

**COUNTRY INVENTORY FISHERIES
MONITORING SYSTEMS**

BENIN

1. INTRODUCTION

This document aims to provide reference information on the present status (2007) of fishery information and data collection in Benin for the discussion during the FAO FishCode-STF/CECAF/FCWC Subregional Workshop on the Improvement of Fishery Information and Data Collection Systems in the West Central Gulf of Guinea Region held in Accra, Ghana, in June 2007. The information contained in this document is based on unpublished data from ADB/IFAD Project (entitled Programme of Support to the Participative Development of Artisanal Fisheries); Division of Fisheries and from the Benin research center on fisheries and Océans, as well as from FAO Benin fisheries country profiles 2004 and other documents from the FAO Corporate Document Repository.

2. GENERAL INFORMATION ON BENIN RELATED TO FISHERIES

The subsector of fishery includes three main areas of activity: marine fisheries, continental fisheries and aquaculture. Benin has a coastline of approximately 121 km, which stretches from the Nigerian to the Togolese border. The exclusive economic zone (EEZ) has an area of almost 27 750 km². The continental shelf has a sandy bottom and covers a surface of approximately 2 800 km² between isobaths 10 and 100 m, but reaches 3 100 km² between 10 and 200 m. Upwellings occur rarely and are weak. The average width of the continental shelf reaches 27 km. In spite of this narrowness of the shelf, the ichthyologic fauna is quite diverse, presenting more than 257 species including 43 Elasmobranchii and 214 Teleosts.

The development of marine Fisheries in Benin is hindered by multiple problems and Fishery exploitation is carried out under rather confused circumstances. This situation results in the following observations: i) an unregulated evolution of the production due to an ineffective and approximate follow-up of the fishery; ii) lack of knowledge concerning the fishing grounds; and iii) bad socioprofessional organization in the field. There is hardly any upwelling on the Beninese coasts. The insufficiencies which characterize Beninese marine fisheries are due to bad stock management but are also attributable to the fragmentary state of scientific knowledge in Benin.

3. STRUCTURE OF THE FISHERIES SECTOR

Artisanal fishery

Marine artisanal fishery

Marine artisanal fishery is done by fishers from 80 fishing-villages distributed over four coastal departments of Benin. Currently there are 4 345 artisanal fishermen operating at sea including 2 234 Beninese (51.4 percent), 1993 Ghanaians (46 percent), 115 Togolese (2.54 percent) and 3 Nigerians (0.06 percent). They usually use gillnet, purse seine, beach seine and hook and line. The marine artisanal fishing fleet is comprised of 816 operational canoes, of which approximately 46 percent are powered by outboard engines, according to the results of the socio-economic survey of 1999.



Artisanal lagoon fishery

Lagoon fishery in Benin is regarded as a form of inland fishery.

Artisanal inland fishery

Inland fishery annually produces a large quantity of fish. The great number of reservoirs, rivers, brooks, etc. yield a production estimated at 30 000 tonnes per year. There is little data on inland fishery. A partial census was carried out in 2006 to cover three districts in the south of the country. The participative artisanal fisheries development support Programme (PADPPA) plans to carry out data collection in the future.

Inland fishery is a very important activity for the riverside communities, given that it generates employment and provides a reliable source of proteins. Approximately 57 500 fishermen and approximately 100 women, who compete with these men, work on lake Ahémé and on the coastal lagoon, fishing for crabs and oysters. Approximately 40 000 women are employed in the fish processing sector. In addition, activities related to inland fishery provide livelihoods to another 300 000 people, such as fishing gear salesmen, dugout canoe manufacturers and those employed in cutting, scaling and storage of the catch.

Industrial fishery

The marine industrial fishery has, if at all, little developed. Industrial fishery catch hardly exceeds 40 tonnes on average over the last ten years and the annual landing is of about 600 tonnes of fish, representing 8 percent of the total of marine fisheries production. Industrial fisheries use bottom trawling. A dozen trawlers exploit the marine areas under Beninese jurisdiction.

Tuna fishery

There is no tuna fishery in Benin, although it is possible that foreign boats capture tuna's offshore from Benin. In this case, they are considered as unreported catches.

Marine resources

The available information indicates that water under Beninese jurisdiction is relatively poor in fishery resources. The exploitable fish potential is of approximately 12 000 tonnes a year, with around 400 tonnes a year for shrimps. Although Benin has many aquatic ecosystems with a high fishing potential, the fisheries subsector production remains insufficient as a whole, so much so that fish imports are increasing daily.

Pelagic resources

The majority of the artisanal fishermen target the small pelagic species, such as sardinelles, barracudas, jacks (*Caranx* spp.), grunts (*Brachydeuterus auritus*), etc. Other pelagic species also targeted are the marlins (spearfish), sailfish and Chub mackerels, etc.

Demersal resources

Demersal resources are comprised of finfish, shellfish and cephalopods. The first group is most the important; the second group is also exploited but mainly for exports. Cephalopods are by-catches.

Finfish

The finfish are subdivided in species which are to be found on trawling depths (*Pseudotolithus* spp., Galeoides, flatfish, etc.) and those which live on rocky bottoms (*Lutjanus*, *Sparus*, groupers, etc.).

Shellfish

Around the river estuaries, the shrimp beds are mainly exploited by foreign fishing boats. Small quantities of lobsters are known to have been caught by trawlers, but not in great quantities.

Cephalopods

The octopuses are rarely captured; other species are not targeted. In the few cases where cephalopods are brought back to port, they are considered to be bycatches.

4. FISHERY POLICY AND MANAGEMENT OBJECTIVES

Legal framework

Legislation on licences and fishing zones exists, including management measurements with regard to authorized mesh sizes for various fishing gear.

National objectives on policy and management

The Fishery Directorate is entrusted with the formulation of a national fisheries policy, while the implementation of this policy is the responsibility of Regional Centres for Agriculture Promotion (Centres régionaux de promotion agricole, CeRPA). The Beninese Fisheries administration is charged with the following tasks:

- To contribute to the development of the agricultural policy in the field of fishery production.
- To propose the strategies and objectives to be reached in the field of fishery productions.
- To follow the implementation of the development of the fisheries sector.
- To determine the technical and economic conditions of the sustainable development of the fishery productions and to follow their implementation.
- To follow the evolution of the aforesaid productions and the mechanisms ordering this evolution on a technical level, as well as on an economic and commercial level and to study measures liable to ensure their development.
- To work out, implement and to follow the development programmes for fisheries.
- To work out and carry out the application of the legislative and regulatory texts as regards fisheries in collaboration with the ministerial departments concerned.
- To promote the durable development of artisanal Fishery and to support the development of the aquaculture.
- To organize the regulation of the food products of Fisheries.

Benin could engage the development process of a national policy for fisheries with an action plan and the implementation of a Fisheries monitoring system for the follow-up and the harmonious development of its fishery resources. The role of the Programme of Support to the Participative Development of Artisanal Fishery is to support fisheries management and to ensure that the results of the elaboration of development tools and processes should be put into practice.

5. STATUS OF CAPTURE FISHERIES REPORTING

FAO reporting

The Management of Fisheries submits annual Fishery statistics to FAO, in close cooperation with the Benin National Fisheries and Oceanographic Centre, CRHOB (Figure 1).

The majority of the capture is composed of fresh water fish, mainly *Tilapia* spp.

National report

The Beninese Fisheries Division does not publish statistics directories. It depends on FAO for the distribution of the statistics on Fishery.

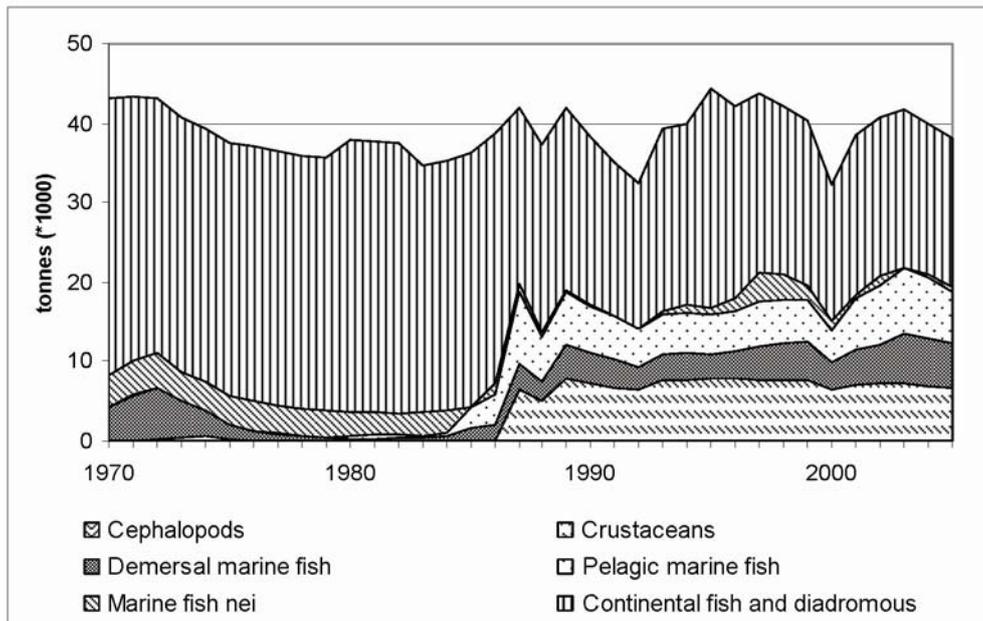


Figure 1: Fishery statistics of Benin reported to FAO

6. DESCRIPTION OF FISHERY INFORMATION AND DATA COLLECTION SYSTEM

Objectives of the data collection systems for fisheries

The objective of the data-collection on fishery is to know the quantities captured in Beninese water. The system is not sufficiently effective to inform the Fisheries Division on stock management. The system aims to obtain information on landings, but length frequencies are not determined, nor are the mesh sizes of the fishing gear. The information acquired by the statistics programme will help to determine which quantities of fish would be essential to satisfy the demand for fish at the national level.

Objective	Required indicators and variable
Estimate of the production	Determination of the deficit for the importation of Fishery products
Estimate of the production	Rational management of the water resources
Estimate of the production	Rehabilitation of the aquatic ecosystems

Institutions implied in the data-collection

Fisheries management

The Fisheries Directorate deals with data collection at artisanal fishery port level, at industrial fishery port level and in all landing points along the Beninese coast. At the artisanal fishery ports, fishery production is sampled daily for several fisheries, all using different fishing gear.

Benin National Fisheries and Oceanographic Centre (CRHOB)

The Fisheries Directorate collects data in close cooperation with the CRHOB. The source data are collected by the CRHOB recorders and compiled. Then the Fisheries Directorate carries out monthly and annual calculations.

Hygiene inspection service

The hygiene inspection service inspects the catches of the trawlers before landing. This service concentrates on the quality of the product rather than the quantity. The estimated quantities of fish are however used to determine the taxes to be paid by the ship-owners.

Customs

The customs record the quantities of fish imported for human consumption. It is approximately 13 000 tonnes a year. A limited quantity of fish (fresh water) smoked/dried is exported for the West African communities in Europe.

Participative artisanal fisheries development support Programme (PADPPA)

The PADPPA will collect data on the artisanal fishery as soon as a census has been carried out. Approximately 120 villages will be listed by a total of 20 recorders.

7. DATA COLLECTION SYSTEMS AND THEIR COMPONENTS**Fisheries Division and CRHOB**

The Fisheries Directorate and the CRHOB work in close cooperation in the field of fishery statistics. The CRHOB researchers and technicians collect the source data and process it, then the Fisheries Directorate processes the data, which are recorded in the ARTFISH programme.

Monitoring of artisanal fishery

The system for the monitoring of marine artisanal fishery is based on stratified sampling (ARTFISH) which was introduced by FAO at the time of a TCP project. Since its introduction, the Fisheries Directorate has been able to monitor and sample the Fishery production at the fishing port of Cotonou. The dugout canoes exiting the port are counted daily. At the beginning of the programme, this activity was also measured in the other statistic strata (for the period 1987-2002). Given the lack of financial means, the strata have not been completely covered since 2003. Along the Beninese Atlantic coast, fishermen were involved in data collection; they received a financial compensation from the Fisheries Directorate for their work. In 2007 this programme was entirely stopped, except for the sampling at the fishing port.

Monitoring of industrial fishery

National Fishing vessels also land their catch at the fishing port (although at a different dock than the artisanal dugout canoes). The landings of the trawlers are well planned and organized to prevent that several boats unload at the same time. The durations of the tides are known and the catches are already sorted by groups of species (often a mixtures of comparable species) which have their commercial names.

The fresh fish is marketed on the spot under ice and is transported to the places of sale. As soon as the frozen fish arrives, it is stored in the cold storages and in insulated cases.

Registration

All the dugout canoes which are involved in marine fishery are registered.

Licences

The national fleet which exploits Beninese water is authorized to fish in territorial waters, beyond a certain depth so as not to jeopardize the artisanal fishery. The fishing boats which unload their fresh products in Cotonou are provided with licences. However, these boats can also unload their products outside Benin. Three fishing companies export shrimps in Europe, because there is no local market for great quantities of shrimps.

Observer programmes

There are no observer programmes on board of foreign boats (such as trawler-freezers). There is no control on the use of the mesh sizes in the bottom trawls, nor on the fishing grounds.

Monitoring, control and surveillance (MCS)

The artisanal fishermen complain about the foreign fishing boats which fish close to the coast and damage or destroy their fishing gear. There are no means for intervention (no fishery monitoring vessels). The Navy could carry out this task, but lacks the knowledge of fishery for a correct control. The PADPPA Project plans to mobilize fishermen who could be useful observers in the open sea. A network of fishermen could contribute to a better coverage of national water for the prevention of illicit fishing.

Data on auctions and fishing cooperatives

The organization of the auction sales at landing in the fishing port in Cotonou is good. Hook and line captures are landed separately from the captures of the dugout canoes, which exploit small pelagics. Each day (including the weekends) the catches are weighed and noted. Calculations are carried out on the basis of numbers of fish heaped by species (each heap weighing approximately 25 kg). The quantities of small pelagics are estimated or calculated with scales. Each group of species (demersal, small pelagic fish, etc.) is checked by a person who works at the auction.

The auction does not generate statistics; this is left to the fishery recorders. They record their statistics (by hand) and after compilation the figures are sent to the Fishery Directorate.

Census

The last frame-survey took place in 1999. A small scale census was carried out in 2001 to determine the number of fishermen and dugout canoes in the camps where data collection was carried out. These last figures are still used to calculate the annual production. That implies that these figures form the basis of the calculations of the ARTFISH programme.

Socio-economic surveys

The PADPPA Project will soon undertake a socio-economic campaign (probably in 2008).

Prospective surveys

Representatives of the Fishery Directorate and CRHOB take part in the evaluation programme of the resources on the continental shelf beyond 30 meters of depth, carried out by means of trawling.

8. DOCUMENTATION

PADPPA. 2003. Consultation for the development of the national policy of Fisheries and its action plan and for the installation of an observatory of Fishery.

FAO. Web site Fisheries. Profile of Fisheries and aquaculture of Benin. (www.fao.org/fishery/countrysector/FI-CP_BJ/fr - in French). Consulted mid-2006.