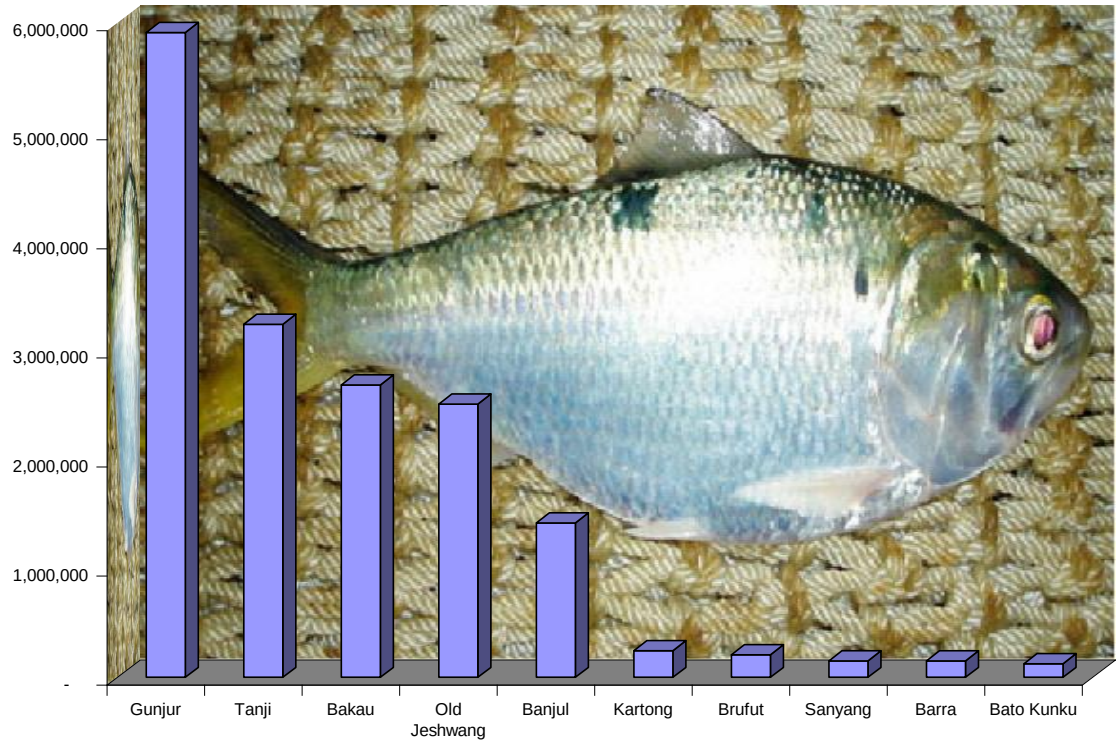
THE REPUBLIC OF THE GAMBIA

2008 CATCH ASSESSMENT SURVEY REPORT



GAMBIA ARTISANAL FISHERIES DEVELOPMENT PROJECT
DEPARTMENT OF FISHERIES
MINISTRY OF FISHERIES, WATER RESOURCES AND NAM
BANJUL, THE GAMBIA

Executive Summary

The fisheries sector of the Gambia has huge potential to contribute immensely towards social, economic and cultural advancement of the country. Although both the industrial and artisanal fisheries sub-sectors play their role in the necessary benefits to the Gambian populace, the artisanal fisheries is the main supplier of vital animal protein supplement to the Gambians and also the major source of raw fish material for the fish processing establishments operating in the country.

It is estimated that the artisanal sector which has now become an important fishing industry provides direct employment to 1 410 head fishermen and 4 694 fishing assistants operating from the 154 landing sites in the Gambia (2006). Fishing operations in the artisanal sub-sector target all species using different fishing gears. Catch assessment survey, a sampled based survey collects data on effort employ on catching fish and estimates amount of fish caught over a given period. The 11 fish landing sites in the Atlantic Coast were all covered in 2008 while 13 sample landing sites were selected and covered in the same period from the other four fisheries administrative areas due to human and technical limitations.

A total artisanal fishing effort of nearly 233 000 fishing days were used to catch 43 000 tonnes of fish in 2008. Of this effort, just under 100 000 fishing days were attributed to catching fish in the Atlantic Coast Stratum and the rest (133 000) were employed inland. Total national fisheries (artisanal and industrial) production in 2008 was estimated at nearly 46 000 tonnes. The coastal artisanal fisheries contributed the bulk (75%) of the total fisheries production in 2008 and inland fisheries 18.3 percent. Almost 12 000 tonnes were *Ethmalosa frimbriata* (Bonga/Shad).

The two most important fishing gears employed in the artisanal fisheries operations in the Gambia are encircling/surround gillnet and Set/bottom gillnet. These gears are used in fishing operations all year round and are responsible for most fish landings. Surround gillnet targets small pelagic fish, particularly bonga which is an inshore and estuarine species while Set/bottom gillnet target a wide range of demersal and sub-demersal fish species. Landings depend on the abundance and availability of target fish species and these may have some bearing with seasons. Fish abundance and catchability normally vary with seasons among other things. This phenomenon was observed with the highest catches in the months of June and October.

Table of Contents:

Executive Summary **2**

CHAPTER 1 ..... **5**

1.1 INTRODUCTION / BACKGROUND **5**

Policy objectives and socioeconomic importance **5**

1.2 SCOPE OF THE SURVEY **6**

1.3 ITEMS OF INFORMATION COLLECTED **6**

1.4 CATCH ASSESSMENT SURVEY TEAMS **6**

1.5 TRAINING **6**

1.6 QUALITY CONTROL OPERATIONS **7**

1.7 DATA PROCESSING **7**

1.8 BASIC CONCEPTS AND DEFINITIONS **7**

1.9 SAMPLE SURVEY DESIGN **8**

a. Sampling in space 8

b. Sampling in time 8

1.10. Selection PSU **8**

Table 1. Sample Description of the 2008 Catch Assessment Survey (2008) 9

1.11 Selection of Sample Days **9**

1.12 Estimating Process **9**

1.13 The Estimations **10**

1.14. POSSIBLE SOURCE OF ERROR **11**

a) Non sampling errors 11

b) Sampling Errors 11

c) Other sources of error 12

1.15 Improvements ..... Error! Bookmark not defined.

CHAPTER 2 ..... **12**

GENERAL FINDINGS **12**

2.2 Catch Assessment Survey (Artisanal Fishing) 12

Table 2: Total Catches for 2006, 2007 and 2007 for the Atlantic Stratum* 13

Figure 1 : Total Catches by Atlantic, Inland and Industrial Stratums (2006 - 2008) 14

Figure 2. Plot of total fisheries production over the years (1985 – 2008) 14

2.3 Fishing effort 15

Table 3. Total Catches and Number of Boating Days (Trips) by Landing Sites (2008) 15

Figure 3. Effort by Landing sites in the Atlantic Staratum (2008) 16

2.4 Catch by species 16

Table 4. Total fish Catches by Species and fishery region-2008 17

2.5 Catch distribution over 12 months period

Figure 4. Catch and effort

2.6 Monthly fish production 22

Table 5 : Total Catches by Species and Month (2008) 23

2.7 Artisanal fishing gears

Table 6 Total Catches by gear type 2008 28

Figure 5 Catch and effort by gear type 29

Table 7 : Total Catches by Species and Landing Sites for the Atlantic Coast Stratum (2008) 36

Table 8 : Total Catches by Species and by region inland (2008) 40

2.8 Industrial Fisheries 43
Table 9: Total Industrial Catches by Months and Species (2008)....44
Table 10: Industrial Catches, Efforts and Catch Per Unit 45
Figure 6: Total annual fisheries production in metric tonnes ……44
2.9 Exports of Fish and Fishery Products....45
Table 11: Exports of Fish and Fishery Products (1984 - 2008)....46

CHAPTER 3 47

APPENDIX TABLES 47
Annex 1a Total Fish Catches by Artisanal and Industrial Sub-Sectors (1981-2006) 47

CHAPTER 1

1.1. INTRODUCTION / BACKGROUND

Bordered on three sides by the Republic of Senegal and on the west by the Atlantic Ocean, the Gambia is one of Africa's smallest coastal states (sea coastline: about 80 km). It is located in the highly productive upwelling zone of the Atlantic Ocean. Surveys of the fisheries potentials of the marine waters of The Gambia were conducted between 1964 and 1965 and in 2004 indicated that the country has considerable marine and estuarine fisheries resources and that the exploitation and utilization of the resources can contribute significantly to national socio-economic development. This led to the creation of the relevant public institutions, the enactment of legislation and the elaboration of fisheries policy objectives for the development and management of fisheries. Two types of fisheries operate in the Gambia; artisanal fisheries and industrial fisheries. These fisheries are distinguished by their mode of operation but target and compete for the same fish stocks.

Fisheries production is monitored through established information collection systems. Artisanal and industrial fisheries fish catches and efforts used in total production estimates for both sub-sectors are captured through a sample survey (Catch Assessment Survey [CAS]) and Fisheries Observer programme respectively. The data collected through these systems are used in the planning, development and management of our fisheries. This report focuses on artisanal fisheries production.

Policy objectives and socioeconomic importance

The fisheries policy objectives are linked. to some key national development objectives such as: increased food self-sufficiency and security; a healthy population and enhanced employment opportunities for nationals; increased revenue generation and foreign exchange earnings; and the attainment of national social and economic development. The sectoral policy objectives have basically remained unchanged over the years but the strategies for their attainment are being continually amended (and some discarded) to reflect the changing situations in fisheries at the national, sub-regional, regional and global levels.

There were about 1 785 artisanal fishing canoes operating in both the marine and the River Gambia in 2006. In the same year, it was estimated that the artisanal fisheries sub-sector provided direct employment to 1 410 head fishermen and 4 694 assistant fishermen. Important to note is the ancillary workers such as boat builders, fish processors, fish retailers, etc associated with fishing. Over 200 000 people were estimated to directly or indirectly depend on artisanal fisheries and its related activities for their livelihoods in 2003. The artisanal fishing industry is the major source of raw fish materials for the fish processing establishments in the Gambia and the major supplier of food fish for the Gambian population. The bulk of fish exports from the Gambia could be traced back to the artisanal fishery.

The development of industrial fisheries has been relatively limited in the Gambia. Most industrial vessels operating are mostly foreign owned they land their catches in foreign ports where the fish is processed, packaged and labeled as products originating from those foreign ports. It is estimated that less than 2000 people are employed in the industrial sub-sector the majority of who are factory workers (mainly women).

1.2 SCOPE OF THE SURVEY

The ultimate goal of the catch assessment survey (CAS) is the continuous production of catch and effort statistics from the Artisanal Fisheries sub-sector. A sampled based survey, CAS is done in space and time covering all the landing sites in the Atlantic Coast and pre-selected landing sites or Primary Sampling Unit [PSU] in inland. It records catch and effort by gear-type (6 canoes) and species caught and landed.

1.3 ITEMS OF INFORMATION COLLECTED

Information on number of canoes per gear-type that went fishing on the sampling day for each PSU including catch and effort are collected by the field staff. The types of species and crew size of six canoes (by gear-type) sampled are also recorded. Information on the number of Fishing Units operating from the selected PSUs are also collected.

1.4 CATCH ASSESSMENT SURVEY TEAMS

There are five fisheries administrative areas in the Gambia namely; the Atlantic Coast, Lower River North Bank [LRNB], Lower River South Bank [LRSB], Upper River North Bank [URNB] and Upper River South Bank [URSB]. Of these, the ACS is fully covered and in each site there is one or more field staff equipped with the necessary equipment and materials conducting the survey. Despite financial and human resources constraint, the Fisheries Department has posted staff to selected PSUs to conduct CAS among others. Field-based staff are continually trained and re-trained on biological and statistical data collection and processing. A data entry was also constituted and is based in the office. Two field supervisors visit landing sites regularly to observe and monitor the activities of the field staff. The overall responsibility for assuring data quality rests on the head of the unit.

1.5 TRAINING

Class room and on site training are regularly organized to refresh field staff. In 2008, three field and class room training on a wide range subjects including fish species identification, statistical methods, the use of CAS equipment, data analysis, biological parameters measurement, etc. were conducted.

1.6 QUALITY CONTROL OPERATIONS

The timely availability of accurate is paramount in effective planning and management of the fisheries sector. To ensure data quality, checks were carried out in the field by supervisors. They checked for completeness and accuracy of the data collection forms before submitting them for processing in the office. The data is verified and entered in a main frame computer for processing and analysis.

1.7 DATA PROCESSING

CSPro 3.0 software was adapted for fisheries data entry. However, data were coded prior to being input into computer. Validation rules were assigned to the variables to avoid duplication, typographical and other errors. The SPSS, Version 17.0 Software was used to produce the necessary output tables for the report.

1.8 BASIC CONCEPTS AND DEFINITIONS

In order that the reader understands and appreciates the amount and quality of data herewith provided, it is imperative that certain concepts are explained.

Artisanal fisheries

Traditional or artisanal fishing is a low capital investment activity with fishers operating from fish landing sites throughout the country. Primitive to simple fish capturing techniques were being used as it was purely to provide food fish to members of the fishermen households. This has since evolved into commercial enterprises supplying raw material fish to fish processing plants and market centres in the municipalities and up country.

.

Fishery

Refers to the economic activities of capture or culture of aquatic animals and plants.

Capture

Refers to the catching or gathering of aquatic animals and plants. Normally, capture involves living aquatic animals and plants, although gathering of shells, corals, etc., which is already dead, is also considered as capture.

Catch refers to total fish hauled during fishing operations. The catch may not all necessarily be landed as some unwanted fish may be discarded at sea. Landings refers to those fish that are kept and landed at home ports or landing sites for consumption and sale.

Fisherman

Fisherman refers to a person who engages in fishing at sea or on inland open water. A person who works on land for net repairing, loading fishing material, unloading catch, etc. is excluded.

Landing Site

The site or village from which fishing units operate

Fishing Unit:

A Fishing Economic Unit (FEU) consists of fishing canoe, fishing gears and fishermen. Fishing units are classified in categories according to the type of fishing gear employed. Hence, when the same fishing canoe employs two different types of gear or uses more than one type of gear at different times of a year, the number of fishing units is counted for each gear employed separately, although the same fishing canoe is used.

1.9 SAMPLE SURVEY DESIGN

a. Sampling in space

Sampling was done in accordance with the stratified fishing areas as given table 1.

Apart from the ACS where all landing sites are covered for CAS, in the rest of the fisheries administration areas, a number of fishing sites (Primary Sampling Units) were selected for further sub-sampling (secondary sampling units). The rationale behind the concepts of PSU and SSU could be found in the previous reports.

b. Sampling in time

Catch Assessment Survey used a predetermined reference period (normally 10 days per month); five days in the first half and five day in the second half of the month.

The data collected during the survey period were used to produce monthly catch estimates by gear/boat and by species for the artisanal sub-sector.

1.10. Selected PSU

All fish landing sites along the coast (Atlantic Coast Stratum) were all selected for catch and effort data collection. For the inland fisheries, attempts were made to select representative landing sites in each fishery administrative area. However due to human and technical limitations, some constraints were imposed on the selection of sample landing sites. Fishing sites with no resident enumerators were withdrawn.

Table 1. Sample Description of the 2008 Catch Assessment Survey (2008)

Stratum/Landing Sites Selected	Landing Sites	
	Population	Sample
	Number	Number
Atlantic Coast*	**10**	**10**
Kartong		
Gunjur		
Sanyang		
Bato Kunku		
Tanji		
Brufut		
Bakau		
Old Jeshwang		
Banjul		
Barra		
Lower River North Bank	**30**	**4**
Albreda		
Salikene		
Tuba Kolong		
Farafeni		
Lower River South Bank	**45**	**5**
Mandinary		
Bintang		
Kemoto		
Jappineh		
Pirang		
Upper River North Bank		
Kuntaur	**26**	**1**
Upper River South Bank		
Jarreng	**43**	**3**
Bansang		
Basse		
TOTAL	**154**	**23**

1.11 Sample Days

Sampling of landings by gear type is carried out 10 days in a month; 5 days in the first 15 days and the other 5 in the last 15 days but consecutively for each period. The catches and effort employed are then raised to account for the days that sampling was not done.

1.12 Estimating Process

Catch and effort data for each PSU was summed for each gear type surveyed. The sample totals for each gear type were then raised to reflect the number of days fished in the month by multiplying them by the ratio of days fished to days sampled in the reference period (R2). In this manner, the monthly total estimates of catch and effort by gear type for each PSU were obtained. Total production for each PSU in a Stratum are summed and raised to give an overall catch in that stratum. The raising factor used here was the ratio for each gear type in the stratum to boats in the PSUs (R3). Each PSU therefore,

produced a different estimate of effort and production for any given gear type within the stratum.

1.13 The Estimations

The same process expressed in a mathematical way will be as follows:

Assuming that,

h = stratum (1, 2,)
i = selected PSU
j = boat sampled
k = gear used
M = number of days in the calendar month
D = number of days in the reference period
d = number of actual fishing days sampled
n = number of boat in the PSU
l = number of boats sampled
N = number of boats in the stratum
Y = catch (effort)
S = number of sampled villages in the h stratum
L = number of boats landed

$$k^{Y}hi = \sum_{1}^{d}[\frac{L}{l} * \sum_{j=1}^{l} k^{Y}hidj]$$

Gives the total catch (sample date) landed in PSU "i" in stratum "h" by boats using gear "k" during the days sampled.

(monthly) $$k^{Y}hi = k^{Y}hi(d) * \frac{M}{D}$$

Gives the monthly total catch (sample date) landed in PSU "i" in stratum "h" by boats using gear "k" during the month.

(stratum) $$k^{Y}(i)h = k^{Y}hi * \frac{N_{kh}}{n_{khi}}$$

Gives the monthly total catch landed in stratum "h" by boats using gear "k" estimated using sample data from PSU "i". The final estimated monthly total catch landed in stratum "h" by boats using gear "k" is obtained by taking the average of the different stratum estimates calculated form the sample date of the PSUs weighted by the number of landings in each PSU.

1.14. POSSIBLE SOURCE OF ERROR

a) Non sampling errors

The following were identified as possible source of non sampling errors.

i) The field staff does not collect the information or complete forms correctly.

ii) The field staff is not present at the beach when the fishing boats are landing and collects data by enquiry.

iii) The field staff cannot weigh the catches because he does not have proper weighing scales and estimates the landings.

iv) The field staff incorrectly identifies fish species.

For case (i) and (ii) the only solution is to increase supervision.

The supervisor will be able to check the work done by the field staff and correct possible mistakes at the source.

Case (iii) has one possible solution, the purchase of appropriate weighing scales and buying whatever material is needed to keep them in good working condition.

Case (iv) becomes a very important source of error when catch estimates by species groups are produced. A possible solution is to organize local training courses for the fish recorders. These training courses could be useful also to present to and discuss with the enumerators how to solve problems arising in particular situations.

It should be mentioned that all enumerators have been adequately trained to conduct catch and effort data collection. Also put in place, a system for supervising the fieldstaff and to monitor their activities by carrying out spot checks.

b) Sampling Errors

Sampling errors may arise from the following:

i) The underestimation of the various fishing units operating from a PSU in a stratum. The number and distribution of units are used to calculate the raising factors which result in the estimation of total catch and effort for the strata. An error in the number of boats per stratum or in the gear distribution would therefore affect the estimates.

ii) The sampling Frame no longer reflects the reality on the ground; there are changes in the number and distribution of fishing units per gear-type (movement/migration) especially in the inland fisheries.

iii) Boats changing fishing gears/changes in the fishing pattern and the fishery structure may affect the final estimates.

c) Other sources of error

Geographic boundaries and national borders do not mean much to the fishermen. It is well known that, along the Coast, groups of fishermen migrate in pursuit of fish and changes in general economic conditions in the different countries or areas along the coast. These movements would greatly affect the stratum estimates unless they were limited to the boundaries of one stratum.

Nevertheless, seasonal fluctuation in number of boats operating could be obtained by studying the migratory pattern fisheries units operating in the PSUs to update the sampling frame. This pattern could be established by the supervisor collecting data movement of fishermen in the PSUs

CHAPTER 2

GENERAL FINDINGS

2.1 Catch Assessment Survey (Artisanal Fishing)

Fisheries statistical data collection is an integral part of the functioning of the Fisheries Department. Catch assessment survey estimates amount of fish caught and the effort used in the extraction/harvesting of the fish by the artisanal fisheries operators. Annual artisanal fish production is the sum of all estimates of landings (production) by the artisanal fisheries sub-sector.

2.2 Fisheries Production (Trends)

The artisanal fisheries sub-sector is divided into two fishing areas namely; the Atlantic coast and inland. Table 2 and figure 1 shows total fish landed by the artisanal fishermen operating from the major fish landing sites (Atlantic Coast Stratum, [ACS]), inland and the industrial sub-sector for 2006, 2007 and 2008 with indication of changes in production levels over the previous year. There was a 2.6 percent increase in landings in the ACS; a negative growth of 11.2 and 23.6 percent were registered in the inland and industrial fisheries respectively in 2008. Overall, there was a 2.3 percent decrease in total landings in 2008 compared to 2007. Tanji and Gunjur were observed to have increased their production 18.3 and 11 percent respectively while all other landing sites in the ACS recorded a decrease (Table 2).

Table 2: Total Catches for 2006, 2007 and 2008 for the Atlantic Stratum*

Stratums	Total Catches (Kilogram) 2006	2007	2008	% change 2007-2008
Atlantic	**32,975,896**	**33,575,249**	**34,464,094**	**2.6**
Gunjur	9,402,964	9,589,588	10,641,383	11.0
Tanji	7,334,273	7,466,895	8,835,340	18.3
Brufut	4,957,713	4,991,776	4,211,604	-15.6
Bakau	3,226,383	3,078,562	2,924,232	-5.0
Banjul	2,728,956	2,972,728	2,815,055	-5.3
New/Old Jeshwang	2,505,354	2,803,174	2,727,828	-2.7
Sanyang	1,648,426	1,678,212	1,477,607	-12.0
Kartong	548,853	512,991	480,518	-6.3
T/batokunku	308,607	293,450	231,719	-21.0
Barra	314,367	187,182	119,374	-36.2
Inland	**8,904,796**	**9,432,137**	**8,377,168**	**-11.2**
Upper R. South Bank	4,310,689	4,566,185	3,416,695	-9.3
Lower R. South Bank	3,610,712	3,824,270	3,940,793	-15.9
Lower R. North Bank	721,613	764,383	802,565	-1.0
Upper R. North Bank	261,783	277,299	217,115	-5.1
Industrial	**2,829,518**	**3,891,361**	**2,973,907**	**-23.6**
TOTAL	**44,710,210**	**46,898,747**	**45,815,171**	**-2.3**

In 2008, total national fisheries production was estimated at just over 45 815 tonnes (Table 2) this represented a 2.3 percent net decrease in fish landings over 2007. Of this total catch, 75 percent came from the most productive area (ACS), 18 percent inland and 7 percent industrial (Figure 1). The most important fishing industry in the country is the artisanal fisheries contributing about 93 percent to the overall catches in 2008.

Figure 1 : Total Catches by Atlantic, Inland and Industrial Stratums (2007)

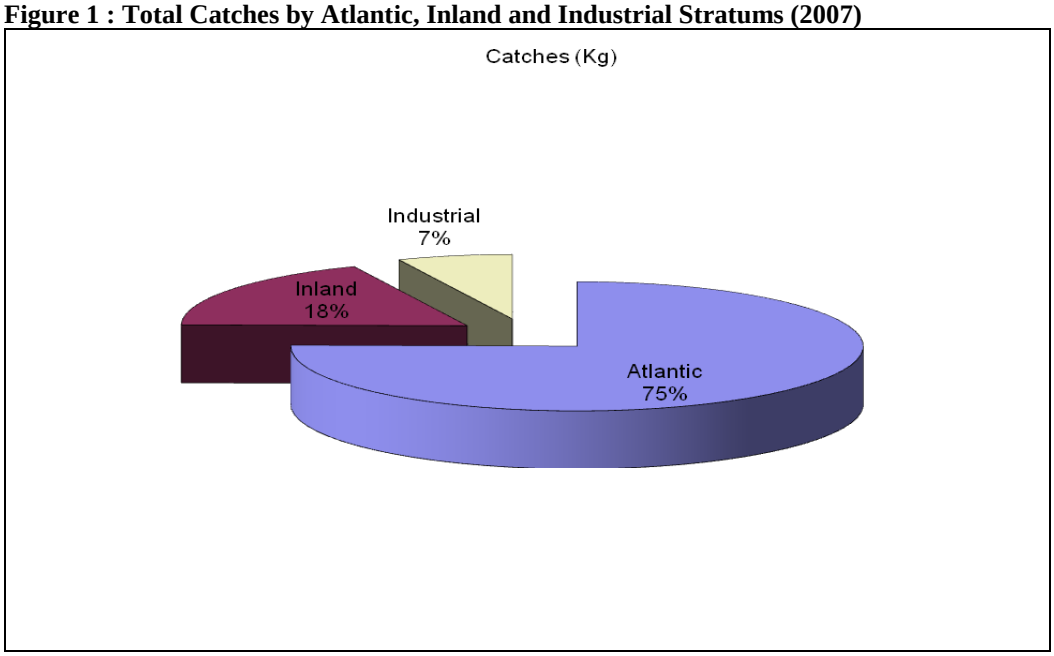
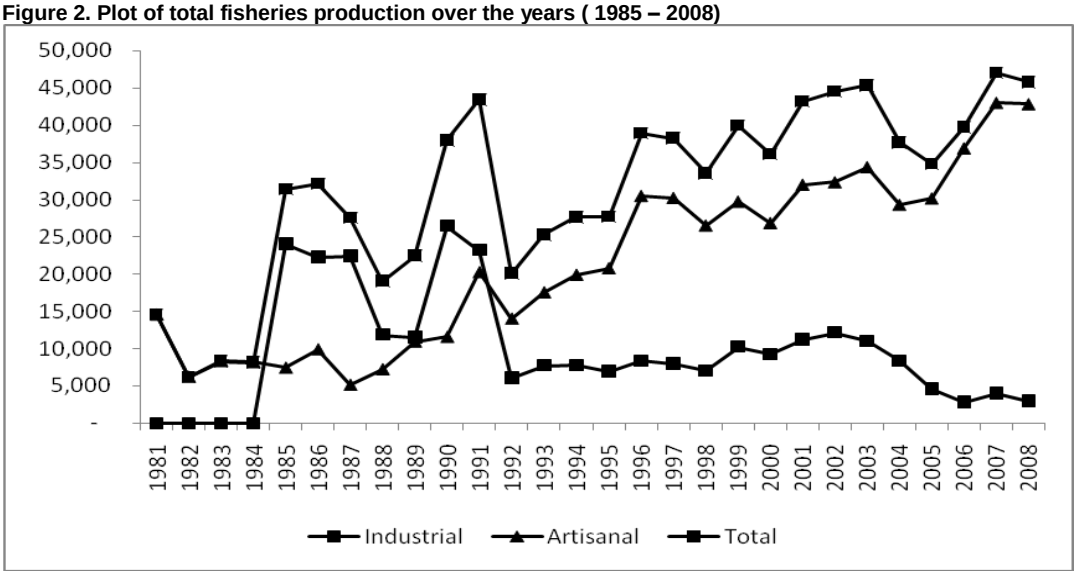


Figure 2 below indicates total fisheries production (artisanal and industrial). Although total annual fish catches had been fluctuating, the overall trend is an upward one. A similar trend could be observed for the artisanal fisheries production; this fishing industry being responsible for the bulk of fish landings dictates the overall trend (Figure 2). As opposed the gradual increase in catches observed in 2006 and 2007, a downward notch was registered for the artisanal fisheries. The industrial production which has been declining in the recent years was observed to have picked up in 2007 and then declined in 2008.

Time series of total annual landings by species for both the artisanal and industrial fisheries sub-sectors are given Annex 1.

Figure 2. Plot of total fisheries production over the years (1985 – 2008)



2.3 Fishing Effort

Fishing effort estimation is an important and necessary aspect in fisheries production monitoring. It indicates the amount of effort employ in producing number of kilogramme of fish at a given period; change in catch rates points to how the fishery reacts to fishing pressure being exerted. In artisanal fisheries, effort is given in number of fishing trips undertaken at a given period. In 2008, about 232 800 fishing trips were undertaken producing nearly 43 000 tonnes of fish. A total of 99 650 fishing trips were used in producing about 34 500 tonnes of fish in the Atlantic coast while 133 150 trips caught 8 400 tonnes of fish inland (Table 3). The rate of catch (Kg/fishing trip) varies according to the fishing method and the target species. Gunjur and Tanji registered the highest catch rate (618 and 421 respectively), this is due mainly to the fact that these sites mainly target small pelagics which the most abundant species (Figure 3). Although Brufut had employed more effort, the catch rate was low because they were targeting so called white fish which are scarce.

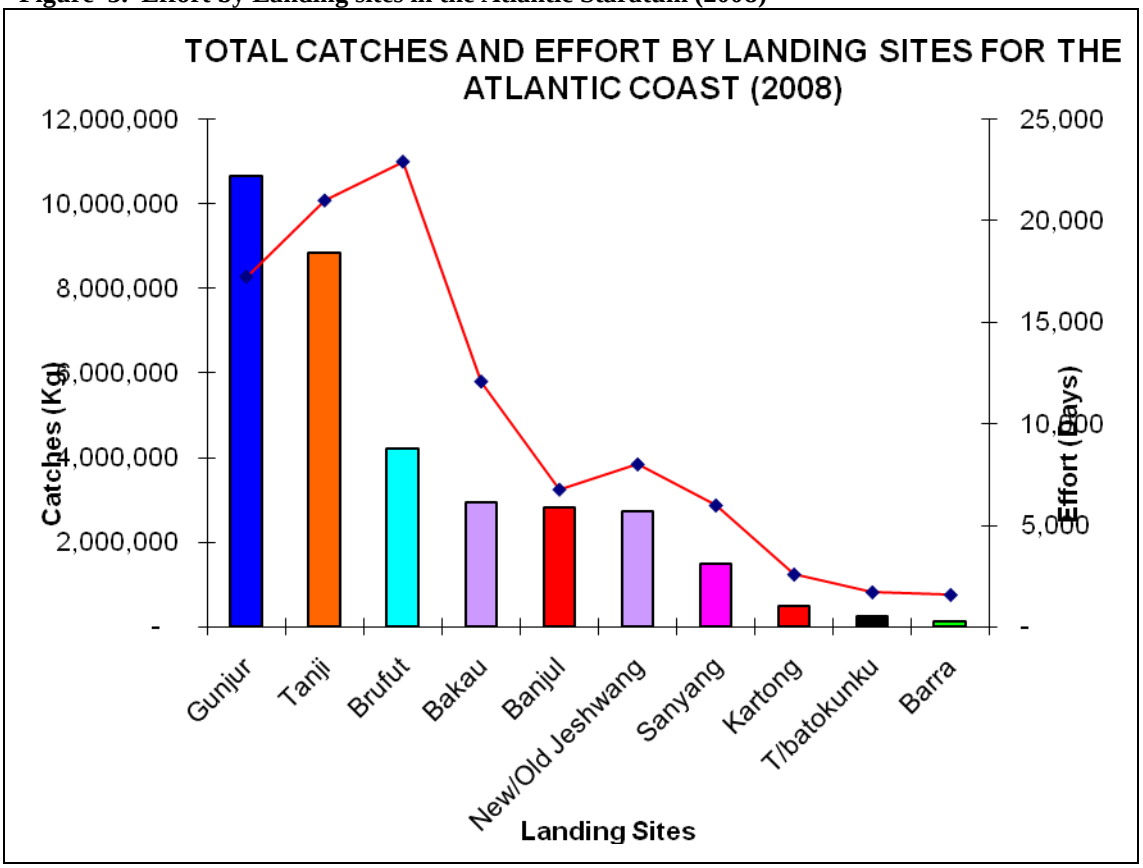
Table 3. Total Catches and Number of Boating Days (Trips) by Landing Sites (2008)

Startum/Landing Sites	Total Catches Kilogram	% of Total Catches %	Effort (Total Boating Days) Days	% of Total Effort %	Catch Per Unit Effort Kilogram
Atlantic Coast	**34,464,094**	**80.4**	**99,650**	**42.8**	**346**
Gunjur	10,641,383	24.8	17,216	7.4	618
Tanji	8,835,340	20.6	20,965	9.0	421
Brufut	4,211,604	9.8	22,872	9.8	184
Bakau	2,924,232	6.8	12,062	5.2	242
Banjul	2,815,055	6.6	6,746	2.9	417
New/Old Jeshwang	2,727,828	6.4	7,986	3.4	342
Sanyang	1,477,607	3.4	5,967	2.6	248
Kartong	480,518	1.1	2,570	1.1	187
T/batokunku	231,719	0.5	1,697	0.7	137
Barra	119,374	0.3	1,568	0.7	76
Inland Stratum	**8,377,168**	**19.6**	**133,150**	**57.2**	**63**
Upper R. South Bank	3,416,695	9.7	32,469	13.9	128
Lower R. South Bank	3,940,793	7.5	68,967	29.6	47
Lower R. North Bank	802,565	1.8	28,559	12.3	26
Upper R. North Bank	217,115	0.6	3,155	1.4	83
Total All Startums	**42,841,265**	**100.0**	**232,800**	**100.0**	**184**

Total inland fisheries production in 2008 was estimated at about 8 400 tonnes and the total effort put in by the fishermen to catch this amount of fish was estimated at 133 150 fishing trips compared to more the productive ACS with 99 650 trips. The difference in

landings per unit effort is partly due to the efficiency of FEU being employed in fishing operations and the availability of fish. The efficiency of FEU is greater in the ACS than inland as they employ larger and better fishing gears.

Figure 3. Effort by Landing sites in the Atlantic Staratum (2008)



2.4 Catch by species

The Gambia enjoys rich and diverse species harvested by multi-gear fishing industry. The artisanal fishing industry targets all fish stocks in all the four fish groups: demersals, small pelagics, cephalopods and crustaceans, table 4. *Ethmalosa fimbriata* (Bonga/Shad), an estuarine species constitutes the bulk (nearly 12 000 tonnes) of total fish landed in 2008. Individually, the flat and more coastal sardinella (*Sardinella* madeirensis) and rough head sea catfish featured prominently in landings the same year. Table 4 below gives total catches by species and region. Overall, the Atlantic continues to dominate total artisanal fisheries production contributing over 80 percent in 2008. The sardinella fishery has become very important in terms of landing and usage in the country. Catfish is highly sought due to its lucrative market in Europe and the USA.

Table 4: Gives total catch by species and fishery region

Species	Fishery Region:					
	Atlantic Coast	Lower R. North Bank	Upper R. North Bank	Lower R. South Bank	Upper R. South Bank	Total
	Total Catches (Kg)					
Shad/Bonga	11,568,266	163,055	-	12,244	-	**11,743,564**
Long Neck Croaker	59,882	12,568	-	630	-	**73,080**
Madeiran Sardinella	4,757,158	930	-	989	-	**4,759,077**
Cassava Croaker	2,158,599	16,167	-	25,303	-	**2,200,070**
Bobo Croaker	133,196	54,367	-	208,989	-	**396,451**
Meagre	12,766	-	-	-	-	**12,766**
Canary drum	-	-	-	499	-	**500**
Rubberlip Grunt	189,246	3,397	-	-	-	**192,642**
Sompat Grunt	1,488,230	12,146	-	40,632	-	**1,541,008**
Round Sardinella	2,315,392	-	-	-	-	**2,315,392**
Bastard grunt	2,008	-	-	-	-	**2,008**
Pigsnout grunt	1,722	-	-	-	-	**1,722**
Gorean Snapper	9,517	-	-	-	-	**9,517**
African Red Snapper	524,648	1,577	-	-	-	**526,225**
African forktail Snapper	453	-	-	-	-	**453**
Golden african Snapper	63,956	-	-	-	-	**63,956**
White Grouper	74,091	299	-	-	-	**74,390**
Dusky Grouper	75,124	-	-	-	-	**75,124**
Dog tooth grouper	-	804	-	-	-	**804**
Royal Threadfin	19,414	1,946	-	130,978	-	**152,338**
Giant African threadfins	176,711	79,442	-	780,043	-	**1,036,196**
Lesser African Threadfins	414,458	787	-	9,691	-	**424,936**
Rough head sea catfish	2,872,365	70,938	-	444,782	-	**3,388,087**
Smooth mouth sea catfish	132,648	2,344	-	-	-	**134,992**
Atlantic Horse Mackerel	325,580	-	-	-	-	**325,580**
Cuene Horse Mackerel	827	-	-	-	-	**827**
Alexandria pompano	424,919	-	-	-	-	**424,919**
Pompano	1,795	-	-	-	-	**1,795**
Leerfish	-	2,776	-	-	-	**2,776**
Blue runner	203,293	12,528	-	48,886	-	**264,707**
Cravelle jack	362,020	5,150	-	8,294	-	**375,464**
False scad	404,275	-	-	-	-	**404,275**

Table 4 continues

Species	Fishery Region:					
	Atlantic Coast	Lower R. North Bank	Upper R. North Bank	Lower R. South Bank	Upper R. South Bank	Total
	Total Catches (Kg)					
Guinean Barracuda	3,532	770	-	-	-	**4,303**
Great Barracuda	300,967	4,941	-	9,249	-	**315,158**
Guachanche Barracuda	14,235	232	-	95	-	**14,562**
Grooved mullet	9,159	3,088	-	-	-	**12,247**
Banana mullet	3,171	-	-	585	-	**3,756**
Leaping African mullet	207,399	87,215	-	236,501	-	**531,115**
Curema mullet	18,411	43	-	3,066	-	**21,520**
Wahoo	2,499	-	-	-	-	**2,499**
Club mackerel	19,135	-	-	-	-	**19,135**
West African Spanish Mackerel	77,135	-	-	-	-	**77,135**
Africana sicklefish	237,164	12,548	-	7,160	-	**256,873**
Butterfish	357,225	7,076	-	514	-	**364,815**
West African ladyfish	907,843	60	-	8,504	-	**916,407**
Senegalese ladyfish	24,276	-	-	-	-	**24,276**
Senegal seabream	10,690	242	-	-	-	**10,933**
Common two- banded seabream	1,142	-	-	-	-	**1,142**
Nigerian touquesole	3,933	-	-	-	-	**3,933**
senegalese tonquesole	137,878	3,586	-	26,861	-	**168,325**
Wedge sole	39,013	133	-	1,201	-	**40,348**
Bastard sole	-	100	-	-	-	**100**
Senegalese sole	571,348	17,412	-	64,110	-	**652,770**
Bluespotted triggerfish	421	-	-	-	-	**421**
Bonefish	24,149	2,195	-	-	-	**26,344**
Largehead hairtail	113,437	448	-	455,871	-	**569,756**
Guinean parrotfish	1	-	-	-	-	**1**
West African goatfish	97	-	-	-	-	**97**
Prickly puffer	36,335	-	-	24,988	-	**61,323**
Smooth puffer	70,793	33	-	33,387	-	**104,213**
Atlantic Lizardfish	4,418	-	-	-	-	**4,418**
Bluntnose lizardfish	828	-	-	-	-	**828**
Guinean stripped mojarra	507	-	-	-	-	**507**

Table 4 continues

Species	Fishery Region:					
	Atlantic Coast	Lower R. North Bank	Upper R. North Bank	Lower R. South Bank	Upper R. South Bank	Total
	Total Catches (Kg)					
John dory	102,083	-	-	-	-	**102,083**
Pink shrimp (Southern)	614,368	88,875	-	929,358	-	**1,632,601**
Striped shrimp	8	-	-	-	-	**8**
African spider shrimp	22,854	20,222	-	-	-	**43,076**
Pink spiny lobster	27,094	598	-	-	-	**27,691**
Royal spiny lobster	8,152	2,152	-	-	-	**10,303**
Common cuttlefish	498,267	25,119	-	24,834	-	**548,221**
Common cuttlefish	-	50	-	-	-	**50**
Elegant Cuttlefish	30,697	-	-	24,321	-	**55,017**
Blacktip shark	103,643	1,594	-	-	-	**105,236**
Milk shark	113,758	531	-	-	-	**114,289**
Nurse shark	1,283	-	-	-	-	**1,283**
Scalloped hammerhead	29	-	-	-	-	**29**
Great hammerhead	21	-	-	-	-	**21**
Gulper shark	15,531	-	-	-	-	**15,531**
Lowfin gulper shark	19,701	-	-	-	-	**19,701**
Kitefin shark	220	-	-	-	-	**220**
Daisy stingray	59,610	-	-	-	-	**59,610**
Marbled stingray	25,369	-	-	-	-	**25,369**
Common stringray	36	-	-	-	-	**36**
White skate	26,113	-	-	-	-	**26,113**
Whitespotted guitarfish	47,266	2,557	-	-	-	**49,823**
Blackchin guitarfish	1,252	209	-	-	-	**1,461**
Lsuitanian cownose ray	34,552	16,031	-	1,490	-	**52,074**
Sea Snail	575,345	15,639	-	292	-	**591,276**
Captain Fish	53	-	-	-	-	**53**
Tilapia	85,756	43,588	-	201,165	746,446	**1,076,954**
Kono Kono	-	332	172,858	-	462,653	**635,843**
Trippo	-	-	14,638	-	3,146	**17,784**
Kokolibo	-	2,125	705	-	1,280	**4,111**
Lamba Ceesay	-	-	-	-	6,560	**6,560**

Table 4 continues

Species	Fishery Region:					
	Atlantic Coast	Lower R. North Bank	Upper R. North Bank	Lower R. South Bank	Upper R. South Bank	Total
	Total Catches (Kg)					
Nalo	-	-	-	-	85,047	**85,047**
Kosso	-	365	-	167,777	679,681	**847,823**
Sanko	-	1,335	883	-	34,643	**36,861**
Kokriko	-	-	65,193	-	9,532	**74,725**
Taro	-	-	142	-	151,391	**151,533**
Kulundomo	-	-	71	-	7,959	**8,030**
Sokoro	-	-	-	-	14,417	**14,417**
Sayewo	-	-	-	-	159,111	**159,110**
Walinyaba	-	-	-	-	724,022	**724,022**
Tingo	-	-	-	-	311,050	**311,049**
Fantango	-	-	-	-	12,425	**12,425**
Ribon Fish	263	-	-	-	-	**263**
Doctor Fish	6,089	-	-	-	7,335	**13,424**
Gonda	1,569	-	-	-	-	**1,569**
Lagoon land crab	331	-	-	-	-	**331**
Spinous spider	964	-	-	-	-	**964**
Swim crabs	24,333	-	-	4,179	-	**28,512**
Red swim crabs	9,641	-	-	1,386	-	**11,027**
Wrinkle swim crab	773	-	-	2,037	-	**2,810**
Total	**34,426,719**	**802,565**	**254,490**	**3,940,793**	**3,416,695**	**42,841,265**

2.5 Catch distribution (monthly)

Distribution of catch over the 12 months period shows a fluctuation in catch rates, figure 4. Total production was highest in the second half of 2008, the highest peak was attained in June followed by October. It could also be observed from the figure below that effort used in extracting fisheries resources did not commensurate with the catch; effort exceeded catch except for June and October where there was good return on effort. The amount of fish caught depends on several factors including the physical environment, abundance and distribution of fish. Until an exhaustive study on abundance and distribution is conducted, it will be speculative to attribute the variation in fish catch to any factor.

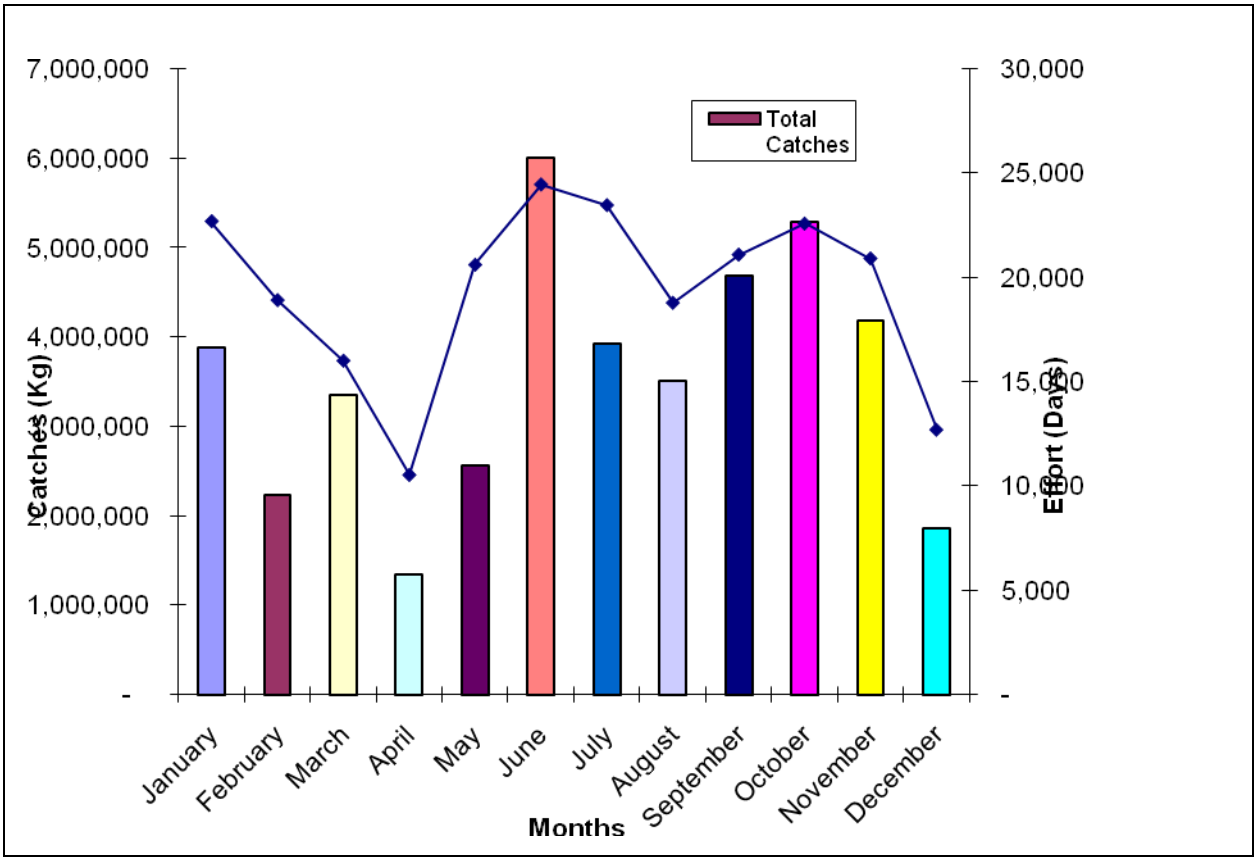


Figure 4: Monthly catches and effort

2.6 Monthly fish production

Table 5 presents catch by species and month. Over time, an indication of probable seasonal abundance and availability of certain fish species will be discernible. For example, it could be observed from the table that bonga landings were highest during the first and third quarters of 2008; if this trend continued for a number of years then it will be prudent to attribute high catches of this species to these periods. It is imperative to note that intensity of fishing operations targeting certain species are dictated by economics (demand and supply). Changes in fishing strategies either because of abundance and catch ability of target species or for economic reasons affect catch level of other species too. Refer to the table for information regarding species of choice with regard landings over the twelve months period.

Table 5: Total catches by species by month in Kilogram

Species	Total Catches by Months (Kilogram)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Shad/Bonga	1,840,500	816,904	1,436,148	192,256	460,256	851,699	630,954	1,294,954	1,285,695	1,388,280	869,408	676,509	**11,743,564**
Long Neck Croaker	2,143	2,726	1,395	2,175	3,353	2,420	4,086	7,811	13,932	19,845	13,051	143	**73,080**
Madeiran Sardinella	385,791	45,402	542,506	49	1,681	1,630,956	705,727	543,776	177,489	721,779	3,525	396	**4,759,077**
Cassava Croaker	50,058	36,313	74,875	46,143	132,140	21,868	61,146	46,775	450,470	631,549	566,882	81,849	**2,200,070**
Bobo Croaker	9,509	15,999	10,624	8,527	26,616	70,581	35,752	27,524	34,393	98,614	35,530	22,783	**396,451**
Meagre	-	-	-	38	25	414	-	276	9,026	-	-	2,988	**12,766**
Canary drum	-	-	-	-	-	-	-	-	500	-	-	-	**500**
Rubberlip Grunt	4,776	4,448	25,277	10,639	4,957	14,085	14,153	7,825	34,416	26,315	34,286	11,466	**192,642**
Sompat Grunt	19,655	21,209	231,605	27,577	87,515	69,856	69,826	219,037	202,243	343,664	224,322	24,500	**1,541,008**
Round Sardinella	335,443	222,307	5,997	235,339	527,677	527,683	5	-	-	-	233,053	227,887	**2,315,392**
Bastard grunt	-	-	-	-	-	-	-	-	-	2,008	-	-	**2,008**
Pigsnout grunt	-	-	-	-	-	-	1,722	-	-	-	-	-	**1,722**
Gorean Snapper	-	-	-	-	-	-	-	-	491	-	9,026	-	**9,517**
African Red Snapper	1,033	1,934	437	4,987	2,219	22,083	36,215	82,277	106,085	142,833	124,844	1,279	**526,225**
African forktail Snapper	-	-	-	-	-	-	-	-	-	-	226	226	**453**
Golden african Snapper	-	-	-	-	-	-	-	-	-	63,956	-	-	**63,956**
White Grouper	1,743	2,582	2,236	4,281	3,133	15,709	5,568	8,558	3,604	5,212	9,429	12,335	**74,390**
Dusky Grouper	2,277	2,368	-	10,313	4,659	-	24,095	912	122	12,761	8,825	8,792	**75,124**
Dog tooth grouper	-	-	-	-	-	-	-	-	-	804	-	-	**804**
Royal Threadfin	61,151	2,896	61,862	89	4,858	268	2,845	230	1,690	11,248	1,921	3,278	**152,338**
Giant African threadfins	34,018	29,597	19,886	15,823	21,467	91,856	34,333	42,968	220,587	348,704	131,606	45,351	**1,036,196**
Lesser African Threadfins	32,714	28,848	41,306	21,666	16,605	45,980	44,751	45,477	27,911	45,809	46,309	27,561	**424,936**
Rough head sea catfish	139,029	104,301	146,223	69,824	201,659	1,568,144	345,627	131,944	142,252	202,517	175,948	160,618	**3,388,087**

Species	Total Catches by Months (Kilogram)												
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
Smooth mouth sea catfish	36	-	-	-	-	-	-	-	-	48,849	86,107	-	**134,992**
Atlantic Horse Mackerel	25,568	69,091	29,774	9,115	23,569	8,678	10,191	56,330	12,413	36,799	22,139	21,913	**325,580**
Cuene Horse Mackerel	-	-	-	-	-	-	-	-	-	556	271	-	**827**
Alexandria pompano	-	30	67,526	-	-	-	985	70,094	66,992	151,319	67,972	-	**424,919**
Pompano	-	-	-	-	-	-	-	-	1,795	-	-	-	**1,795**
Leerfish	631	395	-	-	897	-	-	-	-	-	853	-	**2,776**
Blue runner	1,342	347	4,141	3,736	6,300	44,453	36,171	35,224	28,426	40,754	58,187	5,626	**264,707**
Cravelle jack	19,597	2,368	72,351	2,386	1,384	69,503	5,260	79,562	5,902	93,526	22,967	658	**375,464**
False scad	-	-	5,863	-	-	20,683	17,278	84,071	70,919	71,693	133,768	-	**404,275**
Guinean Barracuda	1,439	-	-	-	15	-	1,340	1,159	-	-	350	-	**4,303**
Great Barracuda	26,066	60,321	15,266	4,610	7,721	21,968	44,090	6,525	48,265	37,525	35,701	7,099	**315,158**
Guachanche Barracuda	-	95	100	-	-	-	-	133	-	14,184	-	51	**14,562**
Grooved mullet	-	-	-	-	-	-	-	8,081	3,907	-	129	129	**12,247**
Banana mullet	-	-	-	-	-	-	774	-	-	585	2,397	-	**3,756**
Leaping African mullet	4,738	14,358	20,009	346	56,514	16,889	54,130	109,966	85,534	38,874	114,193	15,563	**531,115**
Curema mullet	-	-	-	-	4	18,431	19	-	-	3,066	-	-	**21,520**
Wahoo	-	-	-	-	-	-	2,499	-	-	-	-	-	**2,499**
Club mackerel	-	-	-	-	-	17,746	-	-	-	-	-	1,388	**19,135**
West African Spanish Mackerel	7,844	-	690	-	-	4,517	38,551	255	-	-	23,614	1,665	**77,135**
Africana sicklefish	18,040	9,214	3,254	14,440	20,209	16,151	18,113	34,203	27,849	29,848	51,003	14,549	**256,873**
Butterfish	7,663	12,654	24,203	9,169	13,285	37,812	20,320	72,422	45,856	53,148	53,294	14,989	**364,815**
West African ladyfish	31,112	20,936	61,105	33,131	24,817	48,518	28,938	37,417	279,963	98,162	187,740	64,567	**916,407**
Senegalese ladyfish	-	-	-	-	-	-	-	-	-	-	24,276	-	**24,276**

Table 5 continued

Species	Total Catches by Months (Kilogram)												
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
Senegal seabream	-	-	-	-	-	10,933	-	-	-	-	-	-	**10,933**
Common two- banded seabream	-	-	-	-	-	-	-	-	-	-	1,142	-	**1,142**
Nigerian touquesole	-	-	-	-	-	3,933	-	-	-	-	-	-	**3,933**
senegalese tonquesole	11,122	1,941	6,824	711	11,026	105,300	44	-	-	-	787	30,568	**168,325**
Wedge sole	-	133	14,264	5,092	-	-	-	-	6,311	6,311	3,716	4,521	**40,348**
Bastard sole	-	-	-	-	-	-	-	-	-	-	100	-	**100**
Senegalese sole	31,210	37,003	54,718	82,615	84,675	56,769	60,777	60,794	44,433	52,715	36,346	50,715	**652,770**
Bluespotted triggerfish	-	-	-	-	-	-	-	-	-	229	192	-	**421**
Bonefish	2,229	984	199	2,189	3,522	933	1,402	3,575	359	1,340	934	8,677	**26,344**
Largehead hairtail	5,256	6,370	-	1,689	2,396	4,898	3,749	-	3,702	75,481	464,923	1,293	**569,756**
Guinean parrotfish	-	-	-	-	-	1	-	-	-	-	-	-	**1**
West African goatfish	-	-	-	-	-	-	-	97	-	-	-	-	**97**
Prickly puffer	12,522	1,864	777	1,194	583	28,300	226	26	8,040	777	1,194	5,822	**61,323**
Smooth puffer	18,636	22,656	-	4,691	25,640	2,207	21,868	2,043	-	-	66	6,406	**104,213**
Atlantic Lizardfish	33	90	-	267	4,029	-	-	-	-	-	-	-	**4,418**
Bluntnose lizardfish	-	-	-	-	828	-	-	-	-	-	-	-	**828**
Guinean stripped mojarra	-	-	-	-	-	-	-	-	-	-	507	-	**507**
John dory	-	-	25,521	-	-	-	-	-	25,521	25,521	25,521	-	**102,083**
Pink shrimp (Southern)	375,324	132,775	108,797	85,441	193,458	142,085	118,214	220,398	163,933	17,938	23,189	51,049	**1,632,601**
Striped shrimp	-	-	-	-	8	-	-	-	-	-	-	-	**8**
African spider shrimp	-	-	-	-	-	-	-	-	-	20,222	22,854	-	**43,076**
Pink spiny lobster	1,334	606	335	851	997	13,637	-	457	1,349	1,906	3,629	2,591	**27,691**
Royal spiny lobster	68	-	-	-	-	68	488	4,577	1,931	352	1,800	1,019	**10,303**

Table 5 continued

Species	Total Catches by Months (Kilogram)												
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
Common cuttlefish	49,130	52,749	64,123	22,113	58,526	67,180	95,485	46,948	18,458	8,632	13,533	51,344	**548,221**
Common cuttlefish	-	50	-	-	-	-	-	-	-	-	-	-	**50**
Elegant Cuttlefish	3,185	4,434	530	24,801	647	-	12,354	-	-	-	9,067	-	**55,017**
Blacktip shark	18,312	10,571	8,150	2,287	4,697	26,960	234	2,962	19,175	3,574	1,484	6,831	**105,236**
Milk shark	-	2,971	3,215	4,170	72,131	10	496	417	5,986	820	2,729	21,344	**114,289**
Nurse shark	-	-	-	-	-	-	-	13	-	-	1,270	-	**1,283**
Scalloped hammerhead	-	-	-	-	-	-	-	-	29	-	-	-	**29**
Great hammerhead	-	-	-	-	1	-	-	15	-	-	-	5	**21**
Gulper shark	-	-	-	-	-	-	-	-	-	10,603	2,464	2,464	**15,531**
Lowfin gulper shark	-	-	1,264	-	-	-	5,593	11,301	-	-	-	1,543	**19,701**
Kitefin shark	-	-	156	-	-	-	-	64	-	-	-	-	**220**
Daisy stingray	398	14	805	805	65	19,473	-	-	33,053	-	-	4,997	**59,610**
Marbled stingray	389	15,262	-	3,682	4,894	-	-	-	-	-	1,143	-	**25,369**
Common stringray	-	-	-	-	-	-	-	-	36	-	-	-	**36**
White skate	335	-	-	-	8,943	-	1,197	5,835	-	-	-	9,803	**26,113**
Whitespotted guitarfish	3,232	1,654	1,717	3,013	1,307	1,362	-	-	35,397	-	2,139	-	**49,823**
Blackchin guiterfish	-	-	-	-	-	-	1,061	-	190	209	-	-	**1,461**
Lsuitanian cownose ray	1,733	1,165	-	416	2,318	2,308	4,378	4,952	2,753	30,661	1,155	234	**52,074**
Sea Snail	21,043	15,253	18,695	39,489	156,404	74,144	54,229	13,914	125,746	15,484	13,275	43,601	**591,276**
Captain Fish	-	-	-	-	-	-	-	53	-	-	-	-	**53**
Tilapia	71,994	128,076	36,265	77,443	66,239	70,845	330,257	22,409	183,809	85,712	963	2,943	**1,076,954**
Kono Kono	43,416	88,132	20,068	53,688	40,169	13,864	193,653	13,851	103,930	5,627	21,691	37,755	**635,843**
Trippo	528	2,151	474	2,116	1,518	2,408	1,596	709	2,219	-	-	4,065	**17,784**

Table 5 continued

Species	Total Catches by Months (Kilogram)												
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
Kokolibo	-	-	-	27	382	1,101	1,069	184	427	854	-	66	**4,111**
Lamba Ceesay	158	174	237	158	63	1,581	838	300	901	1,549	435	166	**6,560**
Nalo	-	-	-	-	12,014	1,359	-	-	71,673	-	-	-	**85,047**
Kosso	54,245	67,935	18,171	65,200	51,376	48,131	232,188	7,438	126,338	86,937	59,919	29,946	**847,823**
Sanko	2,329	6,339	1,488	5,370	1,646	943	558	100	5,064	4,309	8,378	337	**36,861**
Kokriko	13,552	63	20,827	1,330	7,780	1,831	2,470	13,806	4,822	2,847	1,291	4,106	**74,725**
Taro	1,747	648	324	1,747	2,838	4,948	138,154	416	664	-	47	-	**151,533**
Kulundomo	1,217	395	-	1,217	411	1,470	1,130	-	1,770	-	419	-	**8,030**
Sokoro	2,166	3,573	1,344	2,166	846	1,454	1,375	119	-	632	743	-	**14,417**
Sayewo	332	411	-	332	-	-	86,217	-	70,780	169	869	-	**159,110**
Walinyaba	48,807	60,442	34,319	90,817	55,170	38,437	126,535	-	146,382	42,144	80,969	-	**724,022**
Tingo	20,218	31,371	-	30,984	16,338	-	125,263	541	86,335	-	-	-	**311,049**
Fantango	585	2,980	316	585	3,826	609	743	1,130	1,257	-	-	395	**12,425**
Ribon Fish	-	132	-	-	-	-	132	-	-	-	-	-	**263**
Doctor Fish	37	159	-	975	8,192	-	28	555	223	3,234	20	-	**13,424**
Gonda	308	514	-	-	-	-	-	-	746	-	-	-	**1,569**
Lagoon land crab	-	-	-	-	-	-	-	-	331	-	-	-	**331**
Spinous spider	-	-	-	-	-	-	-	-	-	964	-	-	**964**
Swim crabs	138	1,365	-	13	-	1,935	2,884	7,915	-	-	508	13,755	**28,512**
Red swim crabs	-	267	696	1,850	7,291	45	370	507	-	-	-	-	**11,027**
Wrinkle swim crab	-	-	-	-	-	-	-	-	-	2,189	620	-	**2,810**
Total	**3,881,185**	**2,231,314**	**3,349,278**	**1,348,192**	**2,566,725**	**6,010,410**	**3,922,720**	**3,504,207**	**4,692,799**	**5,294,730**	**4,185,182**	**1,854,522**	**42,841,265**

2.7 Artisanal fishing gears

Artisanal fishing industry is multi-gear in nature. The gear use depends mainly on the target species. The manner in which a fishing gear is set and operated usually indicates the type of species being targeted. Surround gillnet target small pelagic fish, particularly bonga, an estuarine species while Set/bottom gillnet target a wide range of demersal and sub-demersal fish species. In terms of contribution to total fish landings, the three most important fishing gears in 2008 were Set/bottom gillnet, purse seine and encircling/surround gillnet (Table 6 and Figure 5). The two fishing gears have contributed more than 26 000 tonnes of fish to the total national artisanal production. Comparing all fishing gears used in 2008, encircling/surround gillnet was found to be more efficient with an average catch rate 470 kg/fishing trip.

The effort employed by surround gillnet operators in the fishery in 2008 to land nearly 12 000 tonnes of bonga have produced higher catch rate (470 Kg/fishing trip) than any other fishing gear including bottom gillnet. Bonga, the target species for surround gillnet operators seems more accessible and abundant than species targeted by bottom gillnet. Although both gears are operated all year round, the amount of fish caught depends on the abundance and availability of target fish species and these may have some bearing with seasons.

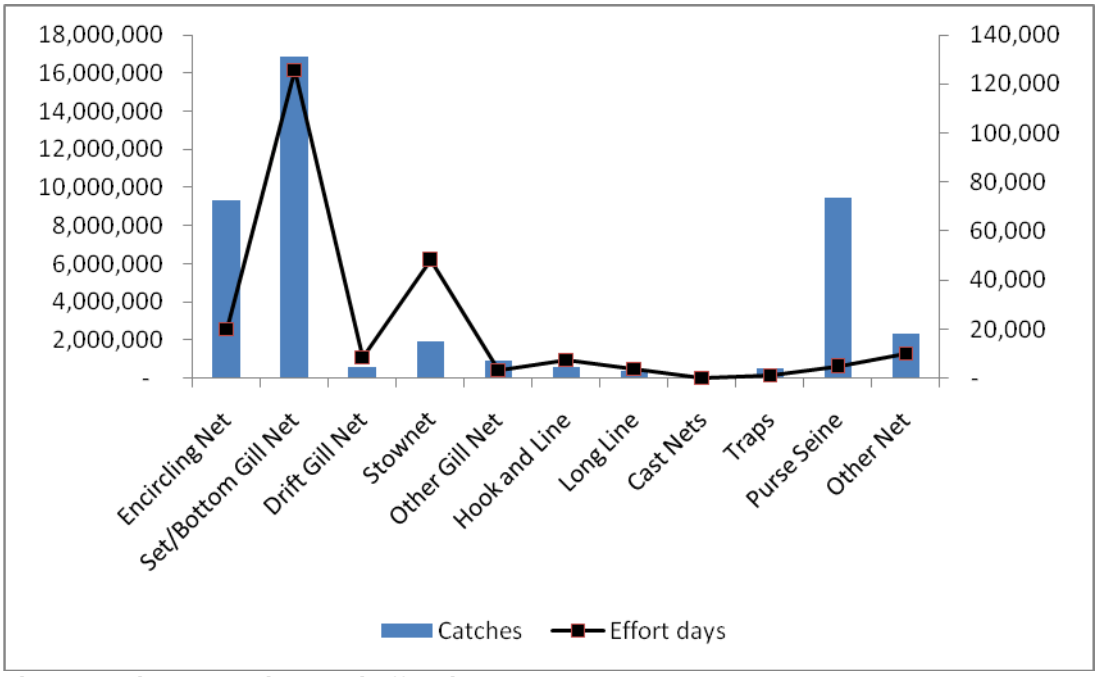


Figure 5: shows catches and effort by gear type

Purse seine nets becoming very much important in terms total landings of the two sardinella species (*Sardinella aurita* and *Sardinella maderensis*) estimated at 7 064 tonnes.

Table 6: Shows total catch by gear type

Species	Total Catches by Type of Gear Used (Kilogram)											
	Encircling Net	Set/Bottom Gill Net	Drift Gill Net	Stownet	Other Gill Net	Hook and Line	Long Line	Cast Nets	Traps	Purse Seine	Other Net	Total
Shad/Bonga	8,739,584	549,323	15	9,438						2,445,220		**11,743,564**
Long Neck Croaker	315	67,280	498	2,799		1,622	564					**73,080**
Madeiran Sardinella	357,481	32,223	210	332	672,446					3,696,476		**4,759,077**
Cassava Croaker	2,291	2,130,834	15,447	5,220		37,448	8,796				33	**2,200,070**
Bobo Croaker	1,225	285,514	4,759	86,070		18,150			63		670	**396,451**
Meagre		12,719				47						**12,766**
Canary drum		237	262									**500**
Rubberlip Grunt	59	184,694		588	5,263	1,262					776	**192,642**
Sompat Grunt	48,391	474,484		11,800		3,240				1,003,092		**1,541,008**
Round Sardinella	6,019	527								2,308,856		**2,315,392**
Bastard grunt		2,008										**2,008**
Pigsnout grunt		1,722										**1,722**
Gorean Snapper		9,517										**9,517**
African Red Snapper	280	524,099		1,411		435						**526,225**
African forktail Snapper		453										**453**
Golden african Snapper		63,956										**63,956**
White Grouper		73,187			120	1,082						**74,390**
Dusky Grouper		74,608				516						**75,124**
Dog tooth grouper		804										**804**
Royal Threadfin	1,577	19,305	80,256	9,033		359	41,808					**152,338**

Table 6 continued

Species	Total Catches by Type of Gear Used (Kilogram)											
	Encirclin g Net	Set/Botto m Gill Net	Drift Gill Net	Stownet	Other Gill Net	Hook and Line	Long Line	Cast Nets	Traps	Purse Seine	Other Net	Total
Giant African threadfins	697	602,218	307,624	8,687		116,074	830				66	**1,036,196**
Lesser African Threadfins	53,694	338,563		1,295	1,191	6,458					23,734	**424,936**
Rough head sea catfish	8,660	1,681,437	5,034	64,607		111,420	161,883				1,355,045	**3,388,087**
Smooth mouth sea catfish		132,180		366	2,392	54						**134,992**
Atlantic Horse Mackerel	76,931	247,923		88		64					574	**325,580**
Cuene Horse Mackerel		827										**827**
Alexandria pompano		22,403				565					401,952	**424,919**
Pompano		1,795										**1,795**
Leerfish				2,776								**2,776**
Blue runner	182	250,806	1,890	11,152	632	45						**264,707**
Cravelle jack	17	71,634		3,639		313					299,862	**375,464**
False scad		398,413				5,863						**404,275**
Guinean Barracuda		923		671		29					2,680	**4,303**
Great Barracuda	739	242,703		11,483	5,347	2,210					52,675	**315,158**
Guachanche Barracuda		14,429		133								**14,562**
Grooved mullet		12,228		19								**12,247**
Banana mullet		3,756										**3,756**
Leaping African mullet	3,879	292,946	36,136	195,631	96	131		33	1,897		365	**531,115**
Curema mullet		18,396		3,109		15						**21,520**
Wahoo		2,499										**2,499**

Table 6 continued

Species	Total Catches by Type of Gear Used (Kilogram)											
	Encirclin g Net	Set/Botto m Gill Net	Drift Gill Net	Stownet	Other Gill Net	Hook and Line	Long Line	Cast Nets	Traps	Purse Seine	Other Net	Total
Club mackerel		18,698				437						**19,135**
West African Spanish Mackerel	5,590	67,872			2,954	719						**77,135**
Africana sicklefish	537	228,741	4,242	14,837		1,849		66			6,602	**256,873**
Butterfish	2,211	311,786		3,742		181					46,894	**364,815**
West African ladyfish	3,657	892,980	8,504	297	2,077	8,892						**916,407**
Senegalese ladyfish		24,276										**24,276**
Senegal seabream		10,690		242								**10,933**
Common two- banded seabream		1,142										**1,142**
Nigerian touquesole		3,340							593			**3,933**
senegalese tonquesole	66	142,039			25,146	1,074						**168,325**
Wedge sole		39,957		391								**40,348**
Bastard sole		100										**100**
Senegalese sole	80	592,961	12,074	36,872	6,380	2,331			2,071			**652,770**
Bluespotted triggerfish		421										**421**
Bonefish	296	25,251				697		100				**26,344**
Largehead hairtail	163	164,164		315		2			405,11 2			**569,756**
Guinean parrotfish		1										**1**
West African goatfish		97										**97**
Prickly puffer		19,850		529		40,944						**61,323**
Smooth puffer		68,122				36,091						**104,213**

Table 6 continued

Species	Total Catches by Type of Gear Used (Kilogram)											
	Encirclin g Net	Set/Botto m Gill Net	Drift Gill Net	Stownet	Other Gill Net	Hook and Line	Long Line	Cast Nets	Traps	Purse Seine	Other Net	Total
Atlantic Lizardfish		4,329				90						**4,418**
Bluntnose lizardfish		828										**828**
Guinean stripped mojarra		507										**507**
John dory											102,083	**102,083**
Pink shrimp (Southern)		8,079	49,976	1,406,549	167,882	21			94			**1,632,601**
Striped shrimp				8								**8**
African spider shrimp				22,854	20,222							**43,076**
Pink spiny lobster		27,691										**27,691**
Royal spiny lobster	137	8,015		2,152								**10,303**
Common cuttlefish		538,185		6,857		9			1,311		1,859	**548,221**
Common cuttlefish				50								**50**
Elegant Cuttlefish		55,017										**55,017**
Blacktip shark		105,051				30			156			**105,236**
Milk shark		114,113				176						**114,289**
Nurse shark		1,283										**1,283**
Scalloped hammerhead		29										**29**
Great hammerhead		21										**21**
Gulper shark		15,531										**15,531**
Lowfin gulper shark		18,354				1,346						**19,701**
Kitefin shark		220										**220**

Table 6 continued

Species	Total Catches by Type of Gear Used (Kilogram)											
	Encircling Net	Set/Bottom Gill Net	Drift Gill Net	Stownet	Other Gill Net	Hook and Line	Long Line	Cast Nets	Traps	Purse Seine	Other Net	Total
Daisy stingray		59,210				400						**59,610**
Marbled stingray		25,333				35						**25,369**
Common stringray		36										**36**
White skate		26,113										**26,113**
Whitespotted guitarfish		49,635							187			**49,823**
Blackchin guiterfish		1,061		400								**1,461**
Lsuitanian cownose ray		33,651		17,587		835						**52,074**
Sea Snail		590,105			858	32			281			**591,276**
Captain Fish		53										**53**
Tilapia	4,466	942,743	3,675	4,465		52,511		465	60,394		8,235	**1,076,954**
Kono Kono		393,512	171			90,398	150,655		1,107			**635,843**
Trippo		17,784										**17,784**
Kokolibo		2,447				668					996	**4,111**
Lamba Ceesay		6,371				190						**6,560**
Nalo		85,047										**85,047**
Kosso		810,110				37,714						**847,823**
Sanko	33	30,505	883			269			5,122		50	**36,861**
Kokriko		9,437	65,193			95						**74,725**
Taro		151,370	142			21						**151,533**
Kulundomo		7,959	71									**8,030**

Table 6 continued

Species	Total Catches by Type of Gear Used (Kilogram)											
	Encircling Net	Set/Bottom Gill Net	Drift Gill Net	Stownet	Other Gill Net	Hook and Line	Long Line	Cast Nets	Traps	Purse Seine	Other Net	Total
Sokoro		13,674							743			**14,417**
Sayewo		159,110										**159,110**
Walinyaba		724,022										**724,022**
Tingo		311,049										**311,049**
Fantango		12,030				395						**12,425**
Ribon Fish	263											**263**
Doctor Fish		13,207				216						**13,424**
Gonda		1,569										**1,569**
Lagoon land crab		331										**331**
Spinous spider		964										**964**
Swim crabs		24,333		4,179								**28,512**
Red swim crabs		9,636		1,386		5						**11,027**
Wrinkle swim crab		773		2,037								**2,810**
Total	**9,319,301**	**16,866,493**	**597,047**	**1,956,094**	**913,007**	**586,193**	**364,537**	**664**	**479,131**	**2,308,856**	**2,305,152**	**42,841,265**

In the Gambia, specialization in the use certain fishing methods/operations targeting specific fish species are not uncommon. For example, Gunjur, Tanji, Old Jeshwang and Bakau were more or less specialized in the bonga fishery (Table 7) hence the bulk of landings in these sites. In 2007, Gunjur recorded the highest bonga catch, approximately 5 000 tonnes followed by Tanji with just over 3 000 tonnes. It most be noted that all landing sites in the coast land all species either as target species or as incidental catches.

Table 7 : Total Catches by Species and Landing Sites for the Atlantic Coast Stratum (2008)

Species	Total Catches by Landing Sites (Kilogram)										
	Brufut	Kartong	New/Old Jeshwang	Sanyang	Bakau	Tanji	Banjul	Barra	T/batokunku	Gunjur	Total
Shad/Bonga	11,437	210,994	2,803,174	548,244	1,500,143	3,117,620	489,399			5,056,145	**13,737,157**
Round Sardinella				5,880	10,858	1,603,666	15,874			1,140,792	**2,777,070**
Long Neck Croaker	22,074	3,795		2,158	4,463	312	9,612			1,707	**44,122**
Madeiran Sardinella		740		5,941	18,375	1,121,131	23,583			437,293	**1,607,063**
Cassava Croaker	614,052	3,679		17,552	267,287	2,798	163,267	8,754		116,650	**1,194,041**
Bobo Croaker	531,663			15,885	12,764	41,955	-	10,114		8,554	**620,935**
Rubberlip Grunt	24,450			49,049	1,457		103,879			7,745	**186,581**
Sompat Grunt	68,531	7,626		94,493	4,576	430,000	294,869	25,455	312	252,901	**1,178,764**
Round Sardinella				1,008	449		-			1,844	**3,301**
Bigeye grunt						303	-				**303**
Gorean Snapper				508			-				**508**
African Red Snapper	20,724	59		8,786			91,382			4,501	**125,452**
White Grouper	6,084	1,215		3,415	117	88	-	5,259	195	336	**16,709**
Dusky Grouper	89,078			762	4,697		-	13,940		2,869	**111,346**
Golden Grouper		1,066					-			172	**1,238**
Royal Threadfin				1,394			-				**1,394**
Giant African threadfins	38,011	1,605			111,596	24,458	37,695	8,143	688	26,308	**248,504**
Lesser African Threadfins	33,337	2,421		159,552	132,431	69,590	156,412	5,359		31,777	**590,878**
Rough head sea catfish	680,164	37,325		124,891	199,737	154,685	295,176	8,568	32,269	1,030,344	**2,563,160**
Smooth mouth sea catfish	3,147						-				**3,147**
Atlantic Horse Mackerel		296		2,507	14,793	24,821	-			163,389	**205,806**

Contd…..

Table 7 : Total Catches by Species and Landing Sites for the Atlantic Coast Stratum (2008)

Species	Total Catches by Landing Sites (Kilogram)										
	Brufut	Kartong	New/Old Jeshwang	Anyang	Bakau	Tanji	Banjul	Barra	T/batokunku	Gunjur	Total
Alexandria pompano					262	10,681	-				**10,942**
Leerfish	818						-				**818**
Blue runner	4,140			10,593	16,836	21,038	2,829			2,093	**57,529**
Cravelle jack	133,829			4,954		256,835	-		351	136,837	**532,806**
False scad					18	1,831	116,612				**118,461**
Guinean Barracuda		161		363			-				**523**
Great Barracuda	92,651			3,648	18,658	211,579	33,164	10,434	557	245,898	**616,588**
Guachanche Barracuda	5,700						-				**5,700**
Leaping African mullet		5,048		941	11,866	2,533	763,427			2,360	**786,175**
West African Spanish Mackerel	30,205	192		85,353	45,933	87,065	3,103			154,995	**406,846**
Africana sicklefish	23,650			8,308	147,292	5,645	34,394	53,619	273	41,932	**315,113**
Butterfish		7,271		323	143,211	216,818	52,273	32,089	585	4,472	**457,042**
West African ladyfish	474,711	50,879		8,018	189,239	2,781	-	5,736		175,404	**906,767**
Canary dentex				6,558			-				**6,558**
Wedge sole		18,563			4,540		192		5,011		**28,307**
Senegalese sole	599,611	74,533		260,369	149,851		3,015		31,584	111,162	**1,230,124**
Bonefish	9,632					10,470	-				**20,101**
Largehead hairtail					7,172		-				**7,172**
Prickly puffer	10,506						-	402			**10,907**
Smooth puffer	634,715	171			25,559	1,557	14,431				**676,433**
Bluntnose lizardfish	33,379						-				**33,379**

Contd…..

Table 7: Total Catches by Species and Landing Sites for the Atlantic Coast Stratum (2008)

Species	Total Catches by Landing Sites (Kilogram)										
	Brufut	Kartong	New/Old Jeshwang	anyang	Bakau	Tanji	Banjul	Barra	T/batokunku	Gunjur	Total
Pink shrimp (Southern)							65,268		302		**65,570**
Striped shrimp							12,018				**12,018**
Pink spiny lobster							-			242	**242**
Royal spiny lobster	1,641	1,061					-			1,529	**4,232**
Mediterranean locust lobster						6,136	-				**6,136**
Common cuttlefish	241,849	25,553		212,161	7,754		-		131,918	94,104	**713,340**
Common cuttlefish				6,774			-				**6,774**
Blacktip shark	3,046					42	-			9,982	**13,070**
Milk shark		1,495					-			442	**1,937**
Lowfin gulper shark	6,584	3,190		4,962		326	-		2,325	174,133	**191,520**
Daisy stingray	6,352				69		-				**6,421**
Common stringray		445			28		-		1,769		**2,243**
White skate						101	-			15,805	**15,906**
Whitespotted guitarfish		2,674					-				**2,674**
Blackchin guitarfish	610	33,784					-				**34,394**
Lsuitanian cownose ray		7,407					-		5,774	686	**13,868**
Sea Snail	317,094	6,302		21,205	2,635	230	108,232		79,538	133,884	**669,121**
Captain Fish		3,439					-				**3,439**
Tilapia				979	21,723		82,466				**105,168**
Trippo	32,245						-				**32,245**

Contd…..

Table7 : Total Catches by Species and Landing Sites for the Atlantic Coast Stratum (2008)

Species	Total Catches by Landing Sites (Kilogram)										
	Brufut	Kartong	New/Old Jeshwang	anyang	Bakau	Tanji	Banjul	Barra	T/batokunku	Gunjur	Total
Ribon Fish						31,926	-				**31,926**
Doctor Fish	3,842				35		-				**3,876**
Spinous spider					2,137		-				**2,137**
Swim crabs	112,479			676			157			300	**113,613**
Total	4,991,776	512,991	2,803,174	1,678,212	3,078,562	7,466,895	2,972,728	187,872	293,450	9,589,588	**33,575,249**
Mormyrus						4,849	-				**4,849**
Sayewo						1,831	-				**1,831**
Ribon Fish						31,926	-				**31,926**
Doctor Fish	3,842				35		-				**3,876**
Spinous spider					2,137		-				**2,137**
Swim crabs	112,479			676			157			300	**113,613**
Others	69,734					7,876					**77,610**
Total	**4,991,776**	**512,991**	**2,803,174**	**1,678,212**	**3,078,562**	**7,466,895**	**2,972,728**	**187,872**	**293,450**	**9,589,588**	**33,575,249**

The Atlantic coast is the most productive fishery stratum in the Gambia. In the case of the inland fisheries, the South Bank of the river was the most productive in 2008. Total catch for the Upper River South Bank and Lower River South Bank were estimated at 4 500 tonnes (mainly fresh water species) and 4 000 tonnes respectively (Table 8).

Table 8 : Total Catches by Species and Landing Sites for the Inland Stratum (2008)

Species	Total Catches by Fishery Regions (Kilogram)				
	Lower R. North Bank	Upper R. North Bank	Lower R. South Bank	Upper R. South Bank	Total
Shad/Bonga	133,202		1,960	3,604	**138,766**
Round Sardinella	49				**49**
Long Neck Croaker	3,079		916		**3,995**
Madeiran Sardinella	29,169				**29,169**
Cassava Croaker	57,572		139,254		**196,826**
Bobo Croaker	68,685	69,080	73,133	28,522	**239,420**
Meagre	323				**323**
Rubberlip Grunt	2,470			119	**2,589**
Sompat Grunt	10,855				**10,855**
African Red Snapper	727				**727**
African browm Snapper		6,447			**6,447**
Royal Threadfin	26,927		740,433		**767,360**
Giant African threadfins	60,600		390,882	17,122	**468,604**
Lesser African Threadfins	16,906		293		**17,199**
Rough head sea catfish	89,821	149,546	767,899	475,131	**1,482,396**
Smooth mouth sea catfish			370		**370**
Atlantic Horse Mackerel	229				**229**
Blue runner	3,331		91	346	**3,767**
Cravelle jack	896				**896**
Guinean Barracuda	805				**805**
Great Barracuda	2,945		109,557	2,534	**115,036**

Contd…….

Table 8 : Total Catches by Species and Landing Sites for the Inland Stratum (2008)

Species	Total Catches by Fishery Regions (Kilogram)				
	Lower R. North Bank	Upper R. North Bank	Lower R. South Bank	Upper R. South Bank	Total
Guachanche Barracuda	519		31,083		**31,602**
Banana mullet	274				**274**
Leaping African mullet	32,070		31,416	398	**63,883**
Wahoo	53				**53**
Africana sicklefish	6,450		24,793		**31,243**
Butterfish	3,300		4,128		**7,428**
West African ladyfish	25,054		28,243		**53,296**
Wedge sole	268		270	2,773	**3,311**
Thickback sole			349		**349**
Senegalese sole	9,391		7,546	14,189	**31,126**
Bonefish	1,556				**1,556**
Smooth puffer	157				**157**
Pink shrimp (Southern)	114,877		1,341,198		**1,456,076**
Caramote Brown	902				**902**
Striped shrimp	13,771				**13,771**
Common cuttlefish	17,836				**17,836**
Elegant Cuttlefish				23,474	**23,474**
Blacktip shark	485		30,690		**31,175**
Milk shark	822				**822**
Brown ray	178				**178**
Whitespotted guiterfish	196				**196**

Contd…….

Table 8 : Total Catches by Species and Landing Sites for the Inland Stratum (2008)

Species	Total Catches by Fishery Regions (Kilogram)				
	Lower R. North Bank	Upper R. North Bank	Lower R. South Bank	Upper R. South Bank	Total
Blackchin guiterfish	503				**503**
Lsuitanian cownose ray	8,905		1,929		**10,833**
Sea Snail	875		8,997	5,659	**15,531**
Captain Fish	529			160	**688**
Tilapia	16,165	6,278	83,307	508,315	**614,065**
Kono Kono	102			276,719	**276,821**
Trippo				10,564	**10,564**
Lamba Ceesay				689	**689**
Mormyrus				74,805	**74,805**
Kosso	214			533,904	**534,118**
Sanko	341			14,588	**14,929**
Kokriko		43,974		922	**44,896**
Taro				1,051,808	**1,051,808**
Kululdomo				1,534	**1,534**
Sokoro				15,980	**15,980**
Sayewo				230,209	**230,209**
Walinyaba				405,030	**405,030**
Tingo				857,448	**857,448**
Fantango		1,974		9,641	**11,615**
Swim crabs			5,265		**5,265**
Red swim crabs			269		**269**
Total	**764,383**	**277,299**	**3,824,270**	**4,566,185**	**9,432,137**

2.8 Industrial Fisheries

The industrial fisheries operates in the coastal and offshore waters and is normally capital intensive. There is almost no national industrial fleet, all fishing or fish processing establishments in the Gambia have no sea-going fishing vessels. Most of fishing vessels operating in our waters came through joint venture or through fishing agreements such as the Reciprocal Maritime Fishing Agreement between the Gambia and Senegal or compensatory agreement. These foreign operated vessels do not land their catches in the country but in foreign ports. Fish production by the sub-sector was recorded by the Fisheries Observer Programme (each vessels carries an observer). Annual industrial productions were on the decline in recent years, slightly increasing in 2007 then decreasing to nearly the same level in 2006 (Figure 6). Annex 1a and 1c gives time series production figures for the industrial fisheries.

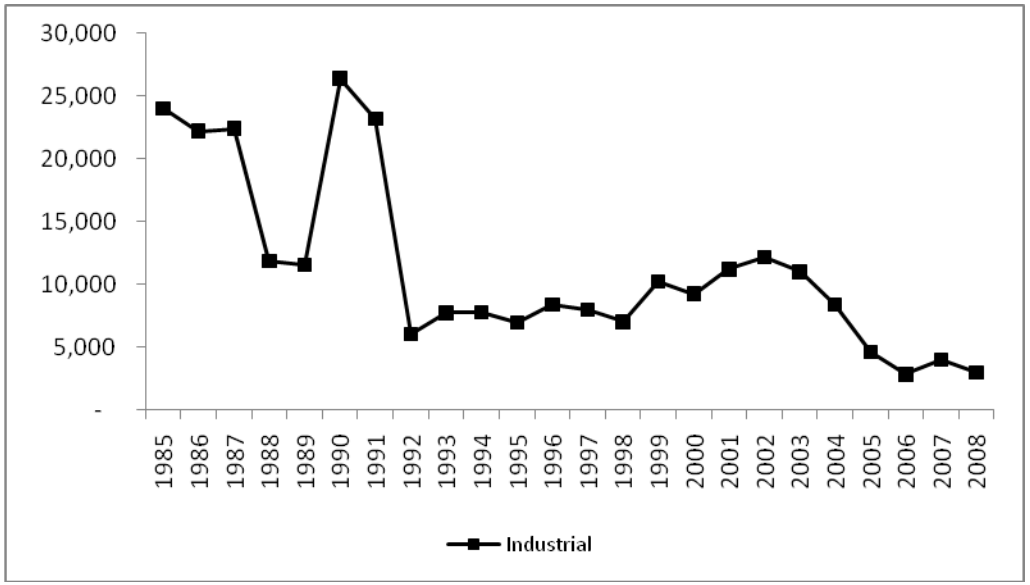


Figure 6: Total annual industrial fisheries production in metric tonnes

In 2008, industrial fisheries production was estimated at about 3 000 tonnes with the bulk of nearly 2 000 tonnes attributed to the demersal fishery including crustaceans, table 9 below. The most productive period was during the raining season (between June and September). January was the least productive and this may be due to licensing as all fishing licenses in the year issued expire in December.

Table 9: Total Industrial Catches by Months and Species (2008)

Species Group	Monthly Catches (Kg)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Shrimp	788	3,818	2,267	2,256	9,727	11,347	18,819	34,557	50,008	35,775	330	1,489	171,181
Sole Fish	5,770	16,141	17,455	5,940	4,112	2,975	28,042	24,199	26,272	15,929	1,391	19,966	168,192
Demersal	26,590	153,259	142,051	142,705	126,978	260,966	223,021	233,108	267,374	162,679	81,504	104,290	1,924,525
Cuttlefish	4,490	26,660	11,663	5,879	11,029	18,658	26,529	35,972	7,303	4,948	2,304	7,093	162,528
Octopus	360	6,738	2,580	41,411	73,154	32,835	34,978	34,161	2,203	785	410	100	229,715
Squid								24					24
Pelagics		5,807	10,404	11,157	14,062	5,835	3,773	9,539	18,393	16,156	8,499	8,667	112,292
Tuna													-
Others	9,446	23,463	22,094	14,643	9,889	16,005	13,355	18,449	22,218	39,312	7,411	9,165	205,450
Total	**47,444**	**235,886**	**208,514**	**223,991**	**248,951**	**348,621**	**348,517**	**390,009**	**393,771**	**275,584**	**101,849**	**150,770**	**2,973,907**

Industrial fishing effort is captured as fishing days or vessel days. Table 10 below gives a summary of industrial fisheries effort and catches in 2007 and 2008. This is to show changes in fishing effort over the 12 months period. In 2008, the annual average catch per unit effort was estimated at 1 698 Kg/day, slightly higher than in 2007 (1 630 Kg/day).The period with the highest catch rates was between June and September which was the most productive fishing period.

Table 10: Industrial Catches, Efforts and Catch Per Unit

Months	2007			2008			% change		
	Total Cathes Kg	Effort Days	CPUE Kg/Day	Total Cathes Kg	Effort Days	CPUE Kg/Day	Total Cathes Kg	Effort Days	CPUE Kg/Day
January	253,266	115	2,202	47,444	30	1,581	-81	-74	-28
February	326,564	157	2,080	235,886	134	1,760	-28	-15	-15
March	197,471	140	1,411	208,514	98	2,128	6	-30	51
April	193,293	111	1,741	223,991	129	1,736	16	16	0
May	211,846	119	1,780	248,951	159	1,566	18	34	-12
June	348,094	149	2,336	348,621	218	1,599	0	46	-32
July	308,328	174	1,772	348,517	213	1,636	13	22	-8
August	449,290	281	1,599	390,009	259	1,506	-13	-8	-6
September	373,313	315	1,185	393,771	208	1,893	5	-34	60
October	570,802	463	1,233	275,584	187	1,474	-52	-60	20
November	189,353	142	1,333	101,849	51	1,997	-46	-64	50
December	469,739	222	2,116	150,770	65	2,320	-68	-71	10
Total	**3,891,361**	**2,388**	**1,630**	**2,973,907**	**1,751**	**1,698**	**-24**	**-27**	**4**

2.9 Exports of Fish and Fishery Products

Exports of fish and fishery products are not stable and they constitute a small percentage of total production (artisanal plus industrial). The main supplier of export fish raw material is the artisanal fisheries. Although industrial catches are landed in foreign ports and sold as exported fish they are not reflected in trade figures as exports from the Gambia. Exports rose from 625 tonnes in 2006 to 1 480 tonnes in 2007 and 1 102 tonnes in 2008. Only 2.4 percent of total fish production was exported in 2008. Exports has been

erratic and showed irregular fluctuations punctuated by nose-dived trend after 1987 in terms of volume with the tendency to stabilizing around 2000 metric tonnes over a 12 year period, Table 11.

Table 11: Exports of Fish and Fishery Products (1984 - 2008)

Year	Production (MT)	Quantity Exported (MT)	Ratio of Export to total Production Percent	Val. (GMD)
1984	8,170	4,775	58.4*	3,525,848
1985	31,411	4,352	13.9	5,040,848
1986	32,134	5,563	17.3	6,695,965
1987	27,560	5,452	19.8	11,363,179
1988	19,088	1,068	5.6	16,028,437
1989	22,476	1,069	4.8	17,154,146
1990	37,975	1,449	3.8	31,117,402
1991	43,445	1,544	3.6	32,470,440
1992	20,094	1,061	5.3	17,602,622
1993	25,296	1,598	6.3	24,625,442
1994	27,668	1,950	7.0	30,621,122
1995	27,736	1,817	6.6	27,149,996
1996	38,882	1,543	4.0	27,271,831
1997	38,231	2,063	5.4	44,427,355
1998	33,545	1,666	5.0	33,293,225
1999	39,993	1,677	4.2	36,563,649
2000	36,104	901	2.5	32,779,477
2001	43,214	949	2.2	35,726,199
2002	44,496	932	2.1	21,334,062
2003	45,370	445	1.0	11,629,895
2004	37,692	405	1.1	7,694.241
2005	36,845	751	2.0	9,956,837
2006	39,728	625	1.6	22,837,330
2007	47,000	1,480	3.2	67,432,811
2008	45,814	1,102	2.4	46,892,582.39

CHAPTER 3
APPENDIX TABLES

Annex 1a Total Fish Catches by Artisanal and Industrial Sub-Sectors (1981-2008)

Production (MT)			
Year	**Industrial**	**Artisanal**	**Total**
1981	-	14,579	14,579
1982	-	6,209	6,209
1983	-	8,333	8,333
1984	-	8,170	8,170
1985	23,985	7,426	31,411
1986	22,225	9,909	32,134
1987	22,421	5,139	27,560
1988	11,864	7,224	19,088
1989	11,534	10,942	22,476
1990	26,401	11,573	37,975
1991	23,175	20,270	43,445
1992	6,060	14,035	20,094
1993	7,736	17,560	25,296
1994	7,752	19,917	27,668
1995	6,937	20,799	27,736
1996	8,372	30,510	38,882
1997	7,988	30,243	38,231
1998	7,012	26,533	33,545
1999	10,249	29,743	39,993
2000	9,237	26,867	36,104
2001	11,198	32,016	43,214
2002	12,160	32,336	44,496
2003	11,005	34,365	45,370
2004	8,375	29,317	37,692
2005	4,600	30,169	36,845
2006*	2,830	36,898	39,728
2007	3,891	43,007	46,898
2008	2,973	42,841	45,814

- ***Note: From 2006 the Artisanal Sector include both Marine and Inland Fishing***
- ***Industrial Fishing exclude 15 percent Discard.***