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Socio-Economic Analysis of Artisanal Fisher Folks in Ogun Water-Side Local Government Areas of Ogun State, Nigeria

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Abstract - This study was conducted to evaluate the socio-economic analysis of artisanal fisher folks in Ogun Waterside Areas, Ogun State using structured interview guides to collect primary data randomly from eighty respondents in four fishing communities (Iwopin, Oni, Makun-omi and Agbalegiyo) in 2011 fishing season. The information collected was analyzed using descriptive and budgetary analysis. The results reveals that almost average (53.8%) of the fisher-folks were males while 81.2% were in the active age distribution of 20- 60 years, no formal education (60.0%) while 37.5% are in the bracket of 11-20 year fishing experiences, married (91.3%) and (68.8%) are not members of any fisher cooperative societies. Most (71.4%) of the fisher folks inherited the fishing knowledge within the household. The total revenue (N83,762.50), Benefit Cost Ratio (0.45) and Gross Margin Ratio (49.30) showed profitability of fishery business. Constraints faced artisanal fisher folks includes inadequate storage (96.3%), infestation by water hyacinth (93.8%), inadequate power (88.8%), inadequate technology (87.5%), inaccessible credits and high cost of fishing inputs. There are significant difference between socio-demographic features and income level. Also, there are significant differences between constraints faced by the fisher folks and their profit level. Implications of these findings were critically examined, and pertinent recommendations were proffered based on the salient findings in the study.

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I. INTRODUCTION

Nigeria is blessed with inland water, brackish water, and marine water fisheries resources. On the basis of her resources, fisheries can be broadly classified into: Artisanal fisheries (85%), industrial fisheries (14%), and culture fisheries (1%) (Federal Department of Fisheries, FDF, 2005).

Fishing is an ancient human tradition. It is a traditional activity involving the hunting and gathering of aquatic products for food. Fish and marine products include freshwater and ocean fish, shellfish, ocean mammals and seaweed as well as plankton.

They represent a major food source, which is invaluable for the protein they provide and the industrial products they produce. Fish satisfies a vital food need for billions. Fish is also economically, socially and culturally important as a global dietary aspect of sustainable food security. Economically fish provides an important source of food and income for both men and women and fishing has an important social and cultural position in riverine communities. However, the tradition of fishing has been transformed over several decades of human civilization to become a resource extraction industry spanning the entire globe. Man first learned to catch fishes in traps and nets. These fishing activities were limited at first to the lakes and rivers, but as men improved on the boats and fishing technologies, they ventured into sheltered coastal areas, river mouths and eventually farther out on to the continental shelves, relatively shallow ocean plains between the land and the deeper ocean areas (Williams, 1987; Olubanjo et al., 2007).

Fishing settlements represent one of the oldest forms of community living known to mankind. In these settlements, fisher-folks including children, men and women have evolved over time, different crafts, skills and technologies for fishing and for day to day survival. This is, in addition, to those associated with the preservation and processing of fish catch. In typical fishing settlements (or landing sites), men are predominantly the harvester of wild fish species (Williams, 1987; Olubanjo et al., 2007). The extent and nature of the involvement in the capture fisheries in Nigeria however varies by locality, religion, level of education and form of fish sales, among other factors.

Small-scale fisheries can be broadly characterized as a dynamic and evolving sector employing labour, intensive harvesting, processing and distribution technologies to exploit marine and inland water fishery resources. The activities of this sub-sector, conducted full-time or part time, or just seasonally, are often targeted on supplying fish and fishery products to local and domestic markets, and for subsistence consumption. Export oriented product, however, has increased in many small-scale fisheries during the last one to two decades because of greater market integration and globalization. While typically men are engaged in fishing and women in fish processing and

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marketing, women are also known to engage in near shore harvesting activities and men are known to engage in fish marketing and distribution. Other ancillary activities such as net-making, boat-building, engine repair and maintenance, etc can provide additional fishery-related employment and income opportunities in marine and inland fishing communities. Small-scale fisheries operate at widely differing organizational levels ranging from self-employed single operators through informal microenterprises to formal sector businesses. This sub-sector, therefore, is not homogenous within and across countries and regions and attention to this fact is warranted when formulating strategies and policies for enhancing its contribution to food security and poverty alleviation (FAO, 2004).

The families (household) livelihood strategy in this area tends to combine various ways of earning a living. The most dynamic livelihood strategies rely on the largest possible range of approaches and available assets, thus reducing risks created by natural or market vagaries. One proven fisheries livelihood strategy is, as mentioned above, harvesting various fisheries resources with different gears depending on the season. Another is simply doing nothing during the "dead" period (particularly when the climate is very harsh) provided enough resources are generated during the active season.

Still a third - and particularly frequent and solid strategy in the rural areas - is to engage in fisheries during the "peak abundance" main season and to undertake another productive activity the rest of the year, such as raising pigs or repairing farm tools for the village. However, these people might be considered only part-time fishers and part-time farmers, and as such be excluded by modern administrations from a number of development schemes and benefits despite the fact that they might be the more robust and efficient contributors to society. Furthermore, multiple livelihood sources help reduce the catastrophic effects fisheries management measures can have where a fishery must be closed or reduced due to the state of resources.

There are some advantages associated with small scale fisheries especially in the study area such as the Lower running costs and fuel consumption. In general, having less mechanical power than industrial fisheries, they tend to optimize human power and reduce fuel costs, using more passive gears and practices such as hand lining, long lining, gillnets, fish traps and light attraction. Another is the Lower ecological impact. While artisanal/small-scale fishers may, and do, use destructive methods (such as poison and dynamite), it is usually agreed that their environmental impact is reduced because they employ mainly passive gears. However, this does not mean that they cannot overfish available resources. Higher employment opportunities being more labour-intensive, small-scale fisheries are naturally suited in rural areas

with high demographic growth, providing employment in catching as well as processing and trade of fish and fishery products. Still, without proper user rights and control of fishing capacity, overfishing is easily possible.

Nigeria is endowed with a coastline of 853km and over 14 million hectares of inland waters. The coastline stretches from the Western border with Republic of Benin to the Eastern border with Cameroon Republic. In 1978, Nigeria established an Exclusive Economic Zone (EEZ) which is an area beyond and adjacent to the territorial sea extending 200 nautical miles from the baseline. The surface area of the continental shelf is 46,300km² while the EEZ covers an area of 210, 900km², within which Nigeria exercises sovereign rights for the purpose of exploring, exploiting, conserving, and managing the natural resources. Nigeria is therefore blessed with an abundance of marine, brackish and inland water resources. Fish and fishing contribute immensely to the national economy by providing high animal food protein source, employment and poverty alleviation.

The coastline in Nigeria, and especially of the Ogun Waterside Area of Ogun State, is well-endowed with river networks, and a large expanse of exclusive ocean waters for commercial fishing. Moreover, capture fisheries account for over 90 percent of total annual fish production in Nigeria (Tobor, 1984). Consequently, several of the natives and residents in coastal (or littoral) states and communities in Nigeria are involved in the capture fisheries sub-sector of the nation's economy. Similarly, in the Ogun Waterside Area, the people (i.e. men, women and children) are engaged predominantly or on part-time basis in one or more activities in the capture fisheries sub-sector.

II. OBJECTIVES OF THE STUDY

The main objective is to examine the socio-economic analysis of artisanal fishing households in the study area as it improves their livelihood.

The specific objectives are to:

- Examine the socio-economic characteristics of the small scale fisher folks in the study area.
- identify the types of fishery practices and characteristics in the study area
- Determine the size of capital investments and the profitability of small scale fishing.
- Investigate the constraints affecting artisanal fisheries in the study area.

III. HYPOTHESES

H₀₁: There is no significant difference between socio-demographic and income level of the artisanal fisher folks.

H₀₂: There is no significant difference between profit level and constraints faced fisher folks

HO₃: Artisanal fisheries are not profitable in Ogun waterside Local Government Area of Ogun State.


IV. JUSTIFICATION OF THE STUDY

Food even more than clothing or shelter is the indispensable necessity of mankind. The fish industry as a whole has been known to contribute immensely to both economic and nutrition of the nation. Fresh fish provides an excellent source of protein for human diet. This protein is relatively of high digestibility, biological and growth promoting value for human consumption, nutritional studies have proved that fish protein ranks in the same class as chicken protein and are superior to milk, beef protein and egg albumen. Fish protein comprise of all the ten essential amino acids in desirable strength for human consumption. Nigeria is endowed with inland water bodies being used by small scale fish holders here in we have fish (renewable natural resource) which should be exploited rationally on sustainable basis. What is needed is a more dynamic approach to implement the available knowledge while exploring ways to ameliorate the performance of the industry. The contribution of the fisheries sector to the National economy is largely positive. Significant progress could occur in National fisheries development, which could result in the consolidation of small industrial base, growing export receipts resulting to a positive trade balance. The major challenge for the fisheries sector is meeting the current levels of consumption.

V. METHODOLOGY

a) Area of study

The area of study is Ogun Waterside Local Government Area in the Ijebu Division of Ogun State. She is located in the eastern part of Ogun state sharing boundaries with Ondo state in the north, Lagos state in the south and Ijebu east local government in the west. About half to three quarter of the length of the local government is surrounded by water extending from Lagos state to Ondo state, this peculiar feature gave birth to the name waterside.

The area comprises over 50 towns and villages with headquarter at Abigi at  6°29'N 4°24'E / 6.483°N 4.4°E (www.wikipedia.com), while the main town in this area are Iwopin, Omi, Ibiade, Abigi, Efire, Ilushin, Makun-omi, Ode-omi and Lomiro, the area consists largely of Yoruba-speaking people of which, the Ijebus comprise about 70 percent, with the Ikales, Ilajes, Itsekiris and Urhobos making up the remaining 30 percent. It has an area of 1,000 km² and a population of 72,935 at the 2006 census. This area is also blessed with a large expanse of fertile land (soil) rich in organic matter, well drained and deep which makes it support various crop cultivation especially plantation crops such as oil palm and coconut. The major occupations are Farming and Fishing. The major agric products are Garri, Fish, Rubber, Rice and Maize. Major natural

resources are Timber, wild Oil Palm Trees, and Vast manila forest. (www.ogunministryoflocalgovtandchiefaffairs.com).

The choice of the local government is by its close proximity to the Atlantic Ocean and its relative endowment with a complex network of streams, rivers, brackish water and in particular the extension of the Lagos (Lekki) Lagoon to the area. It is the only area of the state with a coastline on the Bight of Benin and also borders Lagos lagoon. Ogun state's artisanal outputs are: 2009 (13,170.790), 2010 (23,180.764) with 76 percent change (NAERLS & NPAFS, 2010) while Nigeria output was 2007 (564277mmt) and 2008 (511382mmt) with negative percent change (FDF, 2008).

b) Sampling procedure and sample size

A total of eighty respondents (fishermen and fisherwomen) were selected randomly and administered interview guides from four fishing villages (Makun-omi, Oni, Iwopin and Agbalegiyo) in the lagoon area of Ogun Waterside local government area (Table 1). The sampling population of eighty was used to actualize the main objective of the research, which is to know the profitability of the business.

Table 1 : Sample number and study location

Ogun Waterside Local Government Areas (LGAs)	Number of Respondents	Villages
1	20	Makun-omi
2	20	Oni
3	30	Iwopin
4	10	Agbalegiyo

c) Data collection

Quantitative data was collected with the aid of structured and pre-tested interview guides and personal communication which were designed to achieve the objectives of the study. The interview schedule is structured in such a way to consists of both open and close ended questions. The open ended questions allow the respondent to express their own opinions about specific situations in order to fulfill the specific objectives of the study. The sampling frame was obtained from Ogun State Agricultural Development Programme (OGADEP) frontline extension agents, out of which 80 artisanal fishing households were purposefully and randomly selected.

The secondary sources of data were from past related research reports, Federal department of Fisheries, text books and information from government establishments.

d) Analytical techniques

A combination of various analytical tools was used in the study. These tools include descriptive statistics such as means, frequency and percentages, and budgetary analysis such as net farm income (NFI), gross margin (GM) and profitability ratios. Specifically,

the first to three objectives was achieved using descriptive statistics while the four objectives (cost and return of fishery enterprises) was achieved using Benefit-Cost ratio, NFI, GM and profitability ratios. Thus:

Net Farm Income (NFI): gives an overall level of profitability of a fishery enterprise by adding fixed and variable costs together and subtracting the cost from the total revenue in naira.

Hence; $NFI = TR - TC$ (i.e. $TFC + TVC$)

Where: TR = Total Revenue {P = Unit price of output (Naira) multiply by

Q = Total quantity of output (Kg)}, TC = Total cost.

Gross Margin (GM)

Gross margin is the difference between the gross farm income (i.e. total revenue in naira) and the total variable cost in naira.

Hence; $GM = GFI - TVC$

Where: GM = Gross margin, GFI = Gross farm income, TVC = Total variable cost.

Profitability Ratios

Profitability ratio is a class of financial metrics that helps investors assess a business's ability to generate earning compared with its expenses and other relevant costs incurred during a specific period. When these ratios are higher than a competitor's ratio or than the company's ratio from a previous period, this is a sign that the company is doing well (Businessdictionary.com, 2010, Olaoye and Odebiyi, 2011, Okwu and Acheneje, 2011). Some examples of profitability ratios are listed and explained below:

Cost-Benefit Ratio (CBR or BCR)

Cost-benefit ratio or analysis is the term that either refers to helping to appraise, or assess the case for a project programme or policy proposal and an approach to making economy decision of any kind. From the above definition, the process involves whether explicitly or implicitly weighing the total expected costs against the total expected benefits of one or more actions in order to choose the best or most profitable option (Olaoye and Odebiyi, 2011, Okwu and Acheneje, 2011).

Therefore; $BCR = TR/TC$

Where, TR = Total Revenue (Naira); TC = Total cost (Naira)

Expense structure ratio (ESR) = FC/VC

Where, FC = Fixed cost (Naira) and VC = Variable cost (Naira)

Rate of return (ROR) = NR/TC

Where, NR = Net Return (Naira)

Gross Ratio (GR) = TFE/GI

Where, TFE = Total farm expenses (Naira) and GI = Gross income (Naira).

VI. RESULTS AND DISCUSSION

a) Socio - demographic characteristics of the respondents

Entries from the descriptive analysis of socio-economic characteristics of respondents in the study area in Table 1, shows that: Age is an important socio-economic characteristic because it affects productivity, output and adoption of innovation. It was obtained from the survey that 81.2% of the respondents' ages in the study area are between 20 and 60 years while 5% are above 60 years. This implies that most people engaged in fish catching were still active and physically fit to paddle the canoes. The implication was that the respondents are within the productive and economic active age, and could be able to increase fish catch and improve livelihood of the families. The finding was in agreement with those of Olaoye (2010), who found that most of the fisher folks are in their economic active ages to undertake strenuous task associated to the fishing enterprise and also in line with Bello, (2000) ascertain that age has positive correlation with acceptance of innovation and risk taking. Of the total 80 respondents, 53.8% were found to be males while 46.3% were female. This is a throwback to the belief on women access to productive resources of which credit is one; this is contrary to Lahai et al. (2000), which suggest that women participated more than man in most farming activities. Fishing practices are not limited to a particular gender both male and female are engage in capture fisheries to increase fish production, income level and improve food security of the economy, it was seen in the study area that a larger proportion of the fisher folks (91.3%) were married. This implies that occupational mobility will be reduced and family labour will be available for collective responsibility.

Almost half (52.5%) of the respondents had household size of 1-5 persons while 47.5% had between 6 and 10 persons. This implies that the lower the number of family dependant on capture fisheries the better the fishing performance because less time is spent on family issues and more on fishery. The relatively small household size may increase the number of labour needed as a against (Adegbite and Oluwalana, 2004; Adegbite et al., 2007) that the lengthy the household size, the more likelihood for labour efficiency on fisher folks but this was not so because the most common type of labour in the study area is the family labour (68%). The implication was that family labour will be available during the fishing activities and reduction of cost of product ion, hence increase profit. Also, it was noticed that in the study area majority of the respondents were Ijebu (31.3%) closely followed by the ijaws (30.0%) and the others were Igbo, Ikale, Ilaje and Yoruba respectively. This made communication easy amongst the fisher folks. With 60.0% respondents that were uneducated which is an important factor and

similar to the general opinion that most farmers are illiterates or semi-illiterates most of whom dropped out of formal school system as evidence from the studies of Ozor (1998) and Okwoche et al. (1998). Forde (1994) again stated that the low level of fishing education and social status of the artisanal fishermen were some of the constraints to their fish catching levels and indeed their development. Enlightenment and training/ workshops on fisheries may further enhance the operations and fortune of the fishermen.

Cooperative society involves a social participation that helps farmers to pool their resources together, to have access to fishing inputs and to have insight in their fishing issues. Membership of cooperative societies is therefore a factor which influences the adoption to improve fishing technologies and apparently alleviation. From the result, it was noted that 68.8% of the respondent do not belong to any fish association while only 30.0% are members, which may be reason for not benefitting from any source of credit facilities which is in line with the position of (Akinbile, 1998). The groups should ensure that members derive benefits from the group such that they will not have derived individually if they were acting alone.

The total revenue showed that many of the respondents (37.6%) earned a total of ₦70,000 - ₦84,000 while just 13.9% earned between ₦100,000 and ₦150,000, thus having an overall mean of ₦83,762.5000. Most of the respondents said that their rate of catch is at a moderate level (90%) while most stated that their major source of finance is from the family (52.5%), since the business by majority is family oriented thus little involvement with fish societies and the few that were not family oriented took loans from friends. Clark et al. (2005), for instance, reported that the non-availability of a credit scheme taking into full

consideration the peculiar circumstances of small-scale fisheries militate against capital –intensive expansion. Forde (1994) also supported this position when he wrote that the shortage of credit facilities was one of the major constraints to artisanal fishermen. Generally, lack of liquidity and the poverty of the practitioners have retarded the growth of artisanal fisheries. The availability of credit facilities for the use of the artisanal fisher folks could also increase the likelihood of their adopting the use of outboard engines as against the use of traditional, manual-propelled boats/canoes. The credit facilities will enable the fisher folks to acquire the fishing machines that are capable of reaching far into distant waters and thus increase the fish catch levels of the artisanal fisher folks. This is important, because the nearby coastal waters are usually over-exploited and therefore depleted. Again, the target of increasing fish catch level by the fisher folks could also make them abandon the manually paddled canoes and adopt the use of modern outboard engines that reach out far into the water to make good catches. Majority (85%) of the respondents sourced their labour from family members while only 15% obtained paid labour.

From the survey, (77.5%) of the respondents agreed that there is a ready market for fish harvested and 80.0% sell per hand (which varies having the highest value (37.5%) to be 200 pieces) with prices ranging due to the size and quantity. The fish harvested is mostly sold fresh and smoked (47.5%) so as to reduce level of spoilage as there are no adequate storage systems. From the sales of fish species in the study area many (41.3%) of the respondents obtained between ₦15,000 and ₦20,000 while 22.6% obtained between ₦5,000 and ₦10,000. From the survey we deduce that 86.3% of the respondents had a moderate income level while only 2.5% recorded low income.

Table 2 : Percentage distribution of socio-economic characteristics of respondents (N= 80)

Variables	Frequency	%	Mean	Std	Std Error
AGE (Years)					
<20	11	13.8			
20 – 30	17	21.2			
31 – 40	22	27.5			
41 – 50	18	22.5			
51 – 60	8	10.0			

Above 60	4	5.0			
TOTAL	80	100.0	20.84	1.1904	1.3309
SEX					
Male	43	53.8			
Female	37	46.3			
TOTAL	80	100.0			
MARITAL STATUS					
Single	4	5.0			
Married	73	91.3			
Widow	3	3.8			
TOTAL	80	100.0			
HOUSEHOLD SIZE (Persons)					
1 – 5	42	52.5			
6 – 10	38	47.5			
TOTAL	80	100.0	5.1125	0.561	0.503
TRIBE					
Ijebu	25	31.3			
Ijaw	24	30.0			
Igbo	2	2.5			
Ikale	4	5.0			
Ilaje	10	12.5			
Yoruba	15	18.8			
Level of education					
No formal education	48	60.0			
Completed Pry School	13	16.3			

Uncompleted Pry School	4	5.0			
Completed Secondary School	11	13.8			
Uncompleted Secondary School	1	1.3			
Tertiary education	3	3.8			
Fisher Cooperative Society					
Membership	24	30.0			
Non-membership	55	68.8			
Total Revenue (Naira)					
57000-69000	18	22.7			
70000-84000	30	37.6			
85000-100000	21	26.3			
100000-150000	11	13.9			
TOTAL	80	100.0	83,762.50	22,468.68	2,512.07
Source of Capital (Naira)					
Families	42	52.5			
Loan	3	3.8			
Borrowed	11	13.8			
Families & Loan	3	3.8			
Others	21	26.3			
Source of Labour (Man-hour)					
Families	68	85.0			
Hired Labour	12	15.0			
Ready Market					
Available	62	77.5			
Unavailable	18	22.5			

Mode of sales					
Kilo	6	7.5			
Hand	64	80.0			
Dozen	10	12.5			
Forms of fish sales					
Fresh	39	48.8			
Smoked	3	3.8			
Fresh & Smoked	38	47.5			

b) Fishery practices and characteristics of the fishing households

Most of the respondents are involved in the fishing business (97.5%) while the other respondents were involved in one or two other income generating activities that supplement their income. This implies that fishery activities alone were not sufficient to meet their family financial obligations. As shown in the Table 3, most of the respondents took up fishing as an occupation because of their family background (71.4%), while 2.6% took it as a hobby.

The result also revealed that most of the respondents in the study area had 11 – 20 years of fishing experience. It is believed that this would enhance their efficiency. This finding is in line with Schumpeterian theory of economic development which suggest that technical efficiency is influenced by technical knowledge and understanding in addition to other socio – economic environment with which the fisher folks must take decision (Kalirajan, 1990). Normally, the more the fishing experience, the higher the fish catch level since experience aids fishermen’s the performance and fortune (Olomola, 1991). This is also substantiated by the findings of Olaoye (2010) who observed that fishing experience is important in determining the profit levels of artisanal fisher folks, the more the experience, the more fishers understand the system, condition, trends, prices, etc.

In the study area most of the respondents made use of boats without engine (86.3%) while (13.8%) who could afford it made use of boats with engine for example Suzuki with different horse powers of 15, 25, 40, to mention a few as this improved their catch statistics. For those who made use of boats without

engines and with engine, their boats were generally made of woods and dug-out respectively. The implication of this is that the majority (86.3%) who used plank canoes propelled by paddling with or without cloth sails spent almost half of the time of their operations in canoe paddling. This is laborious particularly when the journey is entangled with water hyacinths.

In the study area we were able to know what the canoes are really made of, most of the respondents made use of Dug-out canoes (51.3%), while a few made use of both the wooden and the dug-out canoes (10%). Aside the boats been used by these fisher folks, during fishing they make use of various fishing gears comprising mostly of hook and line, traps (58.9%) which are used to catch different types of fish species such as Tilapia (*Tilapia zilli*), Catfish (*Clarias gariepinus*), slap water (*Heterotis niloticus*) e.t.c. while 2.5% are using other forms of fishing gears. The different species harvested, fish harvested most are the tilapia, catfish and korowo (37.5%). Majority of the respondents 90% are operating on a medium scale.

Table 3 : Percentage distribution of fishery practices and characteristics by the respondents (N=80)

Variables	Frequency	Percentage (%)
Primary occupation		
Fishing	78	97.5
Sowing	2	2.5
Reason for fishing as major occupation		
Commercial purpose	9	11.3
Family business	57	71.4
Occupation at disposal	12	15.1
Hobby	2	2.6
Time Fishing Operation commences		
0 – 10	25	31.3
11 – 20	30	37.5
21 – 30	15	18.8
Above 30	10	12.5
Type of fishing crafts used		
Boats with engine	11	13.8
Boats without engine	69	86.3
Type of Canoes used		
Dug-out canoes	41	51.3
Wooden	31	38.8
Wooden & dug-out	8	10.0
Common gears used		
Hook and line	47	58.9
Cages	33	3.8
Hook and line, traps & cages	28	35.0
Others	2	2.5



Distance gone for Fishing activities (Km)		
1.00	14	17.5
2.00	46	57.5
3.00	13	16.3
4.00	7	8.8
Fish Species harvested		
Tilapia	3	3.8
Catfish & Tilapia	23	28.8
Catfish, Tilapia & Korowo	30	37.5
Catfish, Tilapia, Korowo & Gymnarchus	23	28.8
Others	1	1.3
Level of fish catch		
Small	3	3.8
Medium	72	90.0
Large	5	6.3

Source : Field survey, 2011

c) *Cost and Return of Artisanal Fishing*

From the survey the cost and return structure had a total fixed cost of ₦78.8100 while the total

variable cost is ₦21.1820 having a total cost of ₦186,185.0, a gross margin of ₦41,295.13 and a gross margin ratio of ₦49,30026.

Table 4 : Cost and Return Structure for the respondents

	Amount (₦)	% total cost	total (TFC+TVC)
Cost of fishing net	4457.5	2.39412	
Cost of boat	30,450	16.3547	
Cost of engine	111562.5	59.9202	
Cost of line	245.63	0.13193	
TFC	146,715.63	78.8100	78.8100
Cost of Styrofoam	5000	2.66855	
Cost of fuel	31875	17.1201	

Cost of lamp	485	0.26049	
Cost of kerosene	1656.25	0.88957	
Cost of paddle	453.125	0.24337	
TVC	42,467.37	21.1820	21.1820
		99.99	
TC	186,185.01		
TR	83,762.50		
Gross Margin	41,295.13		
Gross Margin Ratio	49.30026		
BCR	0.45		
ESR	3.46		
ROR	-0.56		
RR	2.22		
Rate of Profit (%):			
High		6 (7.5)	
Moderate		69 (86.3)	
Low		2 (2.5)	

Source : Field survey, 2011

d) The major constraints affecting artisanal fisher folks in the study area

From Table 6, the constraints faced by the artisanal fisher folks in order of severity were as follows: inadequate storage (96.3%); infestation by water

hyacinth (93.8%); inadequate power supply (88.8%); inadequate technology (87.5%); high cost of fishing input; inaccessibility of credit facilities; lack of preservation equipment and inaccessible roads.

Table 6 : Constraints faced by the artisanal fishing households

Problems	Very severe		Severe		Non-severe	
	Freq	%	Freq	%	Freq	%
Inaccessibility of credit	10	12.5	52	65.0	17	21.3
Distance of market	----	-----	17	21.3	61	76.3
Inadequate power	71	88.8	7	8.8	----	----
High cost of equipment	7	8.8	69	86.3	3	3.8
Climatic conditions	1	1.3	74	92.5	1	1.3
Inadequate technology	70	87.5	5	6.3	4	5.0
Inadequate storage	77	96.3	2	2.5	----	----

Poor gear design	4	5.0	13	16.3	61	76.3
Diff access to fuel	4	5.0	10	12.5	63	78.8
Infestation by hyacinth	75	93.8	2	2.5	2	2.5
Menace of trawlers	---	---	12	15.0	61	76.3
Unavailability of parts	---	---	30	37.5	48	60.0
Difficulties of access		33.8	52	65.0	19	23.8
Scarcity of fish inputs	---	---	52	65.0	27	33.8
Poor maintenance	---	---	53	66.3	22	27.5

e) *Significant difference between socio-demographic characteristics and income level of the respondents (T-test)*

demographic characteristics of the respondents to their income level. This shows that out of the five variables tested all was significant at $p < 0.05$. Therefore, socio-demographic variables were significant.

Table 7 shows the result of the socio-

Table 7: Significant difference between socio-demographic characteristics and income level of the respondents (T-test)

	T	df	Sig 1	Decision
Age	-36.343	79	0.000	Reject H_0
Sex	-38.471	79	0.000	Reject H_0
Marital status	-28.871	79	0.000	Reject H_0
Experience	-23.678	79	0.000	Reject H_0
Level of education	-33.343	79	0.000	Reject H_0

Decision criterion is to reject null hypothesis when $P < 0.05$ of a degree of freedom.

f) *Significant difference between constraints faced artisanal fisher folks and profit level of the respondents (T-test)*

Table 8 shows the T-test with a value of 28.696 and a significant of 0.0001 showed that there is a significant difference between constraints faced by the artisanal fisher folks and their income level.

Table 8: Significant difference between constraints faced artisanal fisher folks and profit level of the respondents (T-test)

	T	df	sig 1	Decision
Constraints	24.69	79	0.011	Accept H_1

Decision criterion is reject null hypothesis when $P < 0.05$ of a degree of freedom.

III. CONCLUSION AND RECOMMENDATIONS

The conclusion drawn from the study area shows that most of the fisher folks are males and their age was within the economic active range which favoured the adoption of fishing development. Most of the fisher folks are married and highly experienced in fishing because of families' inheritance. The study revealed the undermining role played by capital which poses very serious threat to adoption of fishing technologies. Majority engaged in fishing because it was a family business and to augment income from other sources. The high levels of illiteracy, non member of fishery cooperative societies, no storage facilities, inadequate technologies and water hyacinth were a hindrance in the fishing environment. The artisanal fishing was moderately profitable in the study area.

Based on the findings of the study we strongly recommend the following:

- Fisheries extension services should be intensified with adequate programmes that will encourage improved fishing practices and technology adoption in order to boom fish production and limit the present losses experienced by the fisher folks.
- Artisanal fisher folks should properly organize themselves into cooperative societies so that they can pool resources together (common voice) and government can channel various aids, loans and other fishing facilities through cooperative bodies.
- Adequate credit facilities should be made available to artisanal fisher folks for the expansion of their fishing activities. There is need to design special programmes to improve access of artisanal fishers to credit facilities. The fisher folks should be linked up with Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB) and Ogun State Agricultural Multipurpose Credit Agency (OSAMCA) for timely credit facilities.
- Enlightenment and training/workshops on fisheries may further enhance the operations and fortune of the fishermen.
- Government should intensify more effort on water hyacinth control programme to boost fish production and easy water transport services.
- Adequate infrastructure such as motorable roads, electricity and resources for preservation of equipment should be provided in the rural fishing villages.

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