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Comparative studies of the socio-economic characteristics of marine and lagoon artisanal Fisherfolks in Lagos state, Nigeria

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Abstract

Comparative study of the socio-economic characteristics of marine and lagoon artisanal fisherfolks in Lagos State was studied using multi-stage sampling technique to pick eighteen fishing marine and lagoon communities respectively, based on Lagos State Agricultural Development Authority Extension visit classification. Oral and structured questionnaire were used in collecting data on fishers socio-economic characteristics and operation income. Descriptive statistics, T-test, Chi-square were used for data analysis. The result showed significant differences in the gender distribution, mean age, house-hold size, fishing experience and average monthly fishing income of marine and lagoon respondents. For fisheries operation empowerment, loan facility, it is recommended that male fisher folks between the ages of thirty to sixty five years should be considered while male lagoon fisher folks should be encouraged to augment their very low monthly income with aquaculture production. Marine fisher folks women should be introduced to modern fish processing facilities to prevent fish spoilage during bumper harvest.

Keywords: socio-economics, fisher folks, marine, lagoon

1. Introduction

Artisanal fisheries represent 89% of local fish production in Nigeria. It is the major source of employment and livelihood for 80% of the people living in the riverine and coastal areas of the country [10, 16]. Along the Nigerian coast line of 960 km, with inshore water covering a distance of 853 km from the east to the west are eight maritime States, which are Akwa Ibom, Rivers, Cross Rivers, Bayelsa, Delta, Ogun, Ondo, and Lagos States. Lagos State is situated in South west of Nigeria hosting 22.5% of Nigeria's coast line of 853 km, which stretches for 180 kilometers along the Guinea Coast of the Bight of Benin, on the Atlantic Ocean [20, 11]. The 78km square portion of the total land surface areas of Lagos State is covered by three types of water bodies with varying degrees of salinities (Fig.1). These are fresh water ($0 < 0.05\text{ppm}$) and brackish water ($> 0.05\text{ppm}$) and marine water ($> 5\text{ppm}$). Fishing activities are more prominent in marine and lagoon water bodies.

Small scale fisher folks belong to one of the six major groups of artisanal fishing activities such as processing, marketing, repair of gears and crafts, fabrication, e.t.c [15, 1]. Small holder farmers such as artisanal fisher folks are known to be employer of labour as well as equitable distributors of wealth. In order to enhance productivity [14, 15] supported the view that people (Fisherfolks) who use the resources (fishes) must be studied. Fish is also a source of protein, readily available and relatively cheap when compared with meat. It is 40% of dietary animal protein consumed by Nigerians [7, 11].

Artisanal fisheries which is usually associated with rural and semi-urban communities, is an activity carried out by fisher folks on private or family basis in water bodies. Fishing inputs used include fishing craft (boat, canoe), and simple fishing gears such as nets, hooks and line, traps, and to some extent, Out board engines [18], stated that rural people can only be understood and appreciated by having knowledge of their attitude, problems, needs, interest, motivation, aspiration and capabilities. Since fishing activities is more prominent in the marine and lagoon water bodies in Lagos State, it will be of benefit to carry out comparative study of socio-economic characteristics of artisanal fisher folks in the marine and lagoon communities in order to expose areas of intervention (in terms of financial strength and weakness, entrepreneurship training, welfare and skill acquisition) by government policymakers, and Non-governmental Organizations.

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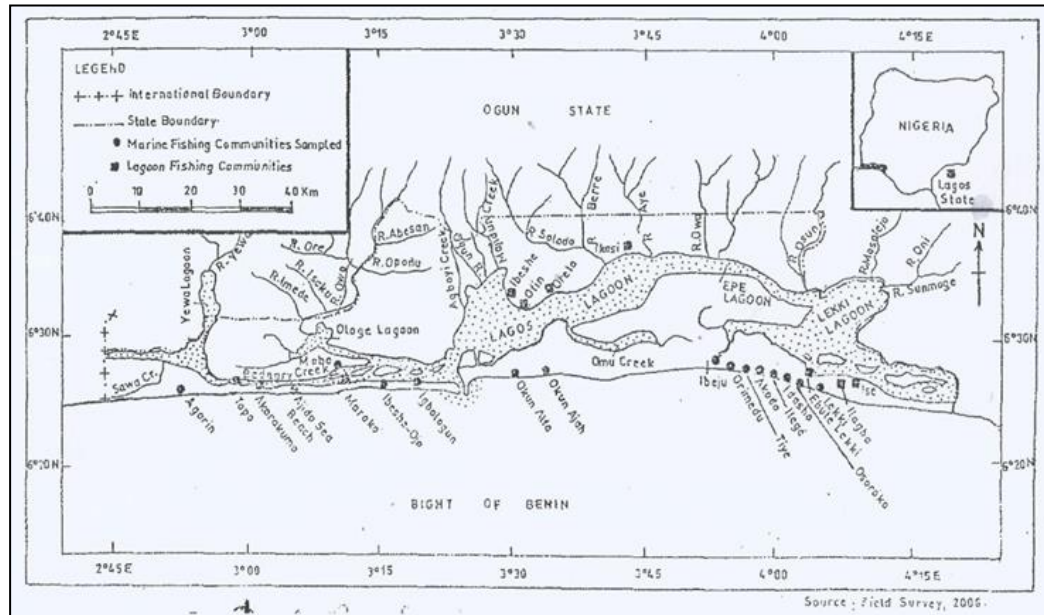


Fig 1: a. Relative coverage of water bodies in Lagos State
 b. Insert: Map of Nigeria with Lagos State

2. Materials and Methods

Lagos State with majority of its fishing communities remotely located in the rural areas was picked as the study area. The sampling method took into consideration the extension village listing survey report of Lagos State Agricultural Development Authority (LSADA). LSADA is an extension implementing parastatal of the Ministry of Agriculture, with its operative divisions being Western, Eastern and Far Eastern zones (Fig.2). These divisions contain Marine, Lagoon, and Riverine communities. Fishing activities are more prominent in the Marine and Lagoon water bodies. Secondary data such as maps, location of Lagos State, e.t.c. were sourced from Institutions such as Food and Agriculture Organization (FAO), Federal Department of Fisheries (FDF), Nigerian Institute of Oceanography and Marine Research (NIOMR) and LSADA. Primary data were collected by means of

structured questionnaire administered to respondents from fishing communities. Personal data of respondents comprising gender, marital status, age, family size, educational status, primary and secondary occupation, fishing experience and fishing trips landing were collected. Marine fishing communities sampled were Akarakumo sea beach, Aivoji, Ajido sea beach, Agorin, Ibeshe sea beach, Moba, Yovoyan, Sakpo, Ashipa, Apese, Okun Aifa, Okun Ajah, Orimedu, Ilege, Idaso, Akodo, Tiye, Osoroko, while the lagoon communities were Makoko, Ibeshe – Ojo, Ajido, Igbologun, Topo, Akarakumo, Ipakodo, Offin, Oreta, Ebute-Iga, Agbowo Ikosi, Baiyeku, Ebute Lekki, Ebute Erepoto, Ilagbo, Ibeju Agbe, Ebute Afuye and Ise (Table 2). The water bodies in the communities sampled contain a lot of target fish species of economic significance as stated below.

Table 1: Fish Species of Economic Importance in the sampling communities

S. No.	Marine Fish Species	Brackish (Lagoon) Fish Species
1	Croakers (<i>Pseudotolithus senegalensis</i>)	<i>Chrysichthys nigrodigitatus</i>
2	Baracuda (<i>Sphraena quachancho</i>)	Tilapia (<i>Tilapia niloticus</i>)
3	Sardine (<i>Sardinella maderensis</i>)	Sardine (<i>Ethmalosa fimbriata</i>)
4	Bonga (<i>Ethmalosa fimbriata</i>)	Baracuda (young ones) (<i>Sphyaena quachancho</i>)
5	Red Snappers (<i>Lutjanus gorensis</i>)	Mulletts (<i>Mugil cephalus</i>)
6	Thread fin (<i>Pentanemus quinquarius</i>)	
7	Mulletts (<i>Mugil cephalus</i>)	
8	Grunters (<i>Pomadasys jubelini</i>)	
9	Marine catfish (<i>Arius heudelotus</i>)	
10	Soles (<i>Cynoglossus canariensis</i>)	
11	Moonfish (<i>Selene dorsalis</i>)	
12	Shiny nose (<i>Galeoides decadatylys</i>)	
13	Spadefish (<i>Drepane africana</i>)	

A multi-stage sampling technique was used in this study. Thirty-six (36) communities comprising of eighteen (18) marine and eighteen lagoon (18) communities were randomly selected out of 110 fishing communities visited by Extension Agents as stated above. Consequently, random selection of ten fishing households from each community through oral interview conducted at fish landing sites, beaches and jetties

was done. A total of three hundred and sixty (360) respondents were thus obtained. Only (346) three hundred and forty-six questionnaires were used for data analysis. A number of analytical techniques were used to analyze the data collected. Descriptive statistics such as means, cumulative frequencies, percentage were used. T-test and Chi-square test were also carried out.

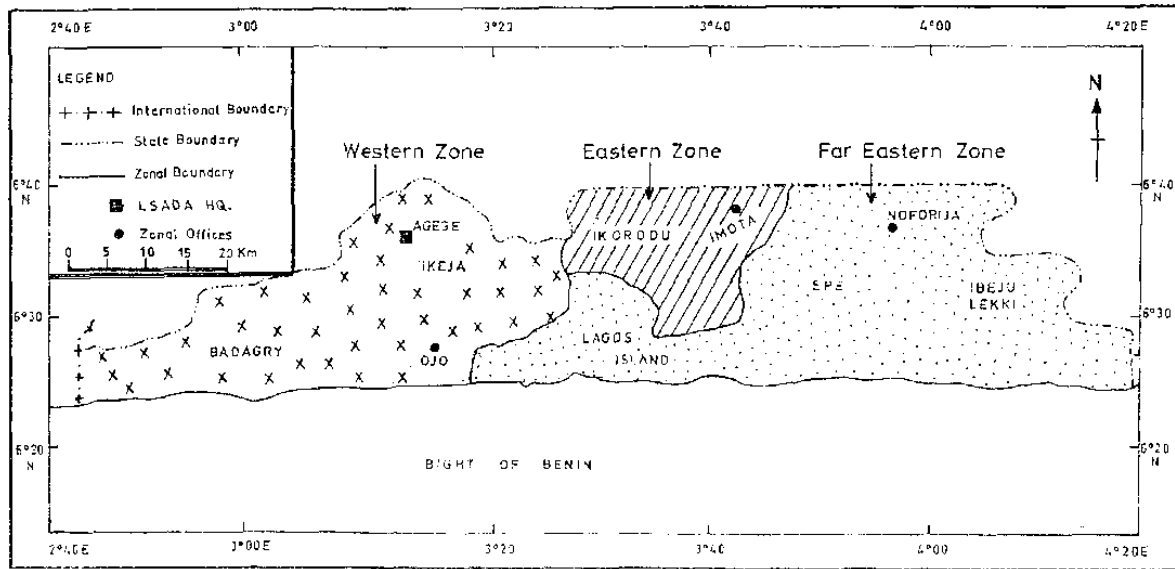


Fig 2: Agricultural division of Lagos State by the Agricultural Development Authority

3. Result and Discussion

The findings of the comparative study and discussion of the socio-economic characteristics of marine and lagoon fisher folks were considered under the following: gender, age, marital status, house hold size, educational status, secondary occupation, fishing experience, fishing gear type, and monthly fishing income. The result showed that the distribution of respondents by gender based on water bodies indicated that 100% male fisher folks were found in the marine communities while 93.9% were male and 6.1% female in the lagoon communities (Table 3). The findings showed that more males are involved in active fishing in the water bodies than female. This corroborated the observation by ⁽²⁾ that fishing trips at sea and landing at the beach involve a lot of physical exertion which is considered to be beyond the female capabilities. The few women (3.2%) who were sampled in the lagoon communities were those that set traps and hand net for crabs and shrimps at the lagoon back waters. Majority of females (75%) deal exclusively with processing, preservation, storage, and marketing of fish which is in line with the findings ^{(2), (12)}. The marital status of respondents in the table 3 showed that no (single) bachelor respondent was interviewed in the marine water body whilst 2.2% single respondents were interviewed in the lagoon water body. The distribution by marital status was about equal with marine having frequency of 94.6% and lagoon 92.8%. The mean age of fisher folks interviewed in the two water bodies communities was 43.0 ± 8.18 years, with 7.2% and 20% of marine and lagoon fisher folks being in the age range of 30 to 40 years respectively. The lowest percentage frequency of 1.8% (marine) and 7.2% (lagoon) were recorded for age range 61 - 70 years. No marine respondent was recorded for above 70 years while only 1.7% was recorded for lagoon respondents. The frequency distribution of 7.2% and 20.0% respectively recorded for marine and lagoon age range 30 - 40 years is indicative of the dearth of able bodied young men in artisanal fishing and this can be attributed to rural-urban drift. If viewed from the aspect of capital requirement, the lagoon respondents frequency appear to be higher than those of marine due to the fact that investment capital required for marine artisanal establishment is considerably higher for someone starting out in life without subsidy or credit facilities to fall back on. Also younger individuals are less trusted by

some micro-credit providers and would prefer to give credit to older men.

In the marine communities, the age range of 61-70 years and 70 years and above had frequency of 1.8% and no respondents respectively. This trend also corroborated the earlier view of the stress and energy sapping exercise involved in going far into the sea and landing afterwards, which may be rather too much for the elderly. In the lagoon communities however, the age range distribution of 61-70 years and above 70 years had 7.2% and 1.7% respectively. The implication of this distribution is that a healthy elderly man can still go fishing in the lagoon, setting gill nets, and traps, which is not as stressful and energy sapping as the sea operations. In the household size range of between two to five (2-5) people, the percentage frequency distribution for marine stood at 37.5% while that of lagoon respondents was higher at 48.9%. As the house size range increases from six to nine (6-9) people per respondent, the percentage frequency distribution for marine respondents increases from 37.5% to 51.2% while that of lagoon in the range of (6-9) decreases from 48.9% to 39.4%. As the house size range increases to ten (10) and above per respondent, the percentage frequency distribution for marine and lagoon decreases drastically to 11.4% and 11.7% respectively for both marine and lagoon respondents. Majority of fisher folks, especially the marine, are known to have more than one wife and therefore large family size. For the household size range of two and less than five, the family may be in early stage of marital life. The large family size may also have an economic undertone especially when these are males as they claimed they give helping hands in strenuous fishing operations. Some marine respondents volunteered that more hands are needed during bumper harvest to prevent waste accruing from fish spoilage and to retain wealth within the nuclear family. Having more than one wife and large family size take care of cases of children and wife mortality, expensive and occasional lack of manpower and boredom experienced by husbands during pregnancy of one wife. Large family size by fisher folks was also corroborated as having economic undertone ⁽¹⁹⁾. No lagoon respondents volunteered any such information but it can be added that lagoon communities in Lagos state are usually closer to the peri-urban environments and do not experience bumper harvest that may involve huge manpower for its

fishing operations.

Table 4 considered the education status of respondents and revealed that a large percentage (56%) for marine and 35.6% for lagoon attended primary school, followed by secondary school, with 20.5% for marine and 33.3% for lagoon; while for vocational education, 4.8% was recorded for marine and 8.9% for lagoon respondents. The level of illiteracy in both marine and lagoon communities were about the same, standing at 18.7% and 19.4% respectively. For the purpose of this study, the respondents that had primary, secondary and vocational education were considered as literate, while those without were considered as illiterate. The high level of literacy could be as a result of existence of free primary education in the south west of Nigeria in the early sixties and educational policy of Lagos State, establishing Universal basic education and free secondary education in rural, riverine and the urban areas. The high literacy level among the sampled fisher folks could have implication for artisanal fishing in the study areas. Education affects productivity in two distinct ways, via choice of better inputs and outputs, (allocative efficiency input effects), and better utilization of existing inputs (technical efficiency aspects). The high level of literacy observed in this study corresponds with⁽¹³⁾ findings that in Uganda, Nigeria, and Gambia, level of school attendance in fishing communities is very high (60-80%) but that fisher folks do not have enough functional skills to access resources and to understand official documents. He opined that literacy and education are crucial for fisheries management, environmental conservation, and livelihoods diversification. Hence, educational provider should concentrate more on appropriate functional literacy such as being able to deal with Satellite navigation, use of new information, and digital technologies such as Global System for Mobile Communication (GSM) and Internet usage from primary school level rather than formal schooling.

Farming was the most popular secondary occupation among the respondents, with frequency distribution of 51.8% for marine and 36.1% for lagoon (Table 4). Those respondents that claimed not to have any form of secondary occupation had frequency distribution of 19.3% for marine and 26.7% for lagoon, while trading frequency percentage was 13.3% and 16.7% for marine and lagoon respectively. Other activities such as hunting, livestock rearing, boat and out board engine repairs, e.t.c. had frequency distribution of 15.7% and 20.6% for marine and lagoon respondents, respectively. Artisanal fisher folks diversification into different secondary occupations apart from fishing, as observed in this study, is similar to findings by many fisheries scientists such as^{(3), (12)} whose observations corroborated the findings that artisanal fisher folks also engaged in other economic activities to supplement their low fishing incomes. From the study it was further observed that farming activities in the marine communities, involved subsistence farming and harvesting of ageing coconut plantation for sales while those in the lagoon rural communities are into subsistence crop and vegetable farming. For those marine respondents who had no secondary occupation, majority are migratory fisher folks who follow fish movement about, while majority of the lagoon respondents are occupied throughout the day using different gears such as cast net, set gill net and traps. Along regular fishing, some are into another form of fishing from the wild, referred to as Acadja (a form of cage culture). Majority of respondents involved in trading in their spare time, are

engaged in sales of fishing input, OBE spare parts, and other fisheries accessories.

Skills in handling of craft, gears, tools, fishing ground, and mode of operation can partially determine quantity of fish captured. In the absence of formal training, such skills are acquired over years of experience. The categorization of years of fishing experience of respondents is shown in Table 4. The respondents with fishing experience of less than 5years, 6-10years, 11-15years in the marine communities, had percentage frequency of 10.2%, 9.6%, and 10.8% respectively while the lagoon communities had frequency distribution of 8.9%, 12.2% and 10% respectively. In these categories, not much significant difference was observed; but as the years of experience progressed to between 16-20years, marine respondents % frequency distribution increased drastically to 45.8% while that of lagoon increased to 21.7%. At above 20years of experience in the marine, the percentage frequency distribution of respondents decreased from nearly 50% to 23.5% whereas that of lagoon respondents' distribution increased inversely to 46.7%. The above observation confirmed the trend of early retirement of most artisanal fisher folks in the marine fishing operations and consequently less people stay on in the enterprise beyond the age of 20 years when compared with lagoon fishing respondents. The result further affirmed the strenuous nature of marine fishing operations and consequently less people stay on in the enterprise beyond 20 years when compared with lagoon fishing. In fisheries study conducted at Tanzania⁽¹⁹⁾, coastal villages put the average fishing experience of crew members at 17.8years which confirmed the findings in this study.

The fishing gear type recorded in Table 5 showed that 51.8% marine respondents utilized mostly hooks and line followed by Surrounding net (31.9%) and beach Seine net (9.0%). Most lagoon respondents (90%) however made use of cast nets, followed by Gill net (5.6%) and few respondents (3.9%) used Traps. The frequency distribution of monthly fishing income of respondents in Table 3 a/b revealed that majority of marine respondents have monthly income in the range of N70,000 to N80,000 while lagoon respondents (49%) have monthly income range of N20,000 to N30,000. The summary statistics in Table 6 showed that the mean monthly income for marine was N76, 711 while that of lagoon was N30,000. The t-test for equality of means for marine revealed that mean income for marine N76, 711 was significantly different ($P < 0.01$) from lagoon N30, 538. Thus, marine covered wider water range than lagoon and fish species available are more than in lagoon water.

4. Conclusion and Recommendation

Comparative studies revealed some significant differences in the result of socio-economic characteristics of marine and lagoon fisher folks. Therefore, for fisheries operation policies, empowerment, loan or grant facilities purposes, it is recommended that fisherfolks between the ages of thirty and sixty years should be considered, bearing in mind their incomes and financial obligations. At the same time, male lagoon fisher folks must be encouraged to augment their very low monthly income with aquaculture production. For women/wives of fisher folks, policies/empowerment in form of grants/loans, should consider fish purchases, and provision of modern processing equipments to prevent fish spoilage during bumper harvest period.

Table 2: Fishing communities sampled

Marine	Lagoon
Akarakumo sea beach	Makoko
Aivoji	Ibeshe-
Ojo Ajido sea Beach	Ajido
Ibeshe	Igbologun
Yovoyan	Topo
Sakpo	Akarakumo
Ashipa	Owode-Ibeshe
Apese	Ipakodo
Okun Alfa	Offin
Okun Ajah	Oreta
Orimedu	Ebuta Iga
Ilege Idaso	Agbowa Ikosi
Idaso	Ebute-Erepoto
Akodo	Ilagbo
Tiye	Ibeju Agbe
Osoroko	Ebute Afuye
	Ise

Source: 2014 Field Survey

Table 3: Target fish species of economic importance in Lagos state

Marine	Lagoon	Fresh Water
Croakers (<i>Pseudolithus senegalensis</i>)	Chrysichthys nigrodigitatus	<i>Gymnarchus niloticus</i>
Baracude (<i>Sphraena quachancho</i>)	Tilapia (<i>Tilapia niloticus</i>)	<i>Tilapia niloticus</i>
Sardine (<i>Sardinella maderensis</i>)	Sardine (<i>Ethmalosa fimbrata</i>)	<i>Clarias gariepinus</i>
Bonga (<i>Ethmalosafimbriata</i>)	Barracuda (young ones) (<i>Sphyraena quachancha</i>)	<i>Heterobranchus bidorsalis</i>
Snappers (red) (<i>lutjanus goreensis</i>)	Mulletts (<i>Mugil cephalus</i>)	<i>Heteroris niloticus</i>
Threadfins (<i>Pentanemus quinquarius</i>)		<i>Megalops atlanticus</i>
Mulletts (<i>Mugil cephalus</i>)		<i>Marcropalaemon hastatus</i> (fresh water shrimp)
Grunters (<i>Pomadasys jubelini</i>)		
Marine cat fish (<i>Arius heudelotis</i>)		
Soles (<i>Cynoglossus canariemis</i>)		
Moonfish (<i>Selene dorsalis</i>)		
Shiny none (<i>Galeoides decadatylus</i>)		
Spade fish (<i>Drepane Africana</i>)		

Source: NIORM (1990): Diagnostic Survey of Lagos State Fisheries.

Table 4: Socio-Economic Variables of Fisher Folks

Socio-economic characteristics	Range	Marine	Lagoon
		Frequenc % Frequency	Frequency % Frequency
Gender	Male	166	1.69
	Female	100	93.9
		-	11
		-	6.1
Age (yrs)	30 – 40	12	36 20.1
	51 – 60	7.2	
	61 – 70	115	73
	Above 70	69.3	40.6
		36	55
		21.7	30.6
		3	13 7.2
		1.8	3 1.7
Marital Status	Divorced	8	3 1.7
	Married	4.8	167 92.8
	Single	157	4
	Widow	94.6	2.2
		- -	6 3.3
		1	
Household Size		0.6	
	2 – 5	62	88
	6-9	37.5	48.9
	10 and above	85	71 39.4
		51.2	
		19	21 11.7
	11.4		

Education Status	None	31	35 19.4
	Primary	18.7	64 35.6
	Islamic	93 56	5 2.8
	Secondary	- -	59 33.3
	Vocational	34	17 8.9
		20.5	
		8	
Secondary Occupation Pattern	None	32	48 26.7
	Farming	19.3	65 36.1
	Trading	86	
	Others	51.8	30 16.7
		21	37 20.6
		13.3	
		26	
Fishing experience in years	Less than 5 years	17	16 8.9
	6 – 10 years	10.2	23 12.9
	11 – 15 years	16	18 10
	16 – 20 years	9.6	39 21.7
	Above 20 years	18	84 46.7
		10.8	
		76	
		45.8	
Fishing Gear Type	No Response	12	1 0.6
	Cast Net	7.2	160 90.0
	Gill Net	- -	10 5.6
	Traps	- -	7 3.9
	Hooks and Line	- -	- -
	Beach Seine Net	86	- -\
	Surrounding Net	51.8	- -
		15	-
		9.0	-
		53	-
	31.9	-	

Source: 2014 Field Survey

Table 5: Frequency Distribution of Monthly Fishing Income of Respondents

Income Category	Marine Frequency % Frequency	Income Category	Lagoon Frequency % Frequency	
60,000 ≤ 70,000	51	>20,000	28	
70,000 ≤ 80,000	30	20,000 ≤ 30,000	16	
80,000 ≤ 90,000	54	30,000 ≤ 40,000	89	
>90,000	33	40,000 ≤ 50,000	49	
Total	53	>50,000	44	
	32	Total	25	
	8		13	
	5		7.0	
	166		6	
	100			3.0
				180
			100	

Source: 2014 Field Survey

Table 6: Summary Statistics of Monthly Fishing Income

Water Body	Statistics	Monthly Fishing Income (N)
Marine	Mean	76,711.00
	Number	166
	STD Deviation	9,493.90
Water Body	Statistics	Monthly Fishing Income (N)
Lagoon	Mean	30,538.00
	Number	180
	STD Deviation	2,120.43

Source: 2014 Field Survey

5. References

- Adedokun OA, Adereti FO, Opele AI. Factors influencing the Adoption of Fisheries Resources Innovations by Artisanal Fishermen in Coastal Areas of Ogun State, Nigeria. Journal of Applied Science Research, INS net Publication. 2006; 2(11):966-971.
- Adekoya BB. Fuelling in Crises”, Fish Net Work. A quarterly Publication of Fisheries Society of Nigeria. (FISON) Lagos. 1993; 1:6-9.
- Akanni KA, Akinwumi JA. Determinants of Variation in Fish Catch levels in Artisanal Fishing of Lagos State, Nigeria. Research Journal of Fisheries and Hydrobiology. 2007; 2(1):1-2. NAGA World Fish Center Newsletter, 28(1):2.
- Akpaniteaku RC, Weimin M, Xinhua. Evaluation of Contribution of Fisheries and Aquaculture to food security in Developing Countries, 2005.
- Allison EH, Kliss F. The Livelihood Approach and Management of Small Scale Fisheries. Marine Policy. 2001; 25:377-388.
- CBN. Central Bank of Nigeria Annual Report and Statement of Account. 2010; 150pp.
- Dada BF. Contribution of Fisheries to Employment and National Economy and Food Security in Nigeria. Being a paper presented at the FISON Public Lecture, Held at the Nigerian Society of Engineers. 2003, 25pp.
- Dada BF. Proceedings of the NEPAD – Fish for All Submit, Abuja Nigeria, 2005; 22-25. 110.

9. FAO. Fisheries Development in the Third Millennium: Challenges and Opportunities. 22nd Regional Conference for Africa, Cairo; Egypt. 2002; 22pp.
10. Federal Department of Fisheries Publication. National Seminar on the Development of Artisanal Fisheries in Nigeria; in Fisheries Development Policy in Nigeria and the Contribution Strategies Abuja Nigeria. 1997; 111-116.
11. Federal Department of Fisheries Publication: Fisheries Statistics of Nigeria 4th Edition (2002 – 2008). 2007; 60pp.
12. Fregene BT. Poverty Assessment in Fishing Communities in Lagos State; Nigeria. 2002; 176pp.
13. Horemans B. Education for Rural Sustainable Fisheries livelihood Programme – F.A.O./FDF. 2006; 12pp.
14. Johannes, RE, Ruddle K, Hividinp E. The Value of Traditional Management and Knowledge of Marine Resources in Oceania; in workshop on people, society and Pacific Island Fisheries Development and Management. Selected Papers. Noumea, New Calidonia inshore Fisheries Research Project Technical Document. 1993; 5(1):45.
15. Lambert LR, Abraham: An Assessment of Role of Women in Fisheries in Kosrae FSM Field Report No. 3. 15pp.
16. Moffat DN, Linden NO, Francis J. The Reality of the Stomach; Coastal Management at the Local Level in Eastern Africa, AMBIO. 1998; 27:590-598.
17. Nwabueze GO, Eric AP. A Fisher's use of sustainable fisheries management practices in Jebba Lake Basin, 2013.
18. Onuoha P, Nnamdi NF. Socio-Economic Characteristics as Predictors in Farm Practice; Lesion in Rural Sociology 1991; 68pp.
19. Sesabo JK, Tal RST. Technical Efficiency and Small Scale Fishing Households in Tanzanian Marine Villages; An Empirical Analysis F.N.U. 2005; p95.
20. Shimang GN. Fisheries Development in Nigeria, Problems and Prospect. A presentation by the Federal Department of Fisheries of the Ministry of Agriculture and Rural Development for serving and retiring public servants. 2005; 30.