

Identification Of Fishing Gears and Assessment of Socio-Economic Status of Fishermen in River Yauri, Kebbi State Nigeria

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Abstract

This study aim to assess the present socio-economic status of fishermen in Yauri River. Three landing site were randomly selected and information about fishing gears and the social status of the fishermen, such as education level, age, occupation, family size, and other facilities were collected using a set of structured questionnaire from 100 fishermen. In this study, the socio-demographic results revealed that all the fishermen 43% were youth between 21 and 40 years old however, only 19% had their formal education. On the other hand, most of the fishermen (54%) engaged in fishing as their main occupation, with 73% categorized as low income earners of the fisher's community. Looking at the educational level and the standard of living of the fishermen, there is a need for the government and the non-government organizations to place some efforts in other to help in improving the facilities and amenities available within the fishermen community of Yauri.

Keywords: *Socio-economic, Fishermen, Fishing Gears, Yauri River*

INTRODUCTION

Nigeria is blessed with over 14 million hectares of reservoirs, lakes, ponds and rivers that are capable of producing over 980, 000 metric tons of fish annually (Ibrahim *et al.*, 2009). And most of these inland water bodies lacked proper management (Peter *et al.*, 2015). Fish and fish products are vital and affordable sources of food and high quality protein (FAO, 2013). Fisheries resources should play important role in development of nations that are endowed with lots of natural freshwater ecosystems like Nigeria, since fishes are obligate aquatic organisms. Apart from being a cheap source of animal protein, fish contains essential nutrients required by the body for healthy living (Francis *et al.*, 2014). According to Peter *et al.* (2015), the benefits of fisheries resources include among others; economic benefits, livelihood benefits, food and nutritional benefits and ecosystem resilience and services. Fishing is one of the major income earning occupations of the riverine populations including the people of Yauri Local Government. Up till today, Yauri serves as an important marketing center for smoked fish in the country. The importance of trade in the

region was emphasized by Roder (1989) who claimed that before the advent of colonial rule an important trade route existed between Yelwa and Lagos/Badagry through Bussa before it was disrupted by the Yoruba civil war (Umar, S. and A.I. Illo, 2014). Fisheries and fishing businesses are important sectors for many nations of the world from the perspective of income and employment generations. Fishing plays significant roles in supporting the livelihoods of fishermen worldwide and also provides important source of food to over one billion people around the world (Islam, *et al*; 2016). Small-scale fisheries occurred throughout the world, but predominated by the tropical countries and less developed countries. The fisheries also differ based on locations, and can generally be categorized as multi-gear and multi-species fisheries, with almost all of the catch being used as food fish (Berkes; 2001).

Fishing gear is a general term that refers to the equipment/tools used by fishermen when fishing. William (1967) define fishing gear as an instrument used to captured fish, such as net, hook, trap etc. Palms, vines, canes, lianas reeds, grasses and back of plant and trees are suitable material use for making gears and these materials are abundantly available at a low-cost price. According to Larson (2007) fishing gear can be described as instruments, either traditionally made or modern, used in catching fish by fisher men for human consumption, animal feed, bait and other uses. In other word they are equipment used by fishermen for catching fish in an aquatic system (Nelson, 2006). Artisanal fisheries are fish catching operation usually carried out with canoes and simple fishing gears. It is also characterized by Intensive labour, low capital investment and low productivity (Dada, 2004). Being low in technology and labour intensive fishery, the gear employed are mainly simple cast nets, hooks, various gillnets, beach seine and traps in the inland waters, exploiting the major rivers, their tributaries, natural lakes and various reservoir. The artisanal fisheries of Kainji Lake play a significant role in augmenting fish protein supply to the human population in Nigeria. Their total catch in 2000 was 13,361 tonnes, representing 6.88% of the total Nigeria inland waters fish production (Abiodun, 2002). The major constraints militating against artisanal fisheries in Kainji Lake and Nigeria in general include inadequate and high cost of fishing Inputs as a result of high exchange rate of the local currency and lack of access to credits facilities (Dada. 2004).

Poor management of water bodies by relevant government authorities in Nigeria has led to low productivity and consequently low catches by fishers. This has led to the use of undesirable fishing gears and very destructive fishing methods with the sole aim of getting more catch (Peter *et al.*, 2015). The problems associated with fishing operation at Yauri includes; level of exploitation, overexploitation and depletion. Lack of initiatives among fishermen, lack of credit facilities, lack of awareness, high cost of fishing gears, low income, poor road network and remote location of the fishing site. Since fish is one of the cheapest source of animal protein available to man, there is need to protect and manage them. In order for this to be realistic and effective, detail knowledge of the water bodies and the fishers is of great importance (Ekundayo *et al.*, 2014). Development and improved management of any inland water bodies must therefore start with increased knowledge of the water bodies, information on the current status of fisheries and the socio-economic characteristics of fishing communities so that people can be effectively integrated into co-management programmes. Fish are not infinite resources and requires good, long term

management and protection from over-exploitation. Therefore, the study will provide necessary data or information in order to overcome those associated problems in River Yauri.

Aims and Objectives of the Study

The aim of the study is to provide information on the areas that need immediate attention for effective fishery development of River Yauri, identify the fishing gears and techniques adopted by the fishermen and assess the socio economic background of fishermen in River Yauri.

Specific objectives:

- i. To identify the fishing gears used in river Yauri.
- ii. To provide basic information on socio-economic status of fishermen at river Yauri.
- iii. To find out some possible suggestions to uplift the livelihood status of local fishermen in Yauri.

MATERIALS AND METHODS

Study Area

Yauri emirate of Kebbi State, North-Western Nigeria was our study area and is located in the South-Eastern part of Kebbi State at Latitudes 11° 15'-12°30' N and Longitudes 5°18'-11°20' E, with three Local Government Areas. It covers approximately 18,591 km² with a population of about 657,544 million people. The mean annual temperature ranges between 35°C and 40°C, while the annual rain fall range between 450 mm and 1,050 mm. Relative humidity in the Yauri ranges from 51% to 79% during the rainy season, while 10% to 25% during the dry season. The vegetation can be classified as Sudan savannah type of vegetation and the soil is semi-arid type of soil, characterized by frequent weathering and leaching due to poor soil structure and low organic matter contents. The main economic activity is agriculture and over 70% of the people practices different type of agriculture activities.



Fig 1: Map of the study area in Yauri

Sampling Method and Sampling Size

Three major landing sites were purposely selected from Yauri Local Government Area which are Tashan Ruwa, Zamare and Hutawa. A Total of 35 fishermen from Tashan Ruwa, 43 fishermen from Zamare and 22 fishermen from Hutawa were randomly selected giving a total of 100 fishermen.

Data Collection

The data were collected with aid of structured questionnaire. The questionnaires were administered to the selected respondents from each of the selected landing sites. A total of 100 structured questionnaires were administered to the selected fishermen. The data that were collected during the survey include: the socio-demographic background of the fishermen such as gender, age, marital status, family size, education level. On the economic aspect, data that were collected include: the number of years of fishing experiences, other occupations, involvement in fishing activities and total monthly income. The fishing gear information that were obtained include: types of fishing gears and their mesh size, types and quantity of fish species caught.

Statistical Analysis

The data obtained were analyzed based on descriptive statistics using the frequency and percentage distributions with the aid of Statistical Package of Social Science (SPSS) Version 25.0.

RESULTS

Socio-demographic Information of Fishermen in Yauri River

The results from Table 4.1 shows the Socio-demographic Information of some fishermen in Yauri River and also revealed that, (91%) of the fishermen were males. In terms of age, (20%) were in the age group of 31 to 40 years old, (29%) are in group of 41 to 50 years old, (23%) are in group of 21 to 30 years while (21%) were above 51 years and (7%) were in the range of 10 to 20 years old. Among all of the fishermen sampled, (84%) were married and (16%) still single. In term of family size (32%) have about 6 to10, (24%) have about 11 to 15, (16%) have 1 to 5, (15%) have 16 to 20, (7%) have above 20 while (6%) do not have family. The result for number of male involve in fishing shows that (53%) have about 1 to 5 male involve, 14% have about 6 to 10 involve while (33%) do not have. The result also shows that the number of female involve in fishing is about (22%) have about 1 to 5 while (78%) do not engage their female in fishing. The educational status of the fishermen showed that some of the fishermen had some formal education, especially in Islamic field of studies (69%), while (19%) of them finished their secondary schools and (12%) they don't have any formal education.

Table 4.1 Socio-demographic Information of fishermen in Yauri River

Variable	Frequency	Percentage (%)
Gender		
Male	91	91
Female	9	9
Total	100	100

Age		
10 to 20	7	7
21-30	23	23
31-40	20	20
41-50	29	29
51 Above	21	21
Total	100	100
Marital status		
Married	84	84
Single	16	16
Widow	0	0
Divorced	0	0
Total	100	100
Family size		
0	6	6
1 – 5	16	16
6 – 10	32	32
11 – 15	24	24
16 – 20	15	15
21 above	7	7
Total	100	100
No of male involve		
0	33	33
1 -5	53	53
6 – 10	14	14
11 above	0	0
Total	100	100
No of female involve		
0	78	78
1 – 5	22	22
6 – 10	0	0
11 above	0	0
Total	100	100
Education level		
Primary school	0	0

Secondary school	19	19
High school	0	0
Islamic school	69	69
None	12	12
Total	100	100

Source: Field work 2021

Socio-economic Status of some Fishermen in Yauri River

For the socio-economic status shown in table 4.3 the result shows that majority of the fishermen (54%) were engaged in the fishing activities as their main occupation, 16% engage in farming, 8% in fish processing and 5% in Artisan while 17% engage with other business. In respect to the years of fishing experiences, 52% of the fishermen have been involved in the fishing activities for more than 20 years, 19% 11 to 15 years, 17% 16 to 20 years, 7% 6 to 10 years while only 5% of them involved in the fishing activities for less than five years. This result further shows that only 44% of the fishermen are members of cooperative societies while 56% are not. Access to credit only 15% have access to formal credit while the rest do not have. The result also shows that majority of the fishermen 66% were engaged in the fishing activities as their source of income while 34% engaged both fishing and non-fishing activities. In respect to the total annual income base on fisheries activities 57% of the fishermen earns about (₦10,000 to ₦500,000), 8% earns above (₦500,000 to 1,000,000) and only 1% earns more than ₦1,000,000. While base on both fisheries and non-fisheries activities 16% earns about (₦10,000 to ₦500,000), 9% earns above (₦500,000 to 1,000,000) and 9% earns more than ₦1,000,000. In term of involvement in fishing activities 69% of the fishermen of River Yauri were part-time in fishermen (less than 8 hours/day) and (31%) are full-time fishermen. In fishing expedition 95% went for daily fishing, 3% went twice a week and 2% weekly. In regards to channel of selling 67% of the fishermen are wholesalers while 33% were retailers. In condition of selling 69% of the fishermen sold their fish fresh, 27% dried and 4% iced. The number of fishing gear used 33% have 6 to 10 gears, 24% have 11 to 15 gears, 23% have 16 to 20 gears while 20% have more than 20 gears.

Table 4.2 Socio-economic Status of some Fishermen in Yauri River

Variable	Frequency	Percentage (%)
Major Occupation		
Fishing	54	54
Fish Processing	8	8
Farming	16	16
Artisan	5	5
Others	17	17
Total	100	100
Years of Experience		
0-5 years	5	5

6-10 years	7	7
11-15 years	19	19
16-20 years	17	17
21 above	52	52
Total	100	100
Membership of co-operative societies		
Member	44	44
Non-member	56	56
Total	100	100
Access to Formal Credit		
Yes	15	15
No	85	85
Total	100	100
Source of Income		
Fisheries	66	66
Non-fisheries	0	0
Both	34	34
Total	100	100
Total annual income		
Fisheries		
10,000 - 500,000	57	57
501,000 – 1,000,000	8	8
Above 1,000,000	1	1
Non-Fisheries		
10,000 - 500,000	0	0
501,000 – 1,000,000	0	0
Above 1,000,000	0	0
Both		
10,000 - 500,000	16	16
501,000 – 1,000,000	9	9
Above 1,000,000	9	9
Total	100	100
Involvement in fishing activities		
Full time	39	39
Part time	61	61
Total	100	100

Fishing equipment and materials		
01 – 05	0	0
06 – 10	33	33
11 – 15	24	24
16 – 20	23	23
21 – 25	20	20
Total	100	100
Fishing expedition		
Daily	95	95
Twice a week	3	3
Weekly	2	2
Monthly	0	0
Total	100	100
Channel of selling		
Retailer	33	33
Wholesaler	67	67
Others	0	0
Total	100	100
Condition of selling		
Fresh	69	69
Iced	4	4
Dried	27	27
Total	100	100

Source: Field work 2021

Fishing Gears Information of the Fishermen in Yauri River

The percentage of fishing gears used by the fishermen in River Yauri is represented in Table 4.3. A total of 11 different types of fishing gears was discovered from different fishermen, these include: gill nets, cast nets, hook and line, Traps, surrounding nets, beach seine nets, draft nets, drag nets, gura trap, ara trap and kawari. Mesh size of the gears varies from the net to net, depending on species, season and water bodies. In total, (2,574) gears were owned by the fishermen as shown in Table 4.3. The percentage of fishing gears used by the fishermen in River Yauri is also shown in table. The dominant gears used by the fishermen are gura trap (22%), gill net (20%), cast net (21%) and hook and line (15%).

Table 4.3 Fishing Gears Information of the Fishermen in Yauri River

GEARS	Mesh size (mm)	Target Species	Quantity of Gears	No. of Fishermen	Percentage
Gill net	30-60	<i>Labeo, Synodontis, Citharinus, Alestes and Chrysichthys</i>	543	20	20
Draft net	60-90	<i>Synodontis, tilapia, labeo, Citharinus and Alestes</i>	20	2	2
Cast net	20-10	<i>Alestes and Labeo,</i>	475	21	21
Beach seine	10-50	<i>Synodontis and Citharinus</i>	15	3	3
Trap net	25.4-38.1	<i>Alestes and Labeo.</i>	34	8	8
Gura trap	20-30	<i>Alestes, Clarias,</i>	756	22	22
Surrounding	40-50	<i>Hyperopsis, Clarias, Chrysichthys,</i>	12	2	2
Hooks and	20-50	<i>Clarotes, Heterobranchus Bagrus, Chrysichthys, synodontis mormyrus</i>	600	15	15
Kawari trap	100-200	<i>Heterobranchus</i>	2	1	1
Ara trap	30-40	<i>Clarias, Labeo,</i>	3	1	1
Drag net	20-40	<i>Citharinus, Clarias and mormyrups</i>	114	5	5

Total	2,574	100	100
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Source: Field work 2021

Discussions

The characteristics of the fishermen in Yauri River should be classified under the ‘artisanal fisheries’, which similar to the other small scale fishermen that exist in Kebbi State and Nigeria in general. The fishermen in Yauri used simple fishing gears and equipment, and they catch in a small quantity of fish, which just enough for their subsistence purpose and small scale commercial purpose. Similarly, Tafida *et al.* (2011) identified that the fishermen of Kainji Lake as belongs to the group of artisanal fishermen. The same group of fishermen were also reported exist in the arid region of Katsina State Clemens *et al.*, (2007). The fishing activities in Yauri were also dominated by males because of religious and socio-cultural reasons, which limits the involvement of women in fishing activities. Similar observation was reported by Sraboni *et al.* (2014) on women’s empowerment in agricultural activities in Bangladesh. This is contrary to the other research findings, were reported that a large number of women participated in the fish processing activities within the fishing communities of Lake Feferuwa, in the state of Nasarawa, Nigeria. Olapade (2012) reported that women play some significant roles in artisanal fisheries in Asejire River, in the state of Oyo, Nigeria.

Meanwhile, the data obtained in the study indicated that the fishermen were represented by the age group of 21 to 30 (23%) and 31 to 40 years old (20%), which should be considered as the middle age group of fishermen. This would probably due to the lack of alternative jobs available in the area, especially for the middle age groups of the community. The similar findings of a high proportion of the middle age group which involved in artisanal fishing was also reported by Ahmed (2008) in Uganda. This study also revealed that almost all of the fishermen (91%) were married and most of them have many children and other dependents, which depend on their fishing activities to survive. Similar finding was reported by Bolorunduro (2003) among the fishermen community in the state of Niger, Nigeria. The study also revealed that the majority of the fishermen (54%) engaged in fishing activities as their major occupation. This could be due to the high amount of fish that were caught every year that could sustain the livelihoods of the community. Similar finding was reported by Tafida (2011) however, they provide with some useful recommendations for the fishermen to create some enterprise diversification activities, rather than depending on the fishing activities alone.

A total of 11 different gear types were used by the fishermen in this study. These include the gill nets, cast nets, hook and line, traps, surrounding nets, beach seine nets, draft nets, drag nets and Gura. All of the gears have been revealed by du-Feu & Abiodun (1999) and Ogundiwin (2014) in their previous surveys within the fishermen community of the inland waters in Nigeria. These were the most common fishing gears used by the artisanal fishermen in the Kainji Lake and the Lake Chad basin in Nigeria Bene *et al.*, 2004 and Bankole *et al.*, 2003.

Conclusion

From the results, it can be concluded that the socio-economic characteristics of the fishermen who involved in the fisheries activities in River Yauri can be classified as ‘artisanal fisheries’ and they are similar to the other artisanal fishermen exist in Kebbi State, in general. This study provides some basic data and base-line information to the government and non-government organizations who managed the Kebbi state, especially the inland waters and its fishery resources. Furthermore, net generally is the most widely used fishing gears in River Yauri, because of its efficiency and effectiveness in catching many kinds of fishes. There are other types of fishing gears found in the study area, but none of them was considered to be as efficient as net.

Recommendations

The following recommendations are hereby made, so as to ensure optimum operation of the fishermen in River Yauri and as well prevent over-exploitation of the endangered smaller fish species, through utilization of the recommended sizes of the fishing gears:

1. Government should intervene in supplying the type of gears used by fishermen in catching fish, so that fishing activities could be efficient and effective, such gear could include net, trap and others.
2. The government should help to regulate the type and size of gear that will be used in fishing activities so as to prevent over-exploitation of smaller species considered to be endangered and also to ensure continuity of the fishing activities.
3. Fishing net with mesh size above 2.5mm should be recommended by the government to fishermen for their fishing activities, so that the juvenile species are not reduce drastically as a result of their operation.
4. There is need to provide workshops, seminars, conferences in order to make emphasis to fishermen on the process of handling these gears, so as to ensure good utilization. The government should provide small-scale fishermen with credit and subsidies to enlarge their boats or to buy land and farming equipment.
5. They should help them extend their fishing range to new fishing grounds or assist them in expanding their non-fishing activities; encourage more labour intensive fishing.
6. The government should take necessary steps to manage and motivate them for creating significant opportunities for their better livelihood structure.
7. Educational group need to be set up in fishing villages to improve their educational condition. The authorities ought to deliver loans for them at a low-interest charge and create alternative activity possibility in off-top season.

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