Fisheries Information Needs of Artisanal Fishers in Coastal Communities of South-West Nigeria: Lessons for Effective Fisheries Information Dissemination

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Abstract: Information is considered one of the basic resources needed in today's world in order to be able to manipulate other factors of production. This study analyzed fisheries information needs of artisanal fishers in coastal communities of south-western Nigeria. A multi-stage sampling procedure was used in sampling 214 respondents. Data were obtained using a structured interview guide that was pre-tested with a Cronbach alpha internal consistency of 0.89 for information needs scale. Data were analyzed using frequency counts, percentages, means, standard deviation, Chi-square test, Pearson Product Moment Correlation and Analysis of variance. Results indicated that the mean age of the artisanal fishers was 43years; 86.9% were married and the mean household size was 8 persons. Findings also indicated that 21years and N46,105 were the average of fishing experience and income/trip respectively. Majority (88.8%) of the artisanal fishers do not have access to extension services. Furthermore, findings also indicated that the major information needs of the respondents were; Outboard engine maintenance ($\bar{X}$=2.97), Outboard engine safety ($\bar{X}$=2.94), Fishing crew safety ($\bar{X}$=2.81) and Fish preservation ($\bar{X}$=2.71).There were significant associations between artisanal fishers religion (χ^2=6.756, df=2, p<0.05), educational status (χ^2=8.044, df=4, p=<0.05) and information needs. Also, there were significant relationships between artisanal fishers age (r = 0.302, p< 0.01), years spent in formal school (r = 0.226, p< 0.01), years spent in fishing communities (r = 0.325, p < 0.01) and information needs. Results also revealed that there is a significant difference in the information needs of artisanal fishers across coastal south western, Nigeria. (F = 141.4, P < 0.05). It was concluded that the key areas of information need included outboard engine maintenance, outboard engine safety, fishing crew safety, fishing preservation. It is therefore recommended that relevant information should be packaged and provided based on the identified needs of the artisanal fishers in the fishing communities.

Keywords: Information needs, artisanal fishers, coastal fishing community

INTRODUCTION

Information is considered one of the basic resources needed in today's world in order to be able to manipulate other factors of production. Banmeke and Olowu (2005) opined that information has the tendency to stimulate the energy to act in an individual. Timely and adequate information enables an individual take the right decision at the appropriate time which will enable the individual function efficiently.

Motul'skij (2001) described information need as the feeling of lacking something and wishing to fill the gap. All activities of human always generate need for information about the changing environment and condition of the task performed. The character of human activities defines the character of information needs. Also, Devadason (1996) noted that information need represents gaps in current knowledge of the clients. He further stated that information needs depends on work activity, discipline, availability of facilities, motivational factors for information needs, needs to take a decision and to seek new ideas.

Fish protein is considered to be highly nutritious and more affordable when compared to some other sources of animal protein. Fish protein is also considered a relatively cheaper source of animal protein because of some vital nutrients that cannot be found in some other animal protein sources. The Nigerian fishery sub-sector which comprises both capture and culture fisheries can be broadly sub-divided into artisanal, commercial and culture fisheries. According to Raw Materials Research and Development Council (2007), over 10 million people are directly or indirectly engaged in fishery in Nigeria. This group of fishers commonly operates in inland waters, lagoons and creeks', extending to about five nautical miles off the sea shore (Adesulu and Sydenham, 2002).A large proportion of the Fish supply in many developing countries is supplied by artisanal fishers. In Nigeria, about 82% of the fish supply comes from artisanal fishers (Faturoti, 2011).

This is an indication of how important they are in the fishery sector of Nigeria's economy.

The Fishery sector plays a major role in the fresh water and marine water ecosystem of developing countries where artisanal fisheries supply the bulk of both inland and shore consumers, (Akegbejo-Samson, 2007).

According to Food and Agriculture Organisation (FAO, 2007) artisanal fisheries is defined as traditional fisheries involving fishing households, using relatively small amount of capital and energy, small fishing vessels, and short fishing trips, close to the shore, mainly for local consumption. Ogunbadejo, Alhaji and Otubusin (2007) asserted that artisanal fishery is the harvesting of fish from rivers, streams, lakes and ponds by small scale fishermen using both traditional and modern fishing gears. Artisanal fishing accounted for more than 80% of total fish production in Nigeria; while aquaculture accounted for less than 8% and industrial fishing fluctuates with a peak of 13.9% and minimum of 5.0%. Artisanal fishery sector is the most important sector, which accounts for the major fish supply in the developing world.

It is therefore pertinent that artisanal fishers are adequately equipped in order to meet this seemingly daunting task of providing the bulk of fish requirement through the provision of basic resources that will enable them function effectively. Timely and adequate information as a resource will enable an individual take the right decision at the appropriate time which will enable the individual function efficiently.

The general objective of this study is to determine the fisheries information needs of artisanal fishers in coastal areas of south-west, Nigeria. The specific objectives of the study were to:

1. Ascertain the socioeconomic characteristics of artisanal fisher in the study area
2. Ascertain the production characteristics of artisanal fishers in the study area
3. Determine respondents access to extension services in the study area
4. Investigate the specific fisheries information needs of artisanal fishers in the study area

Based on the drawn up objectives, these null hypotheses were tested:

$H_0$1: There is no significant association between artisanal fishers' socioeconomic characteristics and their information needs

$H_0$2: There is no significant difference in the need for fisheries information by artisanal fishers across coastal communities in south-west Nigeria

METHODOLOGY

The study was carried out in coastal South-west Nigeria which comprises Lagos, Ogun and Ondo States between November to December, 2014. South-west coastal area has a marine shoreline of about 250 km and extends inland about 32 km (at its farther points) from the shoreline and 200 km eastwards from the Nigeria/Benin Republic border. The coastal area has rich water resource for fishing and other aquatic activities. Annual rainfall varies from 1312 mm to 1726 mm with two pattern of rainfall season that last between April to November. Average minimum temperature ranges from 10^0 - 25^0 C with maximum of 27^0 - 37^0 and the relative humidity is about 60% throughout the year (Dublin Green *et al.*, 1997). Temperature in the coastal area is moderated by clouds and damp air (Kuruki, 2004).

A multiple stage sampling procedure was used for selecting respondents for this study. In the first stage, purposive sampling was used in selecting all the three (3) coastal states and this was based on the fact that the three states are domiciled in the study area. One (1) Local Government Area (LGA) namely; Ibeju-Lekki LGA from Lagos State, Ogun waterside LGA from Ogun State and Ilaje LGA from Ondo State were purposively selected, and this was based on the fact that these LGAs were the prominent ones within the coastal axis from each of the state.

The second stage in the sampling procedure involved the selection of fishing community. Convenient sampling techniques was used to select six (6) fishing community, from Ibeju Lekki, 9 from Ogun waterside and 4 from Ilaje. A total of Nineteen (19) fishing communities were selected for this study. The third stage involved the selection of the respondents. Watson (2001) sampling procedure, at confidential level of 95% was used to select Fifty percent (50%) of the artisanal fishers randomly in each of the fishing communities. Thus, a total number of 214 artisanal fishers were selected for the study as indicated in Table 1.

Data Analysis - The data obtained were subjected to descriptive (frequency distribution, percentages, mean and standard deviation) and inferential (Chi-square and analysis of variance) statistics using Statistical Package for Social Science (SPSS) version 15.0.

Table 1: Sample frame and sample size for artisanal fishers

SN	Fishing communities	Total number of artisanal fishers	No (50%) of selected artisanal fishers
A.	Lagos State (Ibeju-Lekki)		
1	Magbon Alade	20	10
2	Orimedu	16	8
3	Akodo	22	11
4	Lekki	24	12
5	Otola	24	12
6	Folu	20	10
B.	Ogun State (Ogun Waterside)		
1	Okun Igbeki	28	14
2	Okun Ileti	30	15
3	Okun Olosumeta	28	14
4	Okun Igbosere	26	13
5	Okun Bolorunduro	24	12
6	Okun Elefon	24	12
7	Okun Isekan	24	12
8	J.K Camp	22	11
9	Aba Gold	26	13
C.	Ondo State (Ilaje)		
1	Enu Amo	18	9
2	Okun Benin-boye	22	11
3	Okun Araromi	16	8
4	Okun Holy center	14	7
	TOTAL	428	214

Source: Field Survey, 2014

RESULTS AND DISCUSSION

Personal characteristics of respondents

Result in Table 2 revealed that the mean age of the artisanal fisher was 43years with 38.2% between the ages of 41 – 50 years. This implies that most of the artisanal fishers were still within their economically active and productive age group that can enhance efficient fish production. This finding is similar to that of Udoh (2003) who noted that about 62.2% of artisanal fishers were within the age range of 41-50years. Majority (86.9%) of the respondents was married and this may be adduced to the fact that most of the respondents rely on artisanal fishing to cater and fend for their household. Findings also revealed that 51. 9% of the respondents had primary school education while 28.0 % had secondary school education. It was therefore adduced from the finding that, artisanal fisher had basic literacy education.

Furthermore, majority (84.6%) of the respondents practiced polygamous marriage which is an indication that polygamous marriage is predominant among the respondents. It was observed that the respondents married more than one wife due to their involvement in the processing and marketing of their catch fish. Also, Table 2 indicates that the mean household size of the respondents was 8 and 54.6% had a household size of between 7 to 12 persons. This finding may be adduced to the polygamous nature of artisanal fishers' family. This result is similar to the report of Nwike (1989) and Fabusoro, Lawal-Adebowale and Akinloye as indicated in Olaoye (2010) that average household size in Africa was about 7 persons per household.

Findings in Table 2 also reveals that many (64.0%) of the artisanal fishers were of the Yoruba ethnic group while 24.3% were *Ilaje*. This is mainly due to the fact that the Yoruba ethnic predominate the area and the *Ilajes* are a predominant ethnic group in the coastal areas of this part of the country.

Table 2: Socioeconomic characteristic of artisanal fishers (n=214)

Variable	Frequency	Percent	Mean/Mode	Standard Deviation
Age (years)				
30 & below	27	12.6	43 years	9.90
31 – 40	60	28.0		
41 – 50	82	38.2		
51 and above	45	21.2		
Marital Status				
Single	9	4.2	Married	
Married	186	86.9		
Widowed	13	6.1		
Educational level				
No formal education	33	15.4	Primary Education	
Vocational education	02	0.9		
Primary education	111	51.9		
Secondary education	59	28.0		
Tertiary education	09	4.2		
Marriage Types				
Monogamy	33	15.4	Polygamy	
Polygamy	181	84.6		
Household size (person)				
6 and below	21	9.8	8 persons	3.29
7 – 12	117	54.6		
***Tribe**				
Nigerian	195	91.1	Nigerian	
Ghanaian	19	8.9		
Ilaje	52	24.3		
Ijaws	6	2.8		

Source: Field Survey, 2014
*Multiple responses

Production characteristics of respondents

Findings in Table 3 show that the mean year of experience of artisanal fishers was 21years while 37.4% had 11 to 20 years of experience in coastal artisanal fishing. It was observed that artisanal fishers with longer years of experience might determine factors that influence their fishing time and also able to forecast weather. The mean number of trips engaged-in by the artisanal fishers per week was 11 trips with 59.3% of the respondents indicating that they make between 8-14 fishing trips per week. The more fishing trips made by the artisanal fisher could be adduced to the use of outboard engines by the respondents which made the trips faster.

With respect to the number of years stayed within the community, the mean year of stay in the community was 39 years. Also, Table 3 shows that the mean income per fishing trip of the artisanal fishers was N46,105 with 55.1% indicating an income of N31,000 to N60,000 was realized per fishing trip. Furthermore, results in Table 3 shows that majority (77.1%) of the respondents use gills net while 73.1% use encircling net. It was observed that the gills net are the commonest net and it consist of rectangular, light weight nets joined together from end to end to form a very long horizontal curtain of netting which hangs loosely in water.

Table 3: Production characteristic of artisanal fishers (n=214)

Variables	Frequency	Percentages	Mean	Standard deviation
Fishing Experience				
10 and below	32	15.0	21years	9.33
11 – 20	80	37.4		
21 – 30	65	30.4		
31 and above	57	17.3		

Variables	Frequency	Percentages	Mean	Standard deviation
Number of Trip/Week				
10 and below	9	4.2	39 Trips	14.1
11 – 20	21	9.3		
21 – 30	28	13.1		
31 and above	156	72.9		
Years of stay in the community				
10 & below	9	4.2	39 years	14.1
11 – 20	21	9.3		
21 – 30	28	13.1		
31 and above	156	72.9		
Income per trip (N'000)				
30 and below	34	15.9	N46,105	
31 – 60	118	55.1		
61 – 90	39	18.2		
91 and above	23	10.7		
***Type of fishing gear used**				
Gill nets	165	77.1		
Encircling net	158	73.1		
Seine net	45	21.0		
Traps	20	9.3		

Source: Field Survey, 2014
*Multiple responses

Access to extension services

Finding in Table 4 shows that majority (88.8%) of the respondents did not have access to extension services while 9.3% indicated they often had access to extension services. This indicates that artisanal fisher do not readily have access to extension services which can negatively affect their productivity. In recent time it was observed that there is biasness of extension services towards crop production.

Table 4: Artisanal fishers' accessibility to extension services (n = 214)

Access to extension services	Frequency	Percentages
Very often	4	1.9
Often	20	9.3
Not at all	190	88.8

Source: Field survey, 2014

Information needs of artisanal fishers

Findings in Table 5 reveals that the major information needs of artisanal fishers were outboard engine maintenance ($\bar{x}$=2.97), outboard engine safety ($\bar{x}$=2.94), fishing crew safety ($\bar{x}$=2.81), fish preservation ($\bar{x}$=2.71), fishing injuries prevention ($\bar{x}$=2.61) and fishing craft protection ($\bar{x}$=2.61). This is an indication that issues relating to outboard engines is of paramount importance to the artisanal fishers and extension services should be directed at meeting these needs amongst others.

Table 5: Information needs of Artisanal fishers

SN	Information needs	Highly needed	Moderately Needed	Not Needed	Mean	Standard Deviation	Rank
1.	Outboard Engine Maintenance	207 (96.7)	7 (3.3)	00	2.97	0.17	1st
2.	Outboard Engine Safety	201 (93.9)	13 (6.1)	00	2.94	0.23	2nd
3.	Fishing Crew Safety	177 (82.7)	29 (13.6)	8 (3.7)	2.81	0.46	3rd
4.	Fish Preservation	158 (73.9)	50 (23.4)	6 (2.8)	2.71	0.52	4th
5.	Fishing Injury prevention	149 (68.6)	48 (22.4)	17 (7.6)	2.61	0.63	5th
6.	Fishing craft protection	148 (69.2)	39 (18.2)	27 (12.6)	2.61	0.66	5th
7.	Price standardisation	142 (66.4)	49 (22.9)	23 (10.7)	2.59	0.81	7th
8.	Modernize smoking kiln	146 (68.2)	27 (12.6)	41 (14.2)	2.52	0.77	8th

SN	Information needs	Highly needed	Moderately Needed	Not Needed	Mean	Standard Deviation	Rank
9.	Fish drying kiln	140 (65.4)	32 (14.9)	42 (19.6)	2.47	0.81	9th
10.	Fishing Gear weight (sinkers)	80 (37.5)	115 (53.7)	19 (8.9)	2.26	0.61	10th
11.	Fishing Gear Storage	89 (41.6)	35 (39.7)	40 (18.7)	2.25	0.73	11th
12.	Fishing Gear Floats	70 (32.7)	129 (60.3)	15 (7.0)	2.23	0.57	12th
13.	Fishing Gear	58 (27.1)	148 (69.2)	8 (3.7)	2.23	0.57	12th
14.	Fishing Craft Haulage	53 (24.8)	149 (69.6)	12 (5.6)	2.18	0.51	14th
15.	Fishing net fabrication	69 (32.3)	115 (53.7)	30 (14.0)	2.15	0.65	15th
16.	Method of Boat/Canoe Storage	51 (23.8)	147 (68.7)	16 (7.5)	2.14	0.52	16th
17.	Appropriate hanging ratio	68 (31.7)	100 (46.7)	46 (21.3)	2.07	0.71	17th
18.	Appropriate mash size	48 (21.0)	128 (59.3)	41 (19.2)	1.98	0.61	18th
19.	Use of scale and measure	33 (15.4)	142 (66.4)	39 (18.2)	1.95	0.56	19th
20.	Weather forecast	24 (11.2)	156 (72.9)	32 (15.9)	1.91	0.48	20th
21.	Techniques use in mariculture	9 (4.2)	52 (24.3)	153 (71.5)	1.30	0.51	21st

Source: Field Survey, 2014

Test of association between socioeconomic characteristics and information needs of artisanal fishers

Pearson Product Moment Correlation (PPMC) was used to test variables measured at interval level and the result is presented in Table 6 .Result shows that there were positive and significant relationships ($p<0.01$) between artisanal fishers' age ($r=0.302$), years spent in formal school ($r=0.226$), years spent in fishing communities ($r=0.325$) and their information needs. Also, there were negative but significant correlations ($p<0.01$) between artisanal fishers income per trip ($r=-0.295$**), income per week ($r=-0.296$**) and information needs.

Table 6: Test of correlation between selected socioeconomic characteristic and information needs

Variables	r	p-values	Remark
Age	0.302**	0.00	Significant
Years spent in school	0.226**	0.003	Significant
Years spent in fishing communities	0.325**	0.00	Significant
Income per trip	-0.295**	0.00	Significant

Source: Computed from Field survey (2014);
**correlation is significant at 0.01level (2-tailed)

Test of difference in the need for fisheries information across the study location

The result of this hypothesis that "there is no significant difference in the information needs of artisanal fishers across the study location locations" was tested using one-way Analysis of Variance (ANOVA). Findings in Table 7a reveal that there is a significant difference in the information needs of artisanal fishers across coastal south western, Nigeria. ($F = 141.4$, $P < 0.05$). This finding therefore indicates that the information need of respondents varies across the locations. For example, the proximity of fishers in Lagos state to urban cities and their access to relevant information might have reduced the level of their information needs. The hypothesis is therefore jettisoned and alternate hypothesis accepted.

Furthermore, a post-hoc multiple comparisons were carried out to indicate the significant differences among the study locations with respect to their information needs (using the Least Significant Difference (LSD) method). Table 7b shows that there are significant differences in artisanal fishers information need in Ondo state (Mean = 54.17), when compared with artisanal fishers information need in Ogun and Lagos states. A significant difference was also reported in Ogun State (Mean = 51.10) when compared with Ondo and Lagos state artisanal fishers information needs. There was also a significant difference in the information needs of artisanal fisher in Lagos state (Mean = 38.14) when compared with those in Ondo and Ogun states. Also, results in Table 7c reveal that artisanal fishers in Ondo state has the highest information need mean value, followed by Ogun state and Lagos state with the least information need mean values. It therefore implies that fishers in Ondo and Ogun states need more fisheries information than their counterparts in Lagos state.

Table 7a: ANOVA of the information needs of artisanal fishers across the study locations

Sources of Variation	Sum of Square	Df	Mean Square	F-Valve	P-Value	Decision
Between Group	9324.513	2	4662.257	141.4	0.00	S
Within Group	6889.373	212	32.964			
Total	16213.887	214				

Source: Computed from field survey (2014)

Table 7b: Post-Hoc (LSD) multiple comparison of variables information need

Location	Location (State)	Mean difference (I-J)	Std. Error	Significant
Ondo	Ogun	3.07*	0.98	0.002
	Lagos	16.03*	1.05	0.00
Ogun	Ondo	-3.07*	0.98	0.002
	Lagos	12.96	0.92	0.00
Lagos	Ondo	-16.03*	1.05	0.00
	Ogun	-12.96	0.92	0.00

Source: Computed from field survey (2014)
*The mean difference is significant at the 0.05 level

Table 7c: Post-Hoc (LSD) showing the Mean Values

	N	Mean	Standard deviation	Standard error
Ondo State	53	54.17	3.9161	0.5379
Ogun state	95	51.10	3.8619	0.4004
Lagos state	66	38.14	8.5213	1.0489
Total	214	47.83	8.7660	0.6020

Source: Computed from field survey (2014)

CONCLUSION AND RECOMMENDATIONS

Sequel to the outcome from the study, it could be concluded that artisanal fishers mainly use; gill nets, surrounding nets, seine nets and traps for their fishing activities and the key areas of information need included outboard engine maintenance, outboard engine safety, fishing crew safety, fishing preservation, fishing craft protection and fishing injury prevention. Also, fishers in Ondo and Ogun States need more fisheries information than their counterparts in Lagos state. It is therefore recommended that relevant information should be package based on the identified needs of the artisanal fishers and disseminated to the fishers in the fishing communities.

REFERENCES

Adesulu, E.A. and Sydenham, D.H.J. (2002). *The fresh water fishes and fisheries in Nigeria.* Macmillan Nigeria Publishers, Lagos, pp. 397

Banmeke, T.O.A., and Olowu, T. A. (2005). Agricultural information needs of women farmers in South-West Nigeria: Lessons for effective extension delivery, *Journal of Agricultural Extension*, 8:32-40.

Devadason, F.J., (1996). Practical steps of identifying information needs of clients: Paper presented at10th Congress of South East Asian Librarians (Cowsal X), Kuala-Lumper, Malaysia, May 21-25

Dublin-Green, C.O., Awosiko, L.F., and Folorunsho, R. (1999). *Climate Variability Research Activities in Nigeria*. Nigerian Institute for Oceanography and Marine Research, Victoria Island, Lagos Nigeria. 56p

Fabusoro, E., Lawal-Adebowale, O.A., and Akinloye, A.K. (2007). A study of rural livestock farmers' patronage of veterinary services for healthcare of small farm animals in Ogun state. Nigerian *Journal of Animal Production*. 34(1&2), 123-138

Faturoti, O. (2010). Nigeria: Fisheries contributes $US1 billion to economy. 25th Annual conference fisheries society of Nigeria, Badagry, Lagos, Nigeria

Food and Agricultural Organisation (FAO, 2007): The *State of World Fisheries and aquaculture 2006*. Rome. FAO: 162pp

Gakuru, M., Winter, K., and Stephan, F., (2009). Inventory of Innovative farmers advisory services using ICTs. *Forum for Agricultural Research in Africa (FARA),* Accra, Ghana. 67pp

Kuruki, P., (2004). Customary Water Laws and Practices in Nigeria. http://www.fao.org/lagal/advere/Faoiuncnos/Nigeria.

Motul'skij, N.V., (2001). Information needs and Essence of the origin, Development and Existence of a Library. Bibliotech. Svet., 3: 27-30

Nwike, F.I., (1981). Determinants of Agricultural Progressiveness in a small-holder cropping system of south eastern, Nigeria and consequences for research and administration.

Journal of Agricultural *Administration.* 8(3): 167-176

Ogunbadejo, H. K., T. Alhaji and S. Otubusin (2007). Productivity of labour in Artisanal fish farming in Nigeria. *African Journal of Applied Zoology*. Environment. Biology. 9:74-77.

Raw Materials Research & Development Council, 2007. Fishery Issue Potentials 7(1):15-20.

Udoh, A.J., 2003. Beliefs, norms and social values in the fishing communities of West African Sub-region: Akwa Ibom State experience. *Nigerian Southeast Journal of Agricultural. Economic and Extension* 5: 55–69