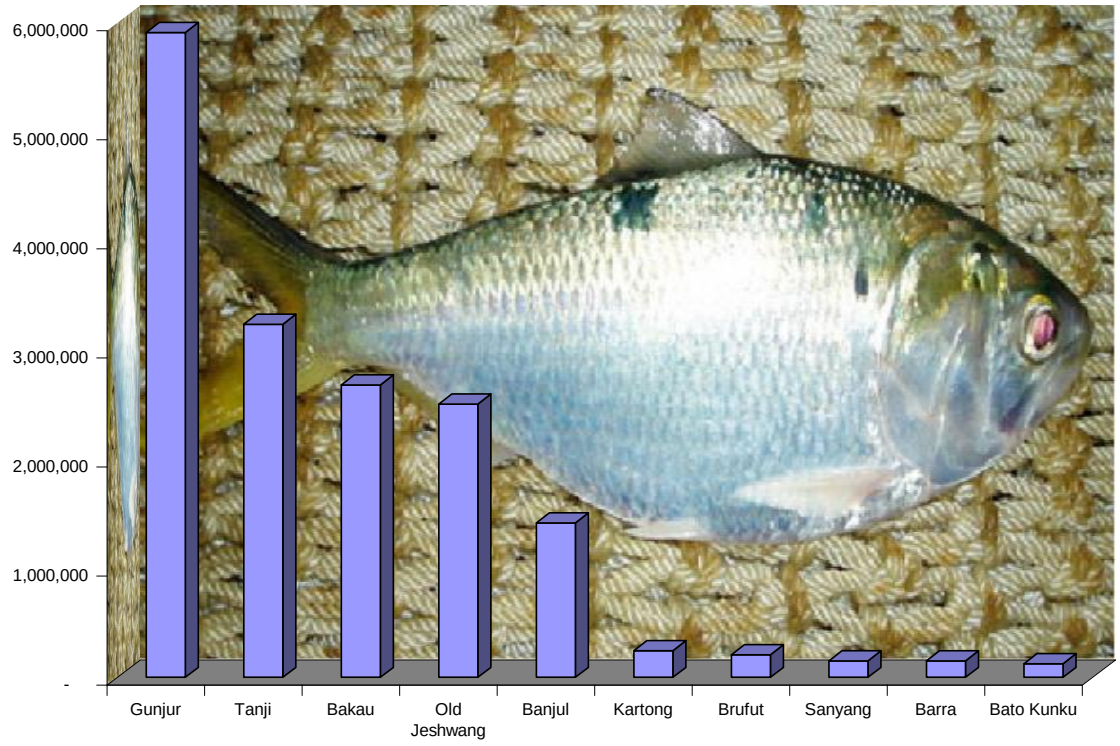
THE REPUBLIC OF THE GAMBIA

2007 CATCH ASSESSMENT SURVEY REPORT



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

Executive Summary

Fishing is an element of social, economic and cultural importance in the Gambia. Although two types of fisheries operate in the country, the artisanal fisheries sub-sector plays a very important role in providing the vital animal protein supplement to the Gambian populace and also acting as a major source of raw fish material for the fish processing establishments in the country.

It provides direct employment to 1 410 head fishermen and 4 694 fishing assistants operating from 154 landing sites in the Gambia (2006). All the 11 fish landing sites in the Atlantic Coast sampled for catch and effort data collection and for the inland (in the first stage), out of 144 landing sites 13 sample landing sites were selected from the four fisheries administrative areas. Due to human and technical limitations, some constraints were imposed on the selection of sample landing sites inland.

Total fisheries (artisanal and industrial) production in 2007 was estimated at nearly 47 000 tonnes. The coastal artisanal fisheries contributed the bulk (71.2%) of the total fisheries production in 2007 with the inland fisheries coming second with 20 percent. *Ethmalosa frimbriata* (Bonga/Shad) formed the bulk of total fisheries production in 2007 (13 876 tonnes or about 30%). Important to note is the increase in landings of sardinella species.

The total effort (fishing days or trips) of Artisanal Fishing from Atlantic Coast employed in the production of about 33 600 tonnes of fish was just under 87 000 fishing trips. The resulting catch per unit (CPU) of effort was 388 Kg/day.

The inland comprises Lower River North Bank (LRNB), Lower River South Bank (LRSB), Upper River North Bank (URNB) and Upper River South Bank (URSB). Total fish production in the inland sub-sector was estimated at just over 9 400 tonnes in 2007. The effort put into the inland fisheries in 2007 was estimated at approximately 147 000 fishing days.

Seasonal variability in fish production was observed with the highest catches in the months of March, May, September and December.

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.

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CHAPTER 1

1.1 INTRODUCTION / BACKGROUND

The Gambia lies on the coast of West of Africa between 13^0 and 14^0 latitude North (Horemans et al 1996). It is one of Africa's smallest coastal states (sea coastline: about 80 km), stretching along the banks of the River Gambia, bordered on three sides by the Republic of Senegal and on the west by the Atlantic Ocean. It is located in the highly productive upwelling zone of the Atlantic Ocean; the Canary Current Large Marine Ecosystem (CCLME) region. The country has an estimated population in 2004 of about 1.5 million.

With the assistance of FAO and UNDP, surveys of the fisheries potentials of the marine waters of The Gambia were conducted between 1964 and 1965. The survey results indicated that the country has considerable maritime 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.

The economy of The Gambia is agrarian, heavily dependent on the amount of rain falling during the wet season. After a series of drought spells in the mid 1970's and 1980's which resulted in decline in agricultural production and animal husbandry, the Government of The Gambia took the decision to turn to other economic sectors for redress (Mendy et al., 1999.). The Gambia is endowed with abundant and diverse fish species which offer great potential to make substantial contribution to its socio-economic development. This prospect underlies a rapid development and growth of the fisheries [artisanal] sector.

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.

Two types of fisheries operate in the Gambia; small scale (artisanal fisheries) and industrial fisheries. These fisheries are distinguished by their mode of operation. Artisanal fisheries has a fleet of 1 785 canoes (2006) operating in both the marine and the River Gambia. It provides direct employment to 1 410 head fishermen and 4 694 assistant fishermen with an estimated 11 000 people as members of the head fishermen households. Fisheries operators spans beyond fishermen to include its ancillary workers such as boat builders, fish processors, fish retailers, etc. According to Mendy (2003), over

200 000 people are directly or indirectly dependent on artisanal fisheries and its related activities for their livelihoods.

The development of industrial fisheries has been relatively limited in the Gambia. Of the 20 locally registered companies only 8 companies have made investments in on-shore processing factories with no sea going fishing vessels. It is interesting to note that, presently, all fishing vessels operating in Gambian waters are foreign owned. These vessels 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).

Artisanal fishery 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.

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.

1.2 SCOPE OF THE SURVEY

The purpose of CAS is the continuous production of catch and effort statistics from the Artisanal Fisheries sub-sector. It records catch and effort per gear-type and species from artisanal fishing operations in both the Atlantic Coast Stratum [ACS] and the Inland. As a sample based survey, CAS is done in space and time covering all the fish landing sites in the ACS and pre-selected landing sites or Primary Sampling Unit [PSU] in inland.

1.3 ITEMS OF INFORMATION COLLECTED

On every sample day, the enumerators record number of canoes per gear-type that went fishing on that day for each PSU. Records of catch by species and crew size of six canoes (by gear-type) sampled are made. The enumerators also provide information on the number of Fishing Units operating from their PSUs.

1.4 CATCH ASSESSMENT SURVEY TEAMS

Five teams were constituted to cover the five fisheries administrative areas; ACS, Lower River North Bank [LRNB], Lower River South Bank [LRSB], Upper River North Bank [URNB] and Upper River South Bank [URSB]. Each sample landing site is covered by one or more field staff equipped with the necessary equipment and materials for the conducting of the survey. Office based staff were being trained regularly on the use of computers and data entry, processing and dissemination techniques. There are two field

supervisors who visit enumerators regularly to observe and monitor their activities. The overall responsibility for assuring data quality rests on the consultant and his counterpart.

1.5 TRAINING

Training workshops and or field studies were conducted every month to ensure an accurate and effective data collection system. The training programme covers a wide range subjects including fish species identification, statistical methods, the use of CAS equipment, data analysis, biological parameters measurement, etc.

1.6 QUALITY CONTROL OPERATIONS

Accurate, reliable and timely data are paramount in effective planning and management of fish resources. 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 completed forms were carefully recorded and kept in the office. The records showed the number of forms expected; thus a check was maintained in the office on the flow of completed work from the field to the office. The data is verified and entered in a main frame computer for processing and analysis.

1.7 DATA PROCESSING

Data entry or input was done with the aid of a data entry screen designed using the above CSPro 3.0 software. However, data coded all data prior to entry exercise. Validation rules were assigned to the variables to avoid duplication, typographical and other errors. The SPSS, Version 16.0 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.

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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.

In each stratum, a number of fishing sites (Primary Sampling Units) were selected for further sub-sampling (secondary sampling units). The Primary Sampling Unit (PSU) was defined as a permanent fishing village where fish landings take place regularly. The Secondary Sampling Unit (SSU) was defined as the Fishing Economic Unit which comprised of fishing boats, fishing gear and fishermen carrying out fishing operations. Fishing Economic Units within the selected fishing sites were grouped into classes by taking into account types of boat and gear used in fishing operations.

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. Selection Process

As a sample based survey, the first task was to select the Primary Sampling Units (PSU) followed by Secondary Sampling Units (SSU) this involved the sampling of fishing boat landings by type of gear used.

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 2007 Catch Assessment Survey (2007)

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 Selection of Sample Days

Prior to CAS, inventory of fishing boats by gear-type operating from the PSU were regularly recorded from which the supervisor drew his/her sampling plan. Normally, the instructions were that the field staff samples landings by gear for 10 days; 5 days in the first 15 days and the other 5 in the last 15 days but consecutively for each period.

During sampling period, daily catches by species and effort in fishing trips were recorded in a prescribed CAS Form. Also recorded were the total number of boats by gear type being sampled and the number of boats sampled each day. The ratio between these two values (R1) was used to raise the value of the sampled catch to the total catch on that day for that gear type.

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

It is imperative to note that lessons learnt in 2006 were used to address most concerns regarding possible errors affecting the quality of data. This was possible with the GAFDP funded monthly training and refresher workshops coupled with regular visits to the landing sites.

1.15 Improvements

Before 2005 to carry out the Catch Assessment Survey a number of technical and operational problems encountered. These included;

- Due to lack of resources and training difficulty in handling artisanal capture fishery;

- Lack of standard statistical standards and methodology;

- Lack of appropriate sampling frame;

- Insufficiently trained and/or motivated field staff;

- Lack of data processing facilities, which delay the data dissemination and production of the report on the timely basis.

- Lack of guidelines and technical reference materials in the design and implementation of fishery statistical programmes.

To improve the following measures were initiated:

- Attempt was made to improve the database of inland and marine fisheries resources and catch of fish by adoption of standardized methodology of data collection through sample survey for estimation of inland fisheries and marine fish catch in all the landing sites. A Fishery Frame survey was conducted in 2005 which provided the sampling frame for both marine and inland fishery. In 2006 first time the inland fishery was included in the sampling frame. It is interesting to note that the number of sampling days were increased from the normal 6days to 10 days in 2006 to increase coverage of landings.

- The emphasis was laid on the training of both office and the field staff, the field staff were trained on the identification of the fish species, use of the different of the gears by the fishermen, they were also trained to use the proper sampling techniques to avoid both sampling and non sampling errors.

- The office staff were trained on data editing and coding for the data collected from the landing sites, there were provided training on the data entry and data analysis using different computer software.

- As mentioned that due to lack of proper equipments data on catches were not reported properly. To improve on this the project purchased the appropriate weighing scales and purchased whenever material were needed.

- To improve Information Technology System in the both Artisanal and Industrial Sector so that data collection and their analysis can be done efficiently and effectively.

CHAPTER 2

GENERAL FINDINGS

2.1 Catch Assessment Survey (Artisanal Fishing)

Catch and effort data collection is an integral part of the functioning of the Fisheries Department. They are a measure of amount of fish caught and the effort employed in the extraction/harvesting of the fish by the artisanal fisheries operators. Total fish production is the sum of all landings (production) by the artisanal and industrial sub-sectors. Each sub-sector employs a unique catch and effort data collection system. Catch Assessment Survey, a sample survey is the source of artisanal fisheries production statistics. The artisanal fisheries sub-sector is divided into two areas namely; the Atlantic coast and inland. Table 2 and figure 2 shows total fish landed by the artisanal fishermen operating from the major fish landing sites (Atlantic Coast Stratum, [ACS]) for 2006 and 2007. The table also gave percentage change over 2006 fish production. Overall, there was a 1.8 percent increase in total landings in 2007 with Old Jeshwang and Banjul registering the highest (11.9) & 8.9 percent respectively. A decline in production of 40.2 and 6.5 percents were observed in Barra and Kartong respectively (Table 2).

There was a 1.8 percent change in total fish landings in the Atlantic Coast from 32 976 to 33 569 tonnes (Table 3). A threefold increase of total catches from the inland was due mainly to increase of sampling in space. The industrial fisheries also registered nearly 37 percent increase in total catches in 2007 compared to 2006 (Table 3).

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

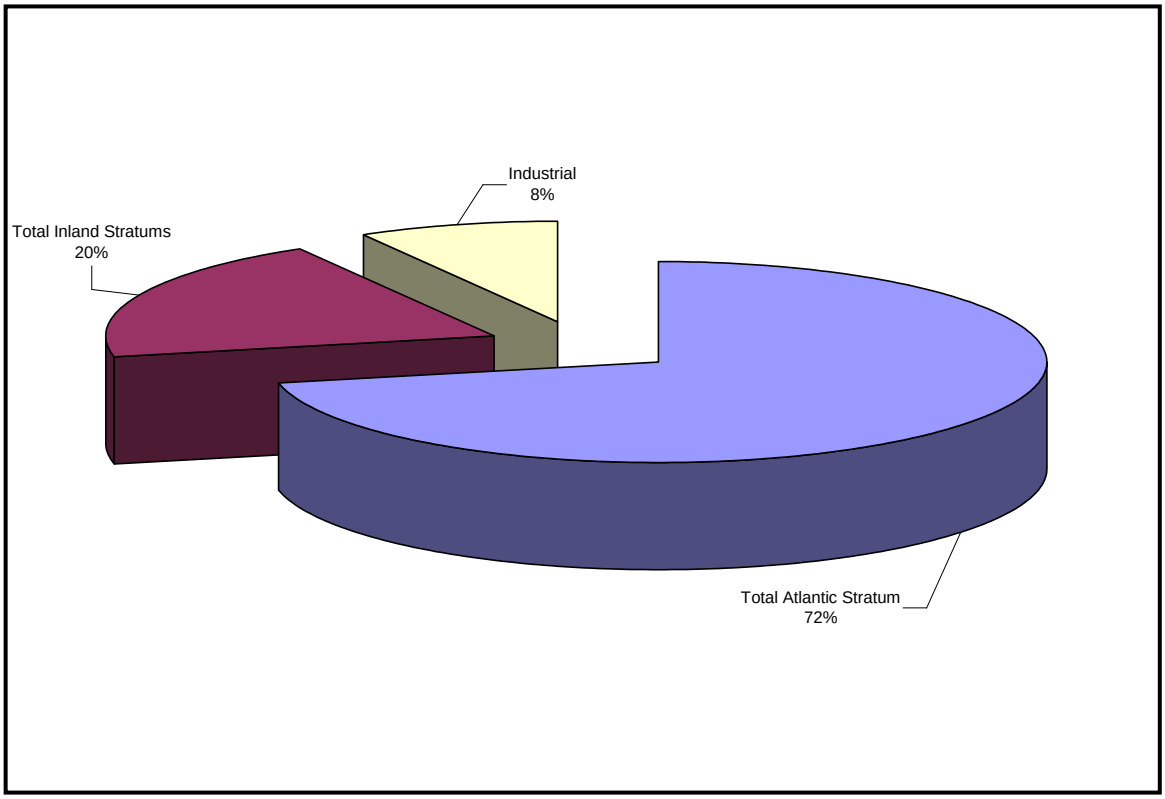
Stratum/Year	Total Catches Kilogram 2006	Total Catches Kilogram 2007	Percentage Change %
Total Atlantic Stratum	**32,975,896**	**33,575,249**	**1.8**
Kartong	548,853	512,991	-6.5
Gunjur	9,402,964	9,589,588	2.0
Sanyang	1,648,426	1,678,212	1.8
Bato Kunku	308,607	293,450	-4.9
Tanji	7,334,273	7,466,895	1.8
Brufut	4,957,713	4,991,776	0.7
Bakau	3,226,383	3,078,562	-4.6
Old Jeshwang	2,505,354	2,803,174	11.9
Banjul	2,728,956	2,972,728	8.9
Barra	314,367	187,872	-40.2

- **Exclude Inland and Industrial Data**

Table 3. Total Catches By Atlantic, Inland and Industrial Stratums (2006-2007)

Stratums	Total Catches (Kilograms)		% Change
	2006	2007	
Total Atlantic Stratum	32,975,896	33,575,249	1.8
Total Inland Stratums[1]	3,921,741	9,432,137	
Industrial	2,829,518	3,891,361	37.5
Total Catches	**39,727,155**	**46,898,747**	**18.1**

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



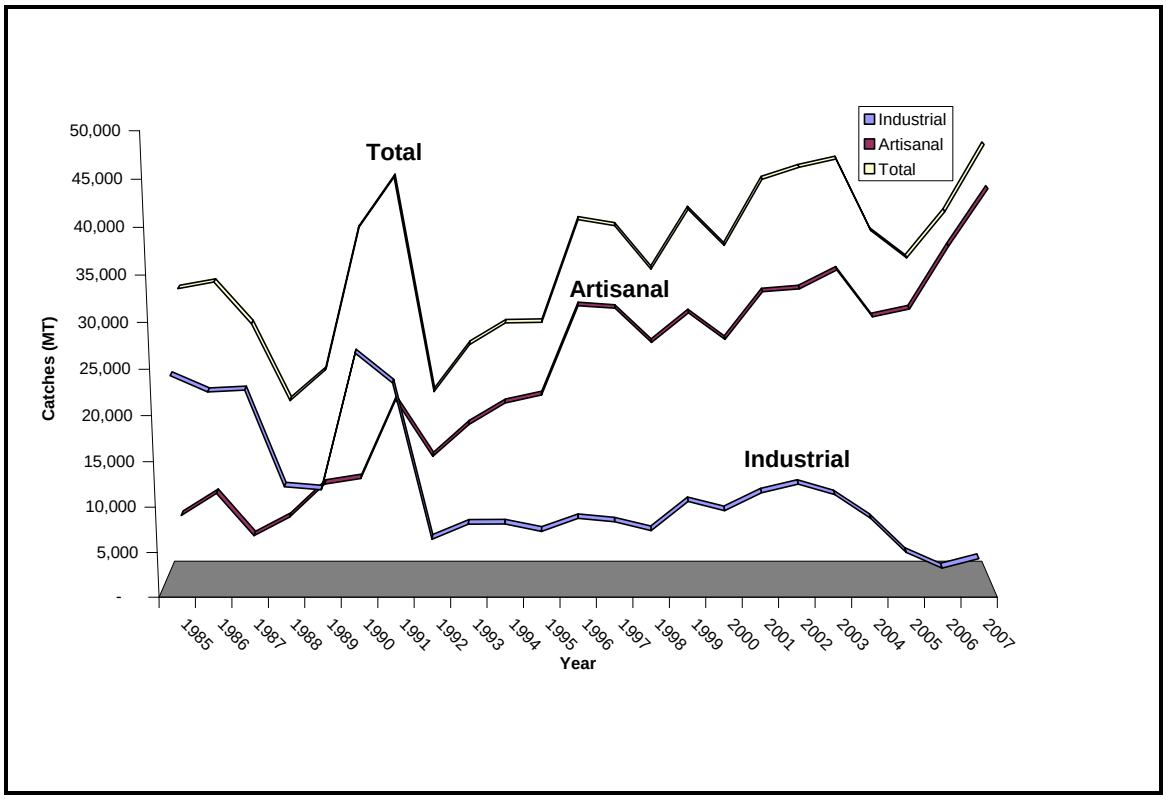
In 2007, total fisheries production (artisanal and industrial) was estimated at about 47 000 tonnes (Table 3); nearly 72 percent of which came from artisanal fisheries operations in the Atlantic Coast and 20 percent from the inland. This represents 18 percent increase over 2006 total production. Although total annual fish catches had been fluctuating, the overall trend is an upward one, figure 2 below and table Annex 1a and 1b. The same trend was observed for the artisanal production too. The industrial production which has been declining in the recent years was observed to have picked up in 2007 registering about 37 percent increase over 2006 production.

[1] In 2006 the catch estimate was based on the incomplete sample of three months

The analysis above is indicative of the fact that artisanal fisheries is the most important sub-sector in the Gambia in terms of fish production and of course, its socio-economic contribution.

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 – 2007)



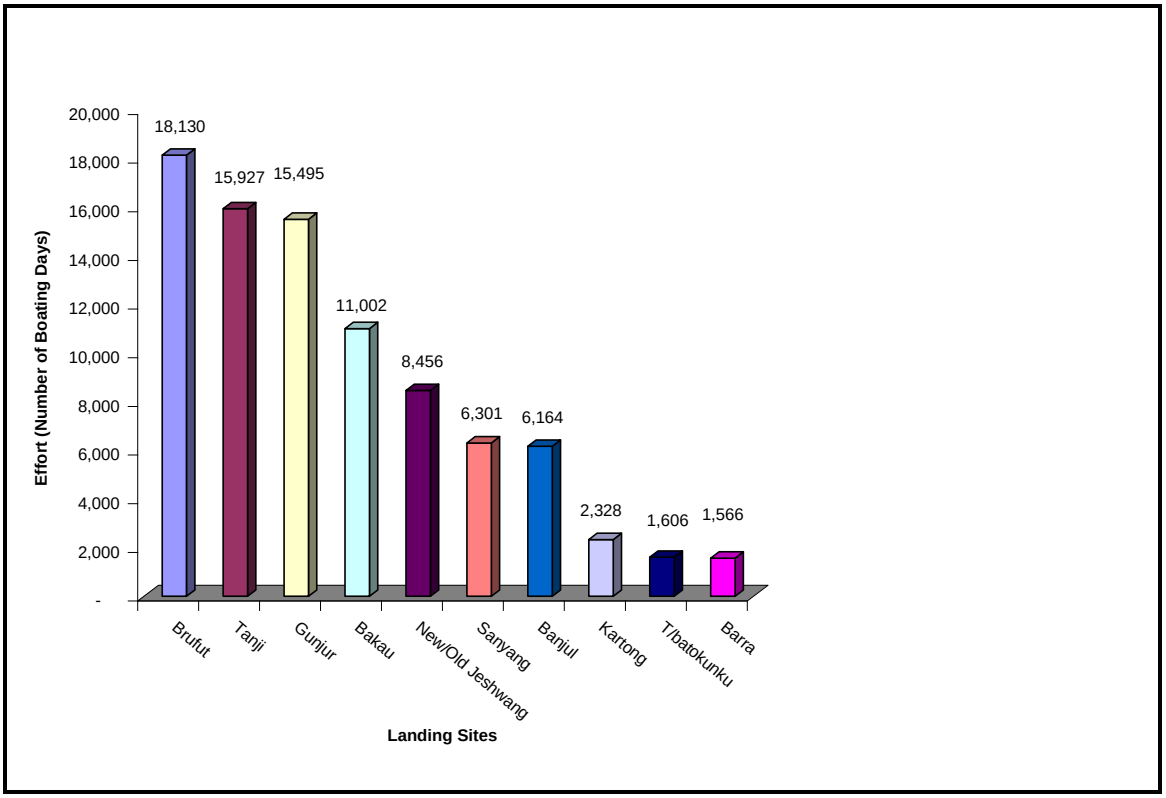
An estimated 87 000 fishing trips (or days) were undertaken in 2007. This number of fishing trips or total effort produced about 33 575 tonnes of fish. The resulting catch per unit of effort was 386 Kg (table 4). Brufut fish landing site employed the most unit of effort (over 18 000) to catch about 5 000 tonnes of fish in 2007 with an average of 275 Kg per unit of effort. It was closely followed by Tanji with about 16 000 unit of effort (table 4 and figure 5). Gunjur fishermen employed nearly 15 500 unit of effort but recorded a higher catch rate (CPUE) of 619 Kg. The effort used and the catch rate are dependent on the fishing method and the target species. Although Brufut had employed more effort, the catch rate was low because they were targeting so called white fish which are scarce. Those landing sites specialized in small pelagic fishery recorded higher catch rates due to the abundance and catchability of the small pelagic fish.

Table 4. Total Catches and Number of Boating Days (Trips) by Landing Sites (2006)

Stratum/Landing Sites	Total Catches Kilogram	Percentage of Total Catches %	Effort (Total Boating Days)	Percentage of Total Effort %	Catch Per Unit Effort
Atlantic coast	**33,575,249**	**78.1**	**86,974**	**37.2**	**386**
Brufut	4,991,776	11.6	18,130	7.8	275
Kartong	512,991	1.2	2,328	1.0	220
New/Old Jeshwang	2,803,174	6.5	8,456	3.6	332
Sanyang	1,678,212	3.9	6,301	2.7	266
Bakau	3,078,562	7.2	11,002	4.7	280
Tanji	7,466,895	17.4	15,927	6.8	469
Banjul	2,972,728	6.9	6,164	2.6	482
Barra	187,872	0.4	1,566	0.7	120
T/batokunku	293,450	0.7	1,606	0.7	183
Gunjur	9,589,588	22.3	15,495	6.6	619
Inland Stratum	**9,432,137**	**21.9**	**146,849**	**62.8**	**64**
Lower R. North Bank	764,383	1.8	30,712	13.1	25
Upper R. North Bank	277,299	0.6	3,834	1.6	72
Lower R. South Bank	3,824,270	8.9	75,998	32.5	50
Upper R. South Bank	4,566,185	10.6	36,305	15.5	126
TOTAL ALL STARTUMS	**43,007,386**	**100.0**	**233,823**	**100.0**	**184**

The inland comprises Lower River North Bank (LRNB), Lower River South Bank (LRSB), Upper River North Bank (URNB) and Upper River South Bank (URSB). Total inland fisheries production in 2007 was estimated at about 9 432 tonnes distributed thus: URSB 4 566 tonnes, LRSB 3 824 tonnes, LRNB 764 tonnes and URNB 277 tonnes (Table 4). The total effort put in by the fishermen in 2007 was estimated at 146 849 fishing trips compared to more the productive ACS with 86 974 fishing 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 (2007)



Catch by species

The artisanal fisheries sub-sector of the Gambia is a multispecies and multi-gear fisheries targeting all fish stocks in fisheries waters of country. Fishermen operating in the sub-sector target species from all the four fish groups: demersals, small pelagics, cephalopods and crustaceans, table 5. *Ethmalosa fimbriata* (Bonga/Shad), an estuarine species constitutes the bulk (just over 13 737 tonnes) of total fish landed in 2007 followed by the two sardinellas (over 4 387 tonnes) which are becoming very important in the artisanal fisheries landings, especially in the ACS. Important in 2007 landings was catfish with 2 560 tonnes. These species are highly sought by women who smoked and export the product to EU and USA. Table 5 provides catches for the last three years for comparison.

Table 5. Total fish Catches by Species - ACS For 2005-2006

Species	Total Catches (Kilogram)		
	2005	2006	2007
Shad/Bonga	14,977,804	13,186,990	13,737,157
Long Neck Croaker	-	78,389	44,122
Madeiran Sardinella	427,902	3,945,565	1,607,063
Cassava Croaker	1,437,499	779,968	1,194,041
Bobo Croaker	181,497	404,582	620,935
Meagre	1,281	811	-
Boe drum	-	155	-
Rubberlip Grunt	96,117	105,336	186,581
Sompat Grunt	515,928	738,655	1,178,764
Bigeye grunt	-	-	303
Blackchin guitarfish	-	-	34,394
Bluntnose lizardfish	-	-	33,379
Canary dentex	-	-	6,558
Common stringray	-	-	2,243
Daisy stingray	-	-	6,421
Doctor Fish	-	-	3,876
Round Sardinella	136,157	994,665	2,780,371
Gorean Snapper	-	10,328	508
African Red Snapper	84,779	380,697	125,452
African forktail Snapper	-	14,812	-
White Grouper	55,186	167,474	16,709
Dusky Grouper	128,603	63,265	111,346
Golden Grouper	4,705	108,129	1,238
Dog tooth grouper	2,371	167	-
Royal Threadfin	5,593	107,158	1,394
Giant African threadfins	242,129	384,720	251,942
Lesser African Threadfins	209,829	453,693	590,878
Rough head sea catfish	2,210,024	2,525,603	2,563,160
Atlantic Horse Mackerel	762,713	317,340	205,806
Cuene Horse Mackerel	3,612	-	-
Alexandria pompano	2,701	3,782	10,942

Contd..

Table 5. Total fish Catches by Species For the Atlantic Coast Startum 2005-2007[2]

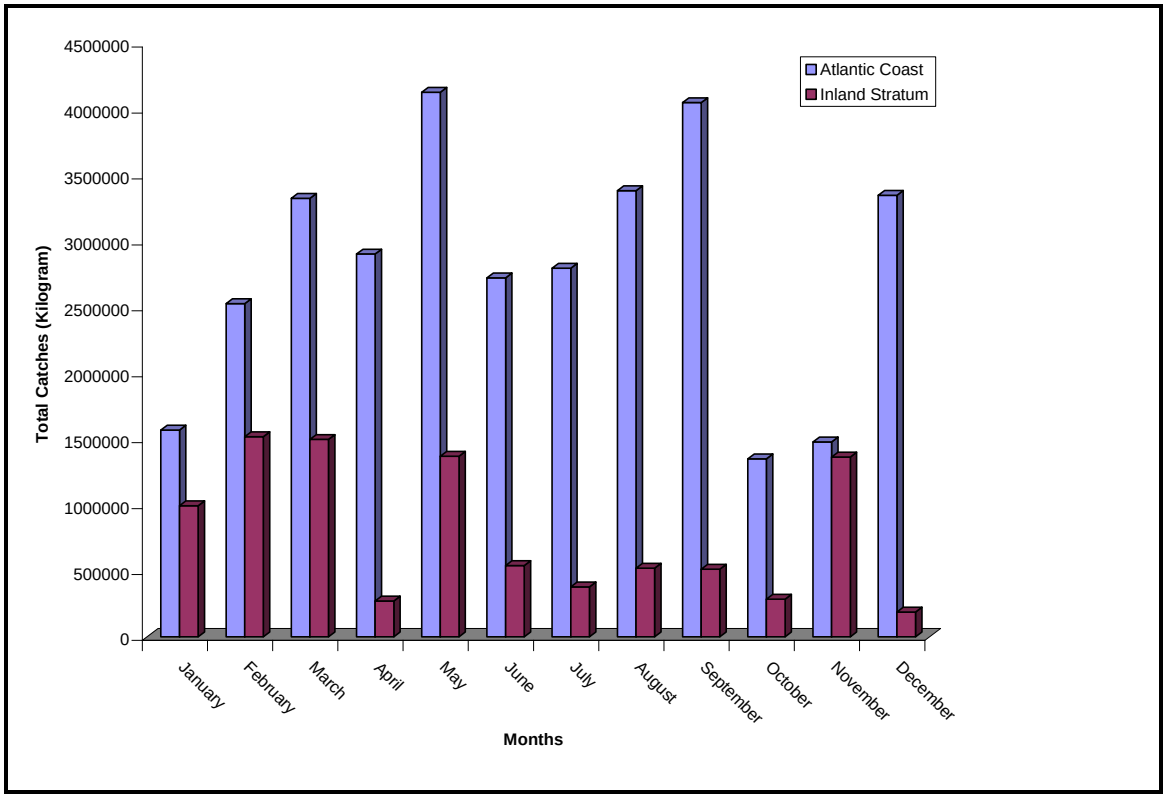
Species	Total Catches (Kilogram)		
	2005	2006	2007
Rainbow Runner	-	936	57,529
Blue runner	1,861	6,015	57,529
Cravelle jack	794,052	477,762	532,806
False scad	53,894	54,441	118,461
Guinean Barracuda	453,488	358,814	523
Great Barracuda	10,367	24,248	616,588
Guachanche Barracuda	-	728,546	5,700
Grooved mullet	1,931	394,572	-
Leaping African mullet	121,648	489,153	786,175
Largehead hairtail	n.a	n.a	7,172
Leerfish	n.a	n.a	818
Ribon Fish	n.a	n.a	31,926
Leerfish	n.a	n.a	818
Trippo	n.a	n.a	32,245
Whitespotted guitarfish	n.a	n.a	2,674
Little tunny	-	1,819	-
Chub mackerel	-	1,427	-
West African Spanish Mackerel	-	12,460	406,846
Africana sicklefish	107,572	140,219	315,113
Axillary seabream	83,536	-	457,042
Butterfish	24,170	402,719	457,042
West African ladyfish	744,834	1,225,615	906,767
Wedge sole	265,013	279,414	28,307
Sand sole	-	186,008	
Senegalese sole	1,925,098	905,841	1,230,124
Largehead hairtail	1,077		
Grey triggerfish	-	1,247	
Bonefish	18,946	20,483	20,101

[2] Contd. Next page

Table 5. Total fish Catches by Species For the Atlantic Coast Startum 2005-2007

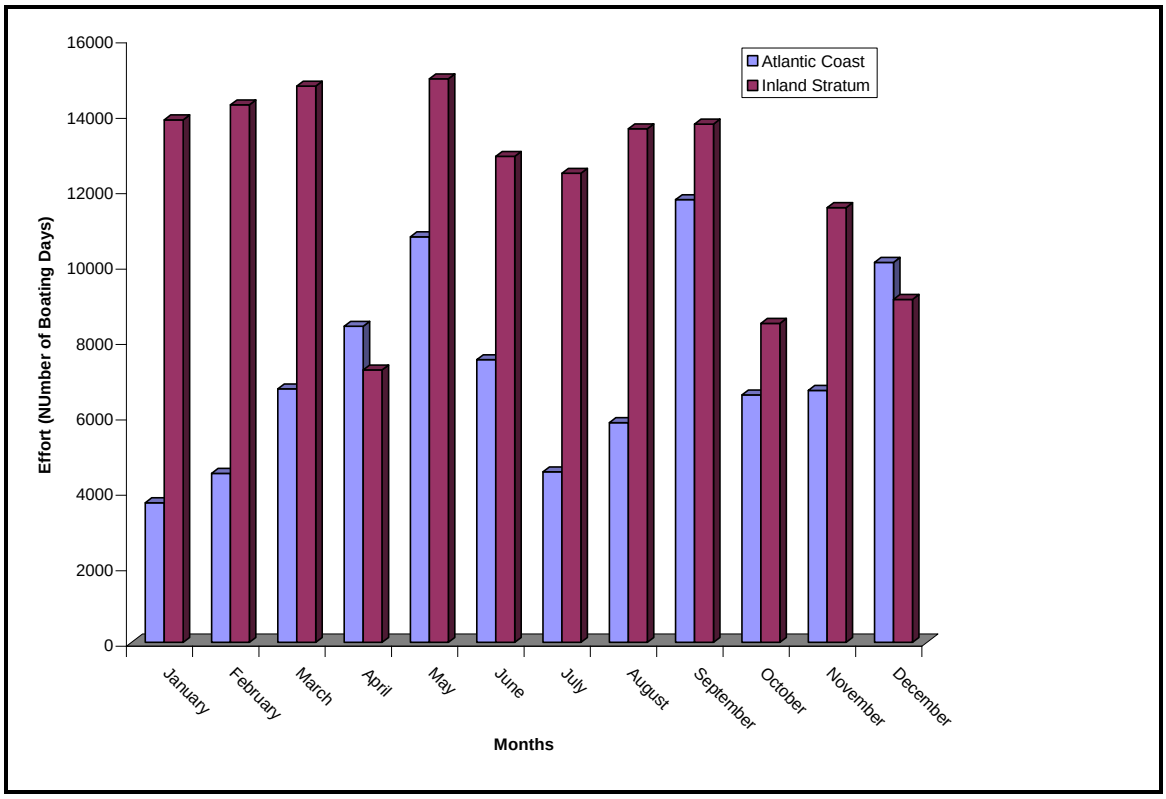
Species	Total Catches (Kilogram)		
	2005	2006	2007
Prickly puffer	163,412	29,670	10,907
Smooth puffer	2,368	-	676,433
Four-banded butterflyfish	-	175,998	
European flying squid	-	377	
Pink shrimp (Southern)	-	209,132	65,570
Striped shrimp	266	18,878	12,250
Scarlet shrimp	-	2,424	
Mediterranean locust lobster		6,136	
Pink spiny lobster	23,510	29,801	4,232
Royal spiny lobster	-	5,471	
Common cuttlefish	1,958,772	1,143,722	720,113
Sea Mouth Cuttle fish	34,335	34,266	3,147
Ornate Cuttlefish	-	157,935	
Common Octopus	-	7,232	720,113
European squid	-	8,572	
Spinous spider			2,137
Blacktip shark	123,402	62,428	13,070
Lowfin gulper shark			191,520
Milk shark	632,662	113,988	1,937
Gulper shark	-	83,212	
Daisy stingray	225,060	49,327	
White skate	232,949	11,057	15,906
Lsuitanian cownose ray	622,490	3,658	13,868
Snail	14,469	105,709	669,121
Captain Fish	5,895	217,397	3,439
Swim crabs	-	21,621	113,613
Tilapia	32,436	-	105,168
Dentex Spp	2,727	-	-
Other	-	-	77,610
Total	**30,168,669**	**32,975,896**	**33,575,249**

Figure 4: **Total Catches by Stratums and Months (2007)**



The fluctuations of catches over a 12 months period in 2007 is given in (figure 4). The figure shows fish landings by the artisanal fishermen operating along the coast and inland. The highest landings along the coast were recorded in March, May, September and December repeating the same pattern as in 2006. The inland apparently showed some similarities as in the coast with February/March, May, August/September and November fish production being the highest in the four quarters of 2007. With the 2006 year data at hand, indications are that these months are the most productive, any reason (s) given will be speculative. One thing was clear though, the effort employed were greatest during the same months as the catches (Figure 5). The change in abundance of fish attracts different response from fishermen.

Figure 5: Total Effort (Number of Boating Days) by Stratum and Months (2007



Monthly fish landings by species by the artisanal sub-sector (Atlantic and Inland) are given in Table 6 and Table 7 respectively, these over years can be useful as indication of probable seasonal abundance and availability of certain fish species. It must be borne in mind also 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.

Table 6 : Total Catches by Species and Months for the Atlantic Coast Stratum (2007)

Species	Total Catches by Months (Kilogram)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Shad/Bonga	854,701	984,536	977,630	1,070,180	868,043	859,600	529,140	1,224,462	2,110,085	582,429	995,173	2,684,950	**13,737,157**
Round Sardinella	83,010	68,567	454,137	848	623,508	566,550	594,354	-	-	33,150	17,990	43,060	**2,777,070**
Long Neck Croaker	1,768	5,678	1,989	48,661	4,324	740	650	2,580	519	-	202	444	**44,122**
Madeiran Sardinella	36,024	2,165	-	277,907	9,320	1,379	-	1,339,483	670,264	83,796	42,867	-	**1,607,063**
Cassava Croaker	27,843	82,332	198,165	60,772	192,061	61,872	94,982	36,898	66,794	98,832	77,537	37,340	**1,194,041**
Bobo Croaker	3,001	345,709	14,418	5,626	37,172	47,931	34,963	5,907	1,785	1,196	867	2,215	**620,935**
Rubberlip Grunt	4,889	-	26,840	41,306	74,562	647	2,161	10,067	15,268	2,867	12,494	9,005	**186,581**
Sompat Grunt	46,709	101,672	143,723	87,272	391,817	79,381	24,655	42,167	137,702	23,493	52,704	13,133	**1,178,764**
Round Sardinella	210	-	-	6,246	-	-	-	-	-	-	-	-	**3,301**
Bigeye grunt	142	-	-	-	-	-	-	-	-	-	-	-	**303**
Gorean Snapper	-	-	-	-	-	-	-	-	-	-	-	698	**508**
African Red Snapper	5,418	5,880	34,261	1,557	51,413	-	1,796	703	9,044	4,048	56	4,461	**125,452**
White Grouper	465	344	66	1,221	837	5,973	1,790	1,645	290	1,290	246	2,130	**16,709**
Dusky Grouper	11,655	218	2,383	-	2,579	37,264	6,531	-	9,893	8,855	5,878	4,507	**111,346**
Golden Grouper	499	-	-	377	-	-	-	-	-	-	-	-	**1,238**
Royal Threadfin	-	-	-	-	-	-	-	2,185	-	-	-	-	**1,394**
Giant African threadfins	16,090	15,912	45,439	20,669	33,216	18,625	7,738	18,608	21,836	13,210	4,860	26,423	**248,504**
Lesser African Threadfins	20,431	61,382	66,437	81,721	114,545	43,443	24,650	48,595	148,475	12,928	20,309	13,788	**590,878**
Rough head sea catfish	54,259	109,364	193,959	207,981	467,024	203,811	700,730	169,630	116,982	84,362	62,296	59,305	**2,563,160**
Smooth mouth sea catfish	-	-	-	6,892	-	-	-	-	-	-	-	-	**3,147**
Atlantic Horse Mackerel	139	-	-	53,071	138,720	-	22,250	2,189	-	-	-	13,842	**205,806**

Contd..

Table 6 : Total Catches by Species and Months for the Atlantic Coast Stratum (2007)

Species	Total Catches by Months (Kilogram)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Alexandria pompano	4,431	919	-	-	-	-	-	410	-	-	-	-	**10,942**
Leerfish	-	-	-	-	-	-	-	-	-	-	-	1,124	**818**
Blue runner	2,091	17,963	-	29,129	-	-	3,460	2,939	7,672	2,939	-	1,290	**57,529**
Cravelle jack	48,355	98,728	61,041	98,434	12,651	30,880	17,972	458	56,134	21,414	13,482	46,732	**532,806**
False scad	-	2,797	44,443	-	67,572	-	-	29	-	-	-	-	**118,461**
Guinean Barracuda	75	-	-	-	-	365	-	-	-	-	-	-	**523**
Great Barracuda	79,775	101,578	100,230	16,186	69,937	56,973	15,292	1,872	1,804	5,851	15,904	14,411	**616,588**
Guachanche Barracuda	-	-	-	-	-	1,461	3,551	-	-	-	-	-	**5,700**
Leaping African mullet	104,835	126,830	180,420	3,464	198,579	582	1,722	1,861	-	-	428	16	**786,175**
West African Spanish Mackerel	17,399	27,003	37,630	54,849	25,372	16,057	2,347	78,128	194,128	15,706	26,724	12,263	**406,846**
Africana sicklefish	1,792	23,168	52,130	82,238	49,659	31,431	13,768	17,727	19,202	22,118	9,393	14,418	**315,113**
Butterfish	21,082	20,616	76,972	110,135	107,304	88,032	7,657	23,801	22,655	5,381	2,470	12,121	**457,042**
West African ladyfish	32,680	36,996	144,180	36,800	202,588	85,574	17,717	20,480	51,530	83,739	46,597	28,864	**906,767**
Canary dentex	-	-	-	-	5,702	676	-	-	-	-	-	-	**6,558**
Wedge sole	5,172	-	3,654	11,186	-	5,249	1,925	-	2,178	-	-	-	**28,307**
Senegalese sole	40,044	52,822	189,453	213,053	155,198	203,253	214,238	53,145	80,282	28,398	14,614	20,278	**1,230,124**
Bonefish	825	1,493	8,156	9,791	-	-	65	160	-	1,111	-	1,816	**20,101**
Largehead hairtail	-	-	-	3,585	-	-	-	-	-	-	-	7,608	**7,172**
Prickly puffer	-	-	-	-	-	-	8,781	629	-	-	-	-	**10,907**
Smooth puffer	10,355	109,473	47,570	76,388	13,980	34,470	94,658	28,003	11,064	34,903	7,818	218,161	**676,433**
Bluntnose lizardfish	-	25,122	-	-	-	-	-	-	-	-	-	-	**33,379**
Pink shrimp (Southern)	1,101	-	116	18,298	6,832	4,134	2,851	8,051	23,418	9,974	1,459	3,992	**65,570**

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Table 6 : Total Catches by Species and Months for the Atlantic Coast Stratum (2007)

Species	Total Catches by Months (Kilogram)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Striped shrimp	-	9,045	-	-	-	-	-	-	-	-	-	-	**12,018**
Mediterranean locust lobster	-	-	-	-	-	-	-	-	14,245	-	-	-	**6,136**
Pink spiny lobster	-	-	-	-	-	-	-	-	122	-	26	188	**242**
Royal spiny lobster	57	563	2,006	-	346	-	300	229	303	83	66	69	**4,232**
Common cuttlefish	19,042	41,708	72,738	112,398	35,068	61,947	108,970	86,423	99,207	52,921	19,468	35,722	**713,340**
Common cuttlefish	-	-	-	14,835	-	-	-	-	-	-	-	-	**6,774**
Blacktip shark	-	-	-	-	8,930	3,470	335	-	-	-	-	-	**13,070**
Milk shark	-	-	-	969	-	-	1,249	-	-	-	-	-	**1,937**
Lowfin gulper shark	2,140	6,193	2,241	-	-	-	-	60,719	66,883	39,990	14,769	3,800	**191,520**
Daisy stingray	532	3,925	-	-	-	70	-	-	-	-	-	-	**6,421**
Common stringray	991	-	-	-	-	-	-	45	228	-	-	-	**2,243**
White skate	229	76	-	-	-	-	-	-	-	7,982	-	-	**15,906**
Whitespotted guiterfish	1,252	-	-	-	-	-	-	-	-	-	-	-	**2,674**
Blackchin guiterfish	-	-	3,247	-	-	24,158	3,633	3,654	952	-	-	-	**34,394**
Lsuitanian cownose ray	-	-	2,097	-	-	1,533	-	10,300	8,044	96	-	-	**13,868**
Sea Snail	2,818	14,753	19,527	23,436	157,764	104,956	127,493	76,292	35,571	54,900	9,050	8,162	**669,121**
Captain Fish	292	-	2,783	-	-	-	-	-	-	-	-	-	**3,439**
Tilapia	2,616	12,065	82,561	-	-	-	-	-	-	-	-	-	**105,168**
Trippo	-	3,420	1,970	5,966	-	-	1,032	-	-	8,521	2,200	1,399	**32,245**

Contd….

Table 6: Total Catches by Species and Months for the Atlantic Coast Stratum (2007)

Species	Total Catches by Months (Kilogram)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Ribon Fish	928	1,952	145	-	2,514	2,610	-	-	46,485	1,037	-	-	**31,926**
Doctor Fish	-	-	1,516	-	-	2,226	61	-	-	-	-	77	**3,877**
Spinous spider	-	1,609	-	-	-	-	-	-	-	-	-	-	**2,137**
Swim crabs	-	-	16,312	9,409	153	17,428	62,392	1,060	-	-	-	-	**113,613**
Others			8,485			20,463	45,164	1,957	-	1,541			**77,610**
Total	**1,568,163**	**2,525,953**	**3,324,278**	**2,902,854**	**4,129,291**	**2,721,401**	**2,794,609**	**3,383,125**	**4,051,044**	**1,348,771**	**1,477,947**	**3,347,812**	**33,575,249**

Table 7: Total Catches by Species and Months for the Inland Stratum (2007)

Species	Total Catches by Months (Kilogram)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Shad/Bonga	67,599	12,224	10,557	463	9,157	1,249	2,350	2,072	821	8	530	31,736	**138,766**
Round Sardinella									49				**49**
Long Neck Croaker		57			669	497	1,245	405	231	196	582	114	**3,995**
Madeiran Sardinella		1,927	1,527	2,662	2,868	2,946	2,478	3,813	3,446	3,259	4,243		**29,169**
Cassava Croaker	13,839	17,807	30,119	7,189	28,797	15,614	22,856	18,412	23,103	4,195	2,811	12,085	**196,826**
Bobo Croaker	4,228	11,139	4,523	17,724	33,027	44,837	21,305	18,680	13,791	7,962	47,427	14,778	**239,420**
Meagre								323					**323**
Rubberlip Grunt		177	482		393	445	65	685	74	127	142		**2,589**
Sompat Grunt	319	2,023	176		912	1,294	1,723	1,584	966	1,086	203	570	**10,855**
African Red Snapper		212			47		331	55				82	**727**
African browm Snapper					6,447								**6,447**
Royal Threadfin	1,231	2,477		157	253,650	111,479	41,430	98,866	136,019	3,719	112,254	6,078	**767,360**
Giant African threadfins	77,841	62,158	58,415	51,555	46,774	37,414	11,385	37,240	18,781	34,974	29,349	2,718	**468,604**
Lesser African Threadfins		1,285	323	7,722	235	2,396	4,341	583			239	74	**17,199**
Rough head sea catfish	137,407	129,725	467,227	89,690	298,742	79,728	36,819	40,474	75,834	25,089	90,749	10,912	**1,482,396**
Smooth mouth sea catfish				370									**370**
Atlantic Horse Mackerel	65				78		86						**229**
Blue runner	1,206		931	685	196	71				603	76		**3,767**
Cravelle jack		191	450					78		176			**896**
Guinean Barracuda						805							**805**
Great Barracuda	3,355	1,402	1,571		2,707	282	2,280	28,806	24,266	29,707	18,930	1,730	**115,036**
Guachanche Barracuda		1,191				13,669	2,058	2,711			11,974		**31,602**

Contd…….

Table 7: Total Catches by Species and Months for the Inland Stratum (2007)

Species	Total Catches by Months (Kilogram)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Banana mullet					274								**274**
Leaping African mullet	4,372	6,521	9,874	1,339	4,883	3,064	5,433	2,326	3,714	2,850	8,602	10,904	**63,883**
Wahoo		53											**53**
Africana sicklefish	833	2,736	831	931	13,100	5,227	905	2,062	701	3,278	517	121	**31,243**
Butterfish	258	1,803	3,132	255	497			194		195	936	158	**7,428**
West African ladyfish	3,513	4,869	6,773	803	2,284	4,912	7,535	5,987	3,484	3,674	4,243	5,218	**53,296**
Wedge sole	1,878			895		270		268					**3,311**
Thickback sole				349									**349**
Senegalese sole	643	3,984	3,117	314	783	2,440	1,847	5,326	3,270	2,287	1,844	5,271	**31,126**
Bonefish	31	35	274		29	38	78	450	93	78	417	31	**1,556**
Smooth puffer					157								**157**
Pink shrimp (Southern)	207,747	200,396	149,160	65,102	212,860	87,904	39,472	140,124	93,498	71,050	163,114	25,648	**1,456,076**
Caramote Brown					902								**902**
Striped shrimp		13,610				161							**13,771**
Common cuttlefish		1,478	2,486	1,519	2,284	1,421	1,775	1,159	1,233	1,615	2,866		**17,836**
Elegant Cuttlefish						8,084	1,423	515	5,582	1,291	6,128	451	**23,474**
Blacktip shark					485						30,690		**31,175**
Milk shark							235	587					**822**
Brown ray							178						**178**
Whitespotted guitarfish								196					**196**
Blackchin guiterfish							503						**503**
Lsuitanian cownose ray	450	1,472		234	658	1,209	2,064	2,315	771	358	579	724	**10,833**

Contd…….

Table 7: Total Catches by Species and Months for the Inland Stratum (2007)

Species	Total Catches by Months (Kilogram)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Sea Snail		3,638		2,486	1,860			4,008			3,538		**15,531**
Captain Fish			529						160				**688**
Tilapia	79,357	164,426	74,700	14,659	62,614	18,760	33,809	33,463	25,725	21,938	76,432	8,183	**614,065**
Kono Kono	41,107	121,102				16,810	19,975	9,506	5,805	8,232	44,966	9,317	**276,821**
Trippo		9,004			1,560								**10,564**
Lamba Ceesay			689										**689**
Mormyrus	22,636	40,854	4,539		1,128		837			501	2,672	1,639	**74,805**
Kosso	52,973	217,826	34,245	4,145	11,466	23,017	82,926	9,969	21,017	11,025	58,985	6,524	**534,118**
Sanko	5,087		7,233		445	1,929	59	176					**14,929**
Kokriko	5,143	10,212	2,762			238		6,904	13,608	6,029			**44,896**
Taro	68,147	99,296	22,487		334,890	7,798	8,562	6,076	4,140	3,908	496,505		**1,051,808**
Kululdomo	1,119						415						**1,534**
Sokoro	10,950					2,129		970	116	893		922	**15,980**
Sayewo	83,556	82,099	21,387		7,444	847	640	2,435	877	1,391	29,532		**230,209**
Walinyaba	41,818	139,986	29,445		2,443	10,491	15,263	23,257	14,992	25,828	72,272	29,235	**405,030**
Tingo	53,733	142,576	543,236		21,030	29,506	3,697	7,076	15,504	4,166	36,924		**857,448**
Fantango	1,028	4,598	3,214			638					163	1,974	**11,615**
Swim crabs	59	173	70						196	3,914	854		**5,265**
Red swim crabs												269	**269**
Total	**993,530**	**1,516,743**	**1,496,484**	**271,246**	**1,368,775**	**539,620**	**378,381**	**520,136**	**511,867**	**285,601**	**1,362,288**	**187,467**	**9,432,137**

Table 8 Total Catches, Effort and Catch Per Effort By Type of Gear Used For the Atlantic Stratum For 2006

Type of Gear Used	Total Catches Kilogram	Effort Days	CPUE Kg/Day
Encircling Net	15,521,468	22,414	692
Set/Bottom Gill Net	12,555,510	55,396	227
Drift Gill Net	-	-	-
Stownet	93,290	446	209
Hook and Line	818,324	3,028	270
Purse Seine	4,295,196	5,563	772
Other Net	299,336	127	2,357
Total	**33,575,249**	**86,974**	**386**

In terms of the contribution to total fish landings (Atlantic Coast), the two most important fishing gears operated in 2007 by the artisanal fishermen in the Gambia were encircling/surround gillnet and Set/bottom gillnet (Table 8). These gears are normally operated all year round. Surround gillnet target small pelagic fish, particularly bonga which is an estuarine species while Set/bottom gillnet target a wide range of demersal and sub-demersal fish species (Table 9). Landings depend on the abundance and availability of target fish species and these may have some bearing with seasons. In 2007, the two fishing gears landed approximately 16 000 and 13 000 respectively.

The most important gears in inland fisheries in terms of fish landings were Set/Bottom Gillnet, Stow net and Surround Gillnet (Table9).

As alluded to in the 2006 report, sardinella fishery has become very important in the Gambia. Total landings of the two sardinella species (*Sardinella aurita* and *Sardinella maderensis*) were estimated at 2 780 tonnes and 1 607 tonnes respectively (table 9). The two species were mainly targeted by fishermen using purse seiners.

Table 9 : Total Catches by Species and Type of Gear Used by Atlantic Coast Stratum (2007)

Species	Catches By Type Of Gear Used (Kilogram)						
	Encircling Net	Set/Bottom Gill Net	Stow Net	Purse Seine	Hook and Line	Other Net	Total
Shad/Bonga	13,078,725		4,291	642,063		12,077	**13,737,157**
Round Sardinella	1,606,375			1,107,080		63,615	**2,777,070**
Long Neck Croaker	1,548	42,261		312			**44,122**
Madeiran Sardinella	501,145			1,026,294		79,624	**1,607,063**
Cassava Croaker	409	1,178,773	976	2,621	9,677	1,586	**1,194,041**
Bobo Croaker	47,741	560,824	1,056	1,029	10,286		**620,935**
Rubberlip Grunt	403	183,769			2,409		**186,581**
Sompat Grunt	68,909	565,797		499,561	26,709	17,788	**1,178,764**
Round Sardinella	3,301						**3,301**
Bigeye grunt	303						**303**
Gorean Snapper		508					**508**
African Red Snapper		123,529			1,923		**125,452**
White Grouper		11,508		88	5,113		**16,709**
Dusky Grouper		97,406			13,940		**111,346**
Golden Grouper		1,238					**1,238**
Royal Threadfin		1,394					**1,394**
Giant African threadfins	82	214,503	914	24,376	8,628		**248,504**
Lesser African Threadfins		540,530	1,371	43,353	5,624		**590,878**
Rough head sea catfish		2,304,690	2,355	131,886	76,891	47,339	**2,563,160**
Smooth mouth sea catfish					3,147		**3,147**
Atlantic Horse Mackerel	27,328	178,478					**205,806**

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Table 9: Total Catches by Species and Type of Gear Used by Atlantic Coast Stratum (2007)

Species	Catches By Type Of Gear Used (Kilogram)						
	Encircling Net	Set/Bottom Gill Net	Stow Net	Purse Seine	Hook and Line	Other Net	Total
Alexandria pompano				10,681	262		**10,942**
Leerfish		818					**818**
Blue runner	1,509	34,784		19,529	1,707		**57,529**
Cravelle jack	4,078	262,361		253,039	2,588	10,741	**532,806**
False scad		116,612		1,831	18		**118,461**
Guinean Barracuda		523					**523**
Great Barracuda	461	392,472		211,152	10,434	2,070	**616,588**
Guachanche Barracuda		5,700					**5,700**
Leaping African mullet	1,346	783,642		1,187			**786,175**
West African Spanish Mackerel	107,680	201,483		95,882	23	1,779	**406,846**
Africana sicklefish	469	239,628	1,606	5,645	60,461	7,302	**315,113**
Butterfish	42,092	208,026	38	174,726	32,160		**457,042**
West African ladyfish	2,997	839,977	1,135	1,221	6,020	55,417	**906,767**
Canary dentex		6,558					**6,558**
Wedge sole		28,115	192				**28,307**
Senegalese sole		1,228,988	1,137				**1,230,124**
Bonefish	3,355	8,191		7,114	1,441		**20,101**
Largehead hairtail		7,172					**7,172**
Prickly puffer					10,907		**10,907**
Smooth puffer		149,175		1,557	525,700		**676,433**
Bluntnose lizardfish		33,379					**33,379**

Contd….

Table 9: Total Catches by Species and Type of Gear Used by Atlantic Coast Stratum (2007)

Species	Catches By Type Of Gear Used (Kilogram)						
	Encircling Net	Set/Bottom Gill Net	Stow Net	Purse Seine	Hook and Line	Other Net	Total
Pink shrimp (Southern)		302	65,268				**65,570**
Striped shrimp			12,018				**12,018**
Mediterranean locust lobster				6,136			**6,136**
Pink spiny lobster		242					**242**
Royal spiny lobster		4,232					**4,232**
Common cuttlefish		712,564	775				**713,340**
Common cuttlefish		6,774					**6,774**
Blacktip shark	42	12,668			359		**13,070**
Milk shark		1,937					**1,937**
Lowfin gulper shark	170	190,159		156	1,035		**191,520**
Daisy stingray		6,352			69		**6,421**
Common stringray		2,214			28		**2,243**
White skate		15,906					**15,906**
Whitespotted guiterfish		2,674					**2,674**
Blackchin guiterfish		33,784			610		**34,394**
Lsuitanian cownose ray		13,868					**13,868**
Sea Snail		669,121					**669,121**
Captain Fish		3,439					**3,439**
Tilapia		105,168					**105,168**
Trippo		32,245					**32,245**

Contd….

Table 9 : Total Catches by Species and Type of Gear Used by Atlantic Coast Stratum (2007)

Species	Catches By Type Of Gear Used (Kilogram)						
	Encircling Net	Set/Bottom Gill Net	Stow Net	Purse Seine	Hook and Line	Other Net	Total
Ribon Fish	8,094			23,832			**31,926**
Doctor Fish		3,722			154		**3,876**
Spinous spider		2,137					**2,137**
Swim crabs		113,456	157				**113,613**
Others	12,906	69,734		2,846			**77,610**
Total	**15,521,468**	**12,555,510**	**93,290**	**4,295,196**	**818,324**	**299,336**	**33,575,249**

Table 10 : Total Catches by Species and Type of Gear Used by In Land Stratum (2007)

Species	Catches By Type Of Gear Used (Kilogram)								
	Encircling Net	Set/Bottom Gill Net	Drift Gill Net	Stow Net	Purse Seine	Hook and Line	Long Line	Cast Nets	Total
Shad/Bonga	118,061	17,811	564	2,330					**138,766**
Round Sardinella				49					**49**
Long Neck Croaker	134	932	669	1,497		20	742		**3,995**
Madeiran Sardinella		28,066	539	564					**29,169**
Cassava Croaker	2,170	49,382	56,828	7,835		352	80,260		**196,826**
Bobo Croaker	2,843	82,370	125,183	27,797		1,227			**239,420**
Meagre		323							**323**
Rubberlip Grunt	704	1,556	284	45					**2,589**
Sompat Grunt		4,067	540	5,501		747			**10,855**
African Red Snapper		212	47	468					**727**
African browm Snapper			6,447						**6,447**
Royal Threadfin		24,832	252,026	4,849		3,151	482,501		**767,360**
Giant African threadfins	5,235	53,024	263,946	4,803		7,842	133,753		**468,604**
Lesser African Threadfins		15,025	235	1,684		255			**17,199**
Rough head sea catfish	6,667	215,593	160,641	19,336		333,437	746,723		**1,482,396**
Smooth mouth sea catfish				370					**370**
Atlantic Horse Mackerel			78	151					**229**
Blue runner		1,970	196	1,310		292			**3,767**
Cravelle jack		529	176			191			**896**
Guinean Barracuda		273		532					**805**
Great Barracuda	529	2,958	110,040	1,451		59			**115,036**

Contd…

Table 10 : Total Catches by Species and Type of Gear Used by In Land Stratum (2007)

Species	Catches By Type Of Gear Used (Kilogram)								
	Encircling Net	Set/Bottom Gill Net	Drift Gill Net	Stow Net	Purse Seine	Hook and Line	Long Line	Cast Nets	Total
Guachanche Barracuda		499	31,083			20			**31,602**
Banana mullet			274						**274**
Leaping African mullet	13,913	17,570	517	31,630		254			**63,883**
Wahoo	53								**53**
Africana sicklefish	700	2,307	20,902	6,229		467	639		**31,243**
Butterfish		20	497	6,264		647			**7,428**
West African ladyfish	695	24,326	7,665	1,228			19,382		**53,296**
Wedge sole	1,878	895		538					**3,311**
Thickback sole				349					**349**
Senegalese sole	3,517	11,724	734	11,687	3,261	203			**31,126**
Bonefish	371	1,104	80						**1,556**
Smooth puffer			157						**157**
Pink shrimp (Southern)		867	450	1,436,690	18,068				**1,456,076**
Caramote Brown				902					**902**
Striped shrimp				13,771					**13,771**
Common cuttlefish		15,913	440	1,484					**17,836**
Elegant Cuttlefish		23,474							**23,474**
Blacktip shark		176	30,999						**31,175**
Milk shark	215	78				529			**822**
Brown ray				178					**178**
White Spotted Guiterfish						196			**196**

Contd…

Table 10 : Total Catches by Species and Type of Gear Used by In Land Stratum (2007)

Species	Catches By Type Of Gear Used (Kilogram)								
	Encircling Net	Set/Bottom Gill Net	Drift Gill Net	Stow Net	Purse Seine	Hook and Line	Long Line	Cast Nets	Total
Blackchin guitarfish						503			**503**
Lsuitanian cownose ray	176	206	658	6,822		2,972			**10,833**
Sea Snail	76	6,246	6,511	212			2,486		**15,531**
Captain Fish		688							**688**
Tilapia	200,128	298,560	82,932	3,527		21,885	5,737	1,297	**614,065**
Kono Kono	150,126	107,074	8			19,613			**276,821**
Trippo	9,004	1,560							**10,564**
Lamba Ceesay						689			**689**
Mormyrus	63,490	11,315							**74,805**
Kosso	232,520	298,518				3,081			**534,118**
Sanko	5,165	4,519				5,245			**14,929**
Kokriko		4,409	10,733				29,755		**44,896**
Taro	147,705	901,907				2,196			**1,051,808**
Kululdomo		1,534							**1,534**
Sokoro	4,858	11,122							**15,980**
Sayewo	163,007	67,202							**230,209**
Walinyaba	172,018	233,012							**405,030**
Tingo	196,309	661,139							**857,448**
Fantango		8,613	1,974			1,028			**11,615**
Swim crabs		78		5,188					**5,265**
Red swim crabs				269					**269**
Total	**1,502,269**	**3,215,578**	**1,175,051**	**1,607,537**	**21,329**	**407,097**	**1,501,979**	**1,297**	**9,432,137**

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 11) hence the bulk of landings in those sites. In 2007, Gunjur recorded the highest bonga catch, approximately 5 000 tonnes followed by Tanji with just over 3 000 tonnes.

Table 11 : Total Catches by Species and Landing Sites for the Atlantic Coast Stratum (2007)

Species	Total Catches by Landing Sites (Kilogram)										
	Brufut	Kartong	New/Old Jeshwang	anyang	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**

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Table 11 : Total Catches by Species and Landing Sites for the Atlantic Coast Stratum (2007)

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 11: Total Catches by Species and Landing Sites for the Atlantic Coast Stratum (2007)

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…..

Table11 : Total Catches by Species and Landing Sites for the Atlantic Coast Stratum (2007)

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**

Table 12 : Total Catches by Species and Landing Sites for the Inland Stratum (2007)

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 12 : Total Catches by Species and Landing Sites for the Inland Stratum (2007)

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 12 : Total Catches by Species and Landing Sites for the Inland Stratum (2007)

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**

2.2 Industrial Fisheries

This sub-sector mainly operates in the coastal and offshore waters and normally capital intensive. Industrial fishing is very limited as almost all fishing 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 but seen to pick in 2007, figure 3 above. Annex 1a and 1c gives time series production figures for the industrial fisheries.

In 2007, industrial fisheries production was estimated at about 4 000 tonnes with the bulk (2 616 tonnes) coming from the demersal fishery including crustaceans, table 13) below.

Table 13: Total Industrial Catches by Months and Species (2007)

Species ↓	Monthly Catches (Kg)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Shrimps	12,382	10,629	7,621	2,041	8,686	18,509	15,607	45,669	57,750	60,930	19,109	8,803	267,736
Sole Fish	10,881	10,180	11,347	13,107	24,736	14,515	24,749	52,229	46,871	55,499	12,448	33,487	310,049
Demersal	203,149	256,078	140,118	134,893	129,817	233,025	215,355	254,297	201,920	345,006	131,813	370,262	2,615,733
Cuttle Fish	6,230	7,931	3,485	5,200	9,832	13,200	12,849	23,493	25,263	29,379	7,489	19,831	164,182
Octopus	2,048	4,293	4,457	3,307	1,460	5,450	19,034	46,640	15,743	7,343	965	1,883	112,623
Squid	-	-	-	-	-	-	46	3,137	-	181	845	1,140	5,349
Pelagics	7,038	10,920	12,698	19,841	15,393	12,690	4,639	7,204	8,055	24,649	2,404	15,042	140,573
Tuna	-	-	-	-	-	-	-	500	-	-	-	-	500
Others	11,538	26,533	17,745	14,904	21,924	50,705	16,049	16,121	17,711	47,815	14,280	19,291	274,616
Total	**253,266**	**326,564**	**197,471**	**193,293**	**211,848**	**348,094**	**308,328**	**449,290**	**373,313**	**570,802**	**189,353**	**469,739**	**3,891,361**

Table 14 below gives a summary of industrial fisheries effort and catches in 2007. According to the table, the annual average catch per unit effort was estimated at 1 630 Kg/day. This was in excess of 1 531 kg over the same period in 2006. There are two possible explanations; there was an increase in effort (Nr. of Vessels) or there more fish for uptake by the fishermen, the former may be more plausible.

Table 14: Industrial Catches, Efforts and Catch Per Unit

Month	Total Catches	Effort	CPUE
	Kg	Days	Kg/Day
January	253,266	115	2,202
February	326,564	157	2,080
March	197,471	140	1,411
April	193,293	111	1,741
May	211,848	119	1,780
June	348,094	149	2,336
July	308,328	174	1,772
August	449,290	281	1,599
September	373,313	315	1,185
October	570,802	463	1,233
November	189,353	142	1,333
December	469,739	222	2,116
TOTAL	**3,891,361**	**2,388**	**1,630**

2.3 Exports of Fish and Fishery Products

Exports of fish and fishery products are 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 15. The 5 years average ratio of exports and production is as low as 1.56 percent. In terms of value of exports, the trend reverses and is explained by exporters targeting high value fish and fishery products for exports.

Table 15: Exports of Fish and Fishery Products (1984 - 2007)

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

CHAPTER 3
APPENDIX TABLES

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

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

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