, and tambacu (hybrid of tambaqui and pacu) with 10 700 tonnes.

More information at: **National Aquaculture Sector Overview (NASO)**

Recreational sub-sector

Recreational fishing activity in Brazil has grown tremendously in recent years. About 200 000 fishers have amateur angling permits. It is estimated that there were an additional one million unregistered recreational fishers in the country in 2007. This new industry is growing fast. It generates millions of dollars annually in segments as diverse as the import and export of equipment, the nautical marine industry, aquaculture, tourism and specialized media. Sport fishing in Brazil has grown at a rate of up to 30 annually. This is reflected *inter alia* in the growing success of the sport fishing trade that draws thousands of visitors.

Virtually all Brazilian regions have good prospects for the development of recreational fishing. These include rivers surrounded by tropical forests, rapids, lakes, a large coastal area with wide expanses of beaches, mangroves and cliffs, and oceanic sport fisheries on the high-sea. Moreover, the Brazilian waters are home to more than 100 fish species considered of interest to sport fishers.Amongst the tasks assigned to the Ministry of Fisheries and Aquaculture (MPA) is the promotion of a national policy for the sustainable development of fisheries, which includes angling by amateur/sport fishers. Since then a strategy for sustained recreational fisheries has been developed and the MPA has established a mechanism that monitors and coordinates the management of recreational fisheries throughout Brazil.

Post-harvest sector

Fish utilization

Most of the fish produced in Brazil is used for human consumption, with no official reports of other types of use. The feed industry uses mostly imported raw materials (*inter alia* fishmeal).

Fish markets

The fish market in Brazil is quite diverse and regionalized. For the country as a whole the average annual consumption per capita has increased steadily to 6.9 kg in 2007. However, actual per caput consumption varies greatly among regions and states, both in terms of quantity and of type of fish consumed.

The largest cities are also the biggest markets. Among them São Paulo, with more than 10 million inhabitants, and Rio de Janeiro, with over six million inhabitants, stand out. There are another four cities with more than 2 million inhabitants (Salvador, Brasilia, Belo Horizonte and Fortaleza) and five other cities with over one million inhabitants (Curitiba, Manaus, Recife, Porto Alegre and Belem).

In 2007, Brazil exported 58 200 tonnes (USD 310.5 million) and imported 209 800 tonnes of fish (USD 561.6 million), with a trade deficit of USD 251.1 million. Brazil is a net importer of fishery products. This is partly explained by an appreciation of the real vis-à-vis the US dollar (17.1 percent in 2007) but it also shows that the potential market for fish in Brazil is huge. It seems likely that domestic consumption of fish will increase in the coming years. Brazil exports mostly frozen lobster and frozen shrimp. In 2007 it exported fish products to 83 countries, the main buyers being the United States, France, Spain, Argentina, Portugal and Japan. The country imports finfish, mainly cod, salmon, sardine and hake (fillets). The most important suppliers are Norway, Chile, Argentina, Portugal, Uruguay and Morocco.

Socio-economic contribution of the fishery sector

Role of fisheries in the national economy

Fisheries and aquaculture represent little more than 0.5 percent of the Gross Domestic Product (GDP) of Brazil, which means they have low importance in the national economy. However, it is estimated that more than five million Brazilians are involved in producing and marketing seafood, an activity which creates over USD 2.7 billion of products and services per year.

Supply and demand

Supply

To satisfy demand, the country imports fresh, frozen, dried/salted fish and mollusks. After five straight years of surpluses (2001-2005), the trade balance for fish products has shown a growing deficit. This trend is the result not only of increased imports of fish in the period, but of declining exports of fish and fishery products from Brazil, a trend that has been caused in part by the variation in the Brazil real/US dollar exchange rate.

The Brazilian government encourages the production and consumption of fish. The aim is to have the average Brazilian consume 14 kg of fish per year.

DemandIn Brazil the demand for fish is growing. Compared to fish consumption worldwide (close to 18 kg/person/year in 2007), consumption by the average Brazilian is low. However, consumption levels are uneven. For example, in the Brazilian part of the Amazon region, where population density is very low, the consumption of fish reaches more than 30kg/person/year.

Trade

Brazilian exports of fish and fishery products in 2009 were valued at USD 169 million (30 000 tonnes). As concerns imports, the country bought approximately 230 000 tonnes of fish, for a total of USD 688 million.

Brazil is an exporter of ornamental fish, fresh fillets and shellfish, while it imports finished products such as fresh, frozen, dried/salted fish and mollusks.There has been a decrease in the export of fish products from Brazil to the following five main markets: the United States, France, Spain, Japan and the United Kingdom (UK). The main exports are lobster, shrimp, tuna and ornamental fish.

Food security

Red meat consumption provides most of the animal protein eaten by the average Brazilian. Since the beginning of the 1990s fish proteins have provided between 4 and 5 percent of all animal proteins, and, historically, some of these fish proteins have been obtained through imports. In some years imports have provided as much as 35 percent of the fish consumed. While fish is not crucial for food security for most of the Brazilian population, in remote rural areas it can be at certain times of the year.

Employment

The General Registrar for Fisheries (RGP) reports that there are about 850 000 fishers, about 250 000

aquafarmers and 190 000 sport fishers in Brazil.It is believed that for each of these fishers and aquafarmers five persons are engaged in activities such as: (i) selling fishing supplies (hooks, swivels, sinkers, lines, etc.); (ii) delivering food, fuel and lubricating oil; and (iii) transporting supplies and finished products. This would imply an additional 6.45 million individuals are employed in activities directly related to fisheries and aquaculture.

Rural development

The Ministry of Fisheries and Aquaculture (MPA) has worked to help professional fishers and fish farmers to organize themselves. It is clear that the needs of these communities vary according to where they live, the size and infrastructure that they have at their disposal, and the technologies they use. Given this diversity of situations the MPA identified 174 fishing and aquaculture territories inside each of which the conditions for fisheries and aquaculture were common. This strategy also aims to build on and enhance the efforts made by local communities, as well as federal, state and municipal governments, to improve the quality of life and help communities to organize themselves in defense of their interests.

Trends, issues and development

Constraints and opportunities

Fishing in Brazil is going through a period of restructuring, aimed at overcoming obstacles hindering effective planning and management of fisheries. Currently, most fisheries are carried out by obsolete fleets and are almost always directed at fish stocks that are already heavily exploited, resulting in low efficiency.In recent years coastal fishers in Brazil have realized that minimizing waste can help ensure the economic sustainability of this sector. Offshore there are as yet underexploited oceanic fish resources which represent an economically viable alternative to increased coastal fisheries. This has facilitated the adaptation and the displacement of some vessels away from coastal fisheries, causing a slight reduction of effort on traditionally fished coastal species. And, as offshore fisheries have grown, fisheries of small, near-shore pelagic resources have improved.

Government and non-government sector policies and development strategies

The MPA currently has five programs under which 27 government projects are being carried out. The programs are: (i) Fishing and Aquaculture Policy Management; (ii) Sustainable Fisheries Development; (iii) Sustainable Aquaculture Development; (iv) Strategic Management of Fishing and Aquaculture Information; and (v) Infrastructure Policy for Fishery and Aquaculture.

For some time fisheries sustainability has been the principal objective of government policy. A Plan for Sustainable Development of Fisheries and Aquaculture has been developed. It aims to improve the lives of artisanal fishers, develop ocean fishing and realize the great potential for aquaculture in Brazil.

The government intends to develop a legal framework capable of boosting the sector. A new general law on fisheries and aquaculture has been drafted. It replaces a law that had existed for over forty years and which no longer met the needs of the sector. The new legislation recognizes that fishers and fish farmers are farmers and therefore beneficiaries of agricultural policy. It also explicitly recognizes women as workers in the fisheries sector and goes on to define rules intended to ensure the financial sustainability of the activity.

The legal framework is also meant to stimulate private sector involvement in all aspects of the production, processing and marketing of fish. It encourages the establishment and operation of fish processing industries and of industries that provide basic inputs for the fisheries sector.

The importance of private enterprise in Brazilian fisheries has grown. Not only has the private sector increased its efforts in research and development, but it has also increased its funding of public sector research institutions.
As the knowledge and awareness of the sector grows in the private sector, so does the likelihood that fishing in Brazil will remain an economically viable activity in the future. As the sector gradually changes and becomes more sustainable, the quality of fishing will grow and, *inter alia*, allow for the sustainable generation of foreign exchange.

Research, education and training

Research

List of Research institutions:

- Rural Federal University of Brazil;
- Federal Universities of Brazil;
- State Universities;
- Private universities;
- EMBRAPA Aquaculture and Fisheries;
- Specialized Center at the Instituto Chico Mendes for Biodiversity and Conservation - ICMBio;
- Federal Institutes of Technology Education.

Research Projects of the Ministry of Fisheries and Aquaculture are:

- EMBRAPA aquaculture and fisheries;
- National program of research in aquaculture and fisheries;
- Molecular identification of fish;
- Fishing and marine fish farming;
- National plan for fisheries monitoring;
- National Information System for Fisheries and Aquaculture.

The overall estimate is that Brazil spends annually about USD 2 billion, or 0.6 percent of its gross national product, on science and technology, 20 percent of which is allocated to research to be undertaken by the private sector.

The text below provides some more detailed information:

The National Council for Scientific and Technological Development - CNPq divides its activities into "stock promotion", "implementation of research", and "information and dissemination of science and technology." The CNPq organizes and funds scholarships in the country and abroad, supports research projects – including providing support services to researchers - and cooperation agreements.

Education and training

The Ministry of Education (MEC) and the Ministry of Fisheries and Aquaculture (MPA) have launched the “Year of Education for Professional Fishing in Brazil”, by introducing several measures intended to develop the sector. Among them is the release of USD 9.6 million from the Ministry of Education to the federal institutes of education, science and technology working in the area of fisheries and aquaculture.

Among the actions to be announced are: (i) the creation of two reference centers for navigation in the municipalities of Itajaí (SC) and Cabedelo (PB); (ii) the professional certification of fishers; (iii) the purchase of new boats to be used for at-sea training; (iv) the development of technical courses in fisheries and aquaculture;(v) the implementation of a pilot scheme to increase literacy in fishing communities; and (vi) the

release of funds for teaching equipment.In recent years fishers and aquaculture farmers across the country have benefited by being linked (in nuclei networks) to research applied to fisheries and aquaculture. Being linked to the institutions at the federal level, the nuclei participate in an all-Brazilian effort to produce and disseminate scientific knowledge, focusing on regional development and improved quality of life in the localities involved.

Foreign aid

The federal government, through MPA, developed a research agreement with the Brazilian Agricultural Research Corporation (EMBRAPA), which has agreements with countries, foreign research institutions and international organizations, to ensure partnership in research and technology transfer.

EMBRAPA is a key player in the Brazilian South-South cooperation. It has offices in Africa (Ghana) and Latin America (Venezuela and Panama), and deploys dozens of technical cooperation projects through the Brazilian Cooperation Agency (ABC).Thus, EMBRAPA Environment, together with MPA, has entered into agreements with the United States, Thailand, South Korea and Norway, aiming to establish the basis for technical and scientific cooperation among research institutions in the field of aquaculture, water resources and environment management.

Institutional framework

In 2009 the governance of fisheries and aquaculture was modernized and strengthened by the adoption and application of two laws: (i) law no 11.958 of 29 June 2009, which created the Ministry of Fisheries and Aquaculture; and, (ii) law no 11.959 of 29 June 2009 concerning Fisheries and Aquaculture. These laws replaced Decree Law 221 of 1967.

The main objective of the Ministry of Fisheries and Aquaculture (MPA) is to create an environment that promotes sustainable fisheries based on the national policy and legal framework.

The administration and management of fishing is shared between MPA and the Ministry of the Environment. MPA coordinates the work, with the help of a network of fisheries and aquaculture research partners, focusing on public and private universities with a vocation in fisheries science, as well as specialized research centers and EMBRAPA. The main universities and research partners are:

- Universidade Federal Rural da Amazônia (UFRA);
- Universidade Estadual do Maranhão (UEMA);
- Universidade Federal do Ceará (UFC);
- Instituto de Ciências do Mar (Labomar);
- Universidade Federal Rural de Pernambuco (UFRPE);
- Universidade Federal de Alagoas (UFAL);
- Universidade de São Paulo (USP);
- Instituto de Pesca de Santos (IP-SP);
- Universidade do Vale do Itajaí (Univale);
- Universidade do Rio Grande (FURG).

Legal framework

Ruling	Description

Law nº 11.958, de 26/06/2009	Creates the Ministry of Fisheries and Aquaculture and other matters.
Law nº 11.959, de 29/06/2009	Establishes the National Policy for Sustainable Development of Aquaculture and Fisheries
Decree n°6.981, de 13/10/2009	Provides for the joint performance of the Ministry of Fisheries and Aquaculture and the Ministry of Environment on issues related to sustainable use of fisheries resources.
Interministry instructions n°2, de 13/11/2009	Regulates the Shared Management System for the sustainable use of fisheries resources.

More information at: **National Aquaculture Legislation Overview (NALO)**

More information at: **FAOLEX legislative database**

Additional information

FAO Thematic data bases

- FAO Country Profile
- Marine Resources reports (FIRMS)
  - Blue shark - North Atlantic
  - Blue shark - South Atlantic
  - Marine resources - Southwest Atlantic
  - Marine resources - Western Central Atlantic
  - Penaeid shrimps - Gulf of Guinea
  - Porbeagle - Southwestern Atlantic
  - Serra spanish mackerel - Coastal areas of Trinidad
  - Sharks - Global
  - Shortfin mako - North Atlantic
  - Shortfin mako - South Atlantic
  - Southern Bluefin tuna - Global
  - Squid - Global
  - Tuna and tuna-like species - Global
- Fishery reports (FIRMS)
  - Southwest atlantic : Bottom longline patagonian toothfish fishery - high seas : 2009
  - World : Deep-sea fisheries : 2009
  - World : Global Tuna Fisheries : 2009
- National Aquaculture Sector Overview (NASO)
- National Aquaculture Legislation Overview (NALO)
- FAOLEX legislative database
- Database on Introductions of Aquatic Species
- Regional Fishery Bodies (RFB)
  - Agreement on the Conservation of Albatrosses and Petrels (ACAP)
  - Commission for Inland Fisheries and Aquaculture of Latin America and the Caribbean (COPESCAALC)
  - Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)
  - International Commission for the Conservation of Atlantic Tunas (ICCAT)
  - International Whaling Commission (IWC)
  - The Aquaculture Network for the Americas (RAA)
  - Western Central Atlantic Fishery Commission (WECAFC)
- FAO Fishing Vessels Finder (FVF)

Publications

- List of relevant FAO publications

Meetings & News archive

- Meetings archive
- News archive