

## **Analysis of Artisanal Fisher Folk Information Needs and Accessibility in Benue State, Nigeria**

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**Abstract:** The study analyzed the information needs and accessibility of artisanal fisher folk in Benue State, Nigeria. Multistage sampling technique was used to select two fishing communities from each of the three agro-ecological zones in the study area. A structured questionnaire was used to collect primary data from 222 respondents. Descriptive statistics showed that artisanal fisher folk were mostly married male adults with low level of formal education, low income, and low use of modern technologies. The chi-square test revealed that there was a significant relationship between access to needed information and the output of the artisanal fisher folk at 1% level of significance. Logit regression test revealed that age, education and household size had significant effect on fisher folk access to needed fisheries information. Important areas of information need of the fisher folk were, sources of micro credit, modern fish capture methods and aqua-culture. It was recommended that adequate fisheries extension service should be provided in the fishing communities.

**Key words:** Artisanal fisheries, extension service, fishermen, improved fisheries technologies, information accessibility, information need

### **INTRODUCTION**

Fish makes vital contribution to the food and nutritional security of 200 million Africans and provides income for over 10 million people mostly small scale fisher folk and entrepreneurs engaged in fish production (World Fish Centre, 2005). According to Raw Materials Research and Development Council (2007), over 10 million people are directly or indirectly engaged in fishery in Nigeria.

Fishery activities are executed through two main methods in Nigeria namely artisanal or capture fishery and fish farming or aquaculture. Artisanal fishery is the harvesting of fish from rivers, streams, lakes and ponds by small scale fishermen using both traditional and modern fishing gears. It is the most important of fishery production in Nigeria and accounts for over 90% of her fishery production (Ogunbadejo *et al.*, 2007).

For any activity to be executed, adequate information is required. Artisanal fisher folk also require basic information on their fish capture activities. Information on weather, fish species, breeding seasons, marketing, sources of credit, modern fish capture methods, fish processing and storage are all required by fishermen in order to have satisfactory fish production. Pertiwi *et al.* (2002) reported that small scale fishermen require information on fish species, available resources in each catching area, fishing season, fish catching technologies.

Samson (2006) posited that artisanal fishermen need information in 11 areas of fisheries production which are fish harvesting, preservation and smoking methods, marketing, marketing channels, sales improvement, cooperative society management, access to and control of credit, coastal aquaculture and wild collection of fish seeds.

Information need is an individual or group desire to locate and obtain information to satisfy a conscious or unconscious need. The concept was coined by an American information scientist, Taylor (1962). Maceviciute (2006) defined information need as an expression of the deficit of concrete information by an individual (collective or technical) user solving a certain scientific or technical problem. Shekhurin (1970) posited that information needs emerge under the influence of objective and subjective factors. The objective factors are the goals of the development of society, tasks of various economic sectors, directions of development of science and technology, etc. These objective factors generate objective information needs of society and social groups. On the other hand, the actual problems are solved by people, scientist and specialists who have to find the best solutions. Their psychological features, knowledge, values, etc are the subjective factors generating subjective needs for information. However, this notion was criticized by representatives of psychological school like Blumenau (1986). According to him, information need is subjective

and based on an objective need for cognition resting on unconditional reflex for orientation. Blumenuau (1986) asserted that information need is a subjective reaction of the individual that provides a mental image of dissonance between required and acquired knowledge.

Information need is also described as the feeling of lacking something and wishing to fill the gap. All activities of living organisms and especially human activities always generate need for information about the changing environment and conditions of the tasks performed. The character of the human activity defines the character of information needs (Motul'skij, 2001).

Devadason (1996) posited that information need represents gaps in the current knowledge of the client. He further identified dormant need as another category of information need which the client is unaware of. The author further stated that information needs depend on work activity, discipline, availability of facilities, motivational factors for information needs, need to take a decision, need to seek new ideas, need to validate the correct ones, need to make professional contributions to establish priority for discovery.

Different people have different information needs, and such needs arise out of the desire to solve particular problems. Understanding the real needs of artisanal fishermen in this study will enable information providers to package information that is tailored towards addressing the needs of the fisher folk.

Information accessibility refers to the ability of a person or group of persons to get information they require on a subject within a given period in a manner that they will understand the information. Webster and Collins (2005) noted that information accessibility can be affected by lack of an effective mechanism for information gathering, cost of access, educational level and health of the information user and also language barriers. Accessibility to information is enhanced if the required information is packaged in form that is obtainable to the user in terms of cost, language, and source of the information.

Various factors, including social, economic and environmental affect access to information. The fact that artisanal fisher folk live in areas with poor or bad terrain, lacking basic infrastructure like road, electricity and telephone, limit their access to information. Also most artisanal fisher folk are illiterate and cannot make use of electronic or print media to access needed information.

New Partnership for Africa's Development (NEPAD, 2005) observed that overall information on inland fisheries is lacking at national and international levels in Africa. Benue State, Nigeria has intensive artisanal fishing activities due to presence of rivers, streams and ponds and several attempts have been made to enhance artisanal fishery there. Some of the programs include those of Operation feed the Nation, Directorate for Food,

Road and Rural Infrastructure, United Nations Development programme on artisanal fisheries among others. Despite such attempts, the sector has remained underdeveloped as artisanal fisher folk are still living in abject poverty and deprivation and fish production is on the decline yearly. An important factor identified as contributing to this scenario is lack of adequate information on modern fisheries practices among the artisanal fisher folk. Samson (2006) observed that outside the World Bank-assisted Agricultural Development Programs, there are no organized extension services for fisheries in Nigeria.

Some studies on artisanal fisheries in Benue State have been undertaken but none of them is known to be in the area of information needs and accessibility among fisher folk. This study was therefore undertaken to fill this gap.

The main objective of the study is to analyze the information needs as well as accessibility to needed information among artisanal fishermen in Benue State, Nigeria. The specific objectives were, to:

- Describe the socioeconomic characteristics of artisanal fisher folk in the study area
- Determine the level of information need of artisanal fisher folk
- Identify the major areas of information need of artisanal fisher folk
- Determine the accessibility to needed fisheries information among the artisanal fisher folk

The following hypotheses were stated and tested:

- There is no significant relationship between access to information and output of artisanal fisher folk
- Socioeconomic characteristics of artisanal fisher folk have no significant effect on their access to information

Artisanal fishermen require a variety of information in order to meet the modern day challenges of fish production, processing, marketing and distribution. These areas of fisheries information needs are diverse and vary from one area to the other depending on the prevailing fishermen's practices. It therefore becomes imperative to determine the factors that enhance or limit the accessibility of fishermen in the study area.

The outcome of this research will bring to fore the information needs of artisanal fishermen and problems associated with accessing such information .This might bring about a rapid transformation of the fishery sector especially artisanal fisheries. The study will be useful to the fishermen, researchers, government as well as NGO's at local, state and national levels in redirection of efforts towards the improvement of artisanal fishery production

in Nigeria. The study will help government in its planning programme in the area of artisanal fisheries as data will be available for planning and policy formulation.

## METHODOLOGY

**The study area:** The Study was conducted in November/December, 2010 in Benue State, Nigeria. Benue State is located in the North Central region of Nigeria. It was carved out of former Benue- Plateau State in February 1976 and is made up of twenty-three Local Government Areas (LGAs) with Makurdi as the State capital. Benue State has a population of 4,219,244 people (Federal Government of Nigeria, 2007) and a landmass of about 32,518 km<sup>2</sup>. It lies between longitudes 7°47' and 10° East and latitudes 6°25' and 8° North. The State shares boundaries with Nassarawa State to the North, Taraba to the East, Cross River to the South, Enugu to the South West and Kogi to the West. It also shares a common boundary with the Republic of Cameroon on the South Eastern stretch

Benue State is divided into three agro-ecological zones, namely, A, B, and C. The major ethnic groups in the state are Tiv, Idoma and Igede. Majority of the people in the state are farmers with those in riverine areas involved in artisanal fishing activities. The prominent rivers in the State are Rivers Benue and Katsina-Ala. However, there are other small rivers, streams, lakes and ponds scattered all over the state that serve as sites for intensive artisanal fish capture.

**Study population and sample selection:** The population for the study comprises all men and women involved in artisanal fish capture in the 23 LGAs of Benue State. Multistage sampling technique was adopted in selecting respondents for the study. One local area was purposively selected from each of three agro ecological zones in the state. In the second stage, 2 council wards were selected from each of the LGAs; in the third stage, one fishing community was purposively selected from each of the council wards due to intensive artisanal fishing activities there. Thus, Utsaazi and Utange communities were selected in Katsina-Ala LGA, Fiidi and North Bank fishing communities from Makurdi LGA while Oselonya and Olegege fishing communities were selected from Agatu LGA.

According to Federal Department of Fisheries (2007), Katsina-Ala, Makurdi and Agatu LGAs each, has a population of 1,860, 3,025 and 2,510 artisanal fisher folk respectively. Three percent (3%) of the population from each of the LGAs constituted the sample size of 222 respondents for the study.

**Method of data collection:** Primary data for the study were obtained using a well structured questionnaire while secondary data were obtained through journals, text books, other publications and through the internet.

**Validation and reliability of instrument:** Content validity was used to determine the adequacy and relevance of the items in the instrument. The questionnaire was thoroughly scrutinized by experts in the University of Agriculture, Makurdi, Nigeria. Observations and critique by the independent scholars were harmonized and relevant corrections were made. The test-retest method was used to determine the reliability of the instrument. Pearson Product-Moment correlation was used to test the result. A correlation coefficient of 0.981 was obtained. The instrument was therefore adjudged reliable.

**Method of data analysis:** Data obtained from the study were analyzed using both descriptive and inferential statistics. Descriptive statistics used were Frequency distribution and percentages. Chi-square was used to test hypothesis 1 which is the relationship between access to needed information and output of artisanal fisher folk and Logit regression model was used to test the effect of socio-economic characteristics on access to fisheries information (hypothesis 2).

**Logit regression model:** The following equation shows the logit regression model for the study:

$$z = \ln \frac{p}{1-p} = \ln Y = b_0 + b_1x_1 + b_2x_2 \\ + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7$$

where;

- Z = probability of access to information (1 = access; 0 = no access)
- bs = coefficients of explanatory variables which increase or decrease z
- x<sub>1</sub> = age (in years)
- x<sub>2</sub> = sex (male = 0; female = 1)
- x<sub>3</sub> = marital status (married = 0; single = 1)
- x<sub>4</sub> = education level (No. of years spent in school)
- x<sub>5</sub> = household size (No. of people living with the respondent in the same house).
- x<sub>6</sub> = fishing experience (total number of years spent in fishing activities).
- x<sub>7</sub> = income(in Naira: Nigerian currency)

## RESULTS

**Socio-economic characteristics of respondents:** The socio-economic characteristics of the respondents are contained in Table 1. About 90% of the fisher folk were males while only about 10% were females. The age distribution shows that those within the age range of 21-30 years were 22.8%, while those within the range of 1-20 years were 9.8%. The income distribution shows that majority of the respondents (56.6%) earned more than N300,000 per annum while those with income range of N51,000-100,000 were least with 2.5%.

Table1: Socio-economic characteristics of the respondents

Variable	Frequency	Percentage (%)
<b>Sex</b>		
Male	194	90.2
Female	21	9.8
Total	215	100.0
<b>Marital status</b>		
Single	28	13.0
Married	187	87.0
Total	215	100.0
<b>Age (years)</b>		
20 & below	21	9.8
21-30	49	22.8
31-40	63	29.3
41-50	45	20.9
> 50	37	17.2
Total	215	100
<b>Fishing experience (years)</b>		
10 & below	13	6.0
11-20	63	29.3
21-30	62	28.8
31-40	33	15.3
≥ 40	44	20.5
Total	215	100
<b>Income (N'000)</b>		
50 & below	42	19.5
51-100	6	2.5
101-200	27	12.6
201-300	14	6.5
Above 300	126	58.6
Total	215	100.0
<b>Education</b>		
Primary	52	24.2
Secondary	151	70.2
ND/NCE	11	5.1
HND/DEG	1	0.5
Total	215	100
<b>Household size (ha)</b>		
5 & below	48	22.3
6-10	91	42.3
11-15	51	23.7
16-20	13	6.0
21 & above	12	5.6
Total	215	100

Table 2: Level of information needs of fisher folk (N = 215)

Level of information needs	Frequency	Percentage (%)
High	195	90.7
Low	20	9.3
Total	215	100.0

The artisanal fisher folk with secondary education as the highest educational qualification were 70.2% while those with post-secondary education were only 5.6%. In terms of household size, most of the respondents (92.3%) had 6-10 persons per household, 23.7% had 11-15 persons per household while those with 1-5 person per household were 22.3%.

**Level of information needs of fisher folk:** Table 2 shows the level of information needs of fisher folk. About 91% of them indicated having high level of information need for improved fisheries technologies.

Table 3: Important Areas of Fisher Folk Information Need (N=215)

Areas	Frequency	Percentage (%)
Weather	17	7.9
Modern Fish Capture Method	84	39.1
Fishing gear and maintenance	31	14.4
Source of micro credit	200	93.0
Market and marketing	24	11.2
Fisheries rights and laws	13	6.0
Use of scales and measures	17	7.9
Aqua-culture	75	34.9
Fish feed formulation	31	14.4
Records keeping and cooperative Mgt.	25	11.6

\*: Multiple responses

Table 4: Accessibility to Needed Fisheries Information among the Respondents (N = 215)

Access	Frequency	Percentage (%)
Yes	81	37.7
No	134	62.3
Total	215	100.0
Frequency of Access		
Very often	26	12.1
Sometimes	55	25.6
Not at all	134	62.3

Table 5: Result of chi-square test showing relationship between access to information and output of artisanal fisher folk

X <sup>2</sup> -value	df	Contingency coefficient	p-value	Remark
14.315		0.250	0.006	Sig.

Table 6: Logit model for the effect of socio-economic characteristics on access to needed fisheries information

Variables	Coefficient	SE	Wald	Sig.
Constant	- 7.319	1.551	22.280	0.000
Age	0.058	0.024	5.833	0.016*
Sex	- 0.237	0.642	0.137	0.712
Marital status	0.975	0.593	2.705	0.100
Education	0.580	0.089	42.499	0.000*
Household size	0.086	0.043	4.007	0.045*
Fishing experience	- 0.023	0.025	0.821	0.365
Income	0.000	0.001	3.164	0.075

Log Likelihood ratio = 185.816; Nagelkerke R<sup>2</sup> = 0.472; Chi-square statistic = 89.696; Sig. = 0.000; \*: Significant at 0.01 level

**Areas of information need:** Table 3 shows the important areas of information need of the artisanal fisher folk. Most of the respondents (90%) indicated sources of micro credit as their chief area of information need. The other areas of information need mentioned were modern fish capture methods (39.1%), modern fish processing (30.2%), fishing gear and craft maintenance (14.4%) and fish marketing and marketing channels (11.2%).

**Accessibility to needed information:** Only 37.7% of the fisher folk had access to needed information. This indicates that majority of artisanal fishermen in the study area had little or no access to needed information. Table 4 gives the details.

**Relationship between access to information and output of fisher folk:** The result of the chi-square test shows the relationship between information accessibility and output of artisanal fisher folk and it's contained in Table 5. The chi-square (14.315) was significant (0.006) at 1% level of significance. The null hypothesis was therefore rejected,

implying a significant relationship between access to information and output of the fisher folk.

**Effect of socio-economic characteristics of respondents on access to needed fisheries information:** The result of logit regression analysis is contained in Table 6 and age, education and household size of the respondents were found to have significant effect on the respondents' access to needed fisheries information at 1% level of significance. The R<sup>2</sup>-value of 0.472 indicated that the factors in the model account for only 47.2% of the variation.

## DISCUSSION

**Socio-economic characteristics of respondents:** Most of the respondents (fisher folk) were males and this means that males dominated artisanal fish capture in the study area. The dominance of male folk could be explained by the fact that fish capture involves hard labor and is strenuous and risky which most of the female cannot withstand. In terms of age, the result obtained shows that those involved in fish capture are in the active age bracket.

The annual income distribution shows an improvement over the past findings such as those of Samson (2006) and Adeokun *et al.* (2006). However, it still points to the fact that the annual income of fisher folk is still relatively low, considering the present cost of living. This might account for their inability to use modern fishing gears and improved fishery practices in their fishing activities.

The fact that over 70% of the respondents had secondary education is an improvement in area of formal education over earlier findings by Njoku (2004) and Samson (2006). The high number of respondents with secondary education is a welcome development, as it can positively influence access to improved modern fisheries practices.

**Information need of fisher folk:** The level of information need of the artisanal fisher folk was very high and this finding agrees with that of Njoku (2004). This high level of information need portrays a desire by the fisher folk to have improvement in their fish capture. The major areas of information need include source of micro-credit, fish capture methods and fish processing and storage. Credit enables fishermen to acquire more and better inputs for their activities. This coupled with the fact that artisanal fish folk are mostly poor, may have informed the high level of information need in the area of micro-credit.

**Fisher folk accessibility to information:** Fisher folk accessibility to information was found to be very low in the study area. This can be attributed to the fact that most artisanal fisher folk are poor and live in areas with bad terrain and poor access to extension services and other

sources of information. To improve accessibility of artisanal fisher folk to needed information, these problems must be addressed.

**Relationship between access to information and output of artisanal fisher folk:** The result of the Chi-square test which revealed significant relationship between access to information and output of the respondents is an indication that fisher folk with access to needed information will have higher output than those who do not. Accessibility to information will enable the fisher folk use better fishery practices in terms of fish capture, fish processing, storage and marketing and hence higher returns. With access to information, there is increase in quantity and quality of fish capture, reduced fish spoilage and wastage. Therefore fisher folk access to desired information must be enhanced in order to bring about improvement in their output.

**Effect of socio-economic characteristics of respondents on access to needed fisheries information:** The logit regression result indicates that age of the respondents has significant effect on access to information. This result agrees with that of Okwu and Umoru (2009) which found a significant positive relationship between age and access to agricultural information among women farmers. Education also has a significant effect on access to information. This is consistent with the finding of Opara (2010) that both age and education have effect on access to information. Formal education enables the fisher man to identify several sources of information and utilize them effectively. Household size also had significant effect on access to needed fisheries information. This shows that fisher folk with larger household size have higher access to needed information. A large number of people in a household shall exert more pressure on the family and hence increase the desire to look for ways to increase fish capture to meet the household demand. More people in a household also mean greater exposure through friends, customers, and other contacts which could result in high access to information.

## CONCLUSION

Artisanal fisher folk in Benue State, Nigeria were mostly married adult males in active age range and with low level of formal education. There was very low application of modern technologies in artisanal fisheries in the study area. This could be due to low level of education of the fisher folk and lack of requisite capital to purchase modern inputs.

There was a very high need for information on improved fisheries practices among the fisher folk. The key areas of information need included sources of micro-credit, modern fish capture methods, fish processing and storage. The need to increase fish capture, acquire modern fishing tools and increase income level of fisher folk might have informed this high need for information in

these areas. Accessibility to needed information was very low among the fisher folk. Low level of education, poverty and lack of fisheries extension in fishing communities could have been responsible for the low access to needed information. The study also revealed a significant relationship between access to information and the output of the fisher folk. It was also found that age, education and household size had significant effect on fisher folk access to needed fisheries information. Extension packages that revolve around the information needs of fisher folk should be provided in fishing communities. Adult literacy programs as well as micro-credits should be provided to artisanal fisher folk to enhance their access to needed information and modern fishing gears and storage facilities.

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