

Profile of Fishermen Migration in Nigeria and Implications for a Sustainable Livelihood

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Limited documentation exists on migrant fishermen, who are indigenous people and mostly Ghanaians fishing in the marine and inland water bodies. This study therefore aims to identify the causes, courses of fishermen migration as well as the demographic characteristics of migrant fishing households in the Nigerian South West coastal fishing communities using the neoclassical economic and network theories. Results reveal that they operate extended family system similar to what operates in their places of origin. The main cause of fishermen migrating from other West African countries to Nigeria is due to seasonal migration of commercial fish species and some of the migrants have permanently settled in the fishing communities. Logit model analysis shows that migrant fishermen are likely to be located in the west coast of Lagos State ($p < 0.01$). Migrant fishermen have fishing as a primary source of income ($p < 0.05$), are members of fishermen cooperatives ($p < 0.05$) and are likely to be literate ($p < 0.10$), but do not use family labour ($p < 0.05$). Due to migration they are confronted with challenges such as declining fish stocks, attitude to management of common property resource, living communities which lack basic infrastructures and the prevalence of HIV/AIDS.

Introduction

1.0 Background Information

In Nigeria there are more than 6 million coastal and riverine artisanal fisher folks fishing the 46,300km² of maritime area and 125, 470.82km² of inland water bodies. They contribute 85% of domestic fish consumption in Nigerian (Fish for All Submit, 2005). About 300,000 coastal migrant fishermen, mostly Ghanaians, also depend on the fisheries resources as the main source of sustenance, assets and investment capital. Fishing supply 75% of their animal protein intake, and more than 98% of the population of the fishing communities is dependent on fishing and fishery related activities (SFLP, 2002).

1.2 Problem Statement

Despite their role, there is a major dearth of data on migration which is a reflection of the poor quality of demographic statistics generally. Their constant mobility as migrants often restricts them to the fringes of societies, where little is known of them. Though migration may have a direct and positive impact, it can equally constitute a challenge. The focus of this research study is therefore to give answers to some research questions. Prominent among them is what are the sources of origin and demographic characteristics of migrant fishermen; the causes and courses of fishermen migration in relation to their livelihood?

1.3 Objectives of Study

To give answers to the above research questions, the following objectives were identified:

- i. To identify the source of origin and demographic characteristics of fishermen migrants.
- ii. To examine the causes and courses of fishermen migration in relation to their livelihood from the perspectives of the neoclassical and networking theories.
- iii. To enumerate the challenges that confront them as it relates to ensuring a sustainable livelihood in fishing over the years and prospects of fishermen mobility.

2.0 Definition and Theoretical Framework for Fishermen Migration

According to Tawari (2002:2), “a migrant fisherman is one who leaves his natural community and moves from one habitation to another in fulfillment of his occupation. He moves in search of fish as dictated by the type of fish required, the movement of the tide and season of the year.” The neoclassical economics theoretical model is used to explain conditions that initiate international migration in the fisheries sectors, while the network theory for those that perpetuate it across time and space. These theories are used to examine the causes, courses and consequences of migration (Afolayan, 2004).

2.1 Definition of Types of Fishermen Spatial Mobility

Rajan (2002) identifies two dimensions of mobility being time and direction. Time mobility could be inter-generational and intra-generational, while directional mobility may be vertical, horizontal and spatial. The focus of this paper is spatial mobility which is the movement of labour for fishing which entails changes in the geographical location of respondents. The various forms of fishermen spatial mobility are as follows:

- 2.1.1 Commutation is “the expansion of work space” (Rajan, 2002:14), in terms of fishermen moving out of their community of origin and landing their catch in another.
- 2.1.2 Circulation is “the expansion of work space for a longer period and the residence of mover, may also be shifted for a longer period in connection with the occupation” (Rajan, 2002:15).
- 2.1.3 Migration entails permanent settlement in which the mover settles in the destination village with family i.e. both place of work and place of residence are shifted.

2.2 Initiation of International Migration: Neoclassical Economics

2.2.1 Neoclassical Economics: Macro Theory

The neoclassical economics theory for international migration “is caused by geographic differences in the supply of and demand for labour. The movement of capital also includes human capital, with highly skilled workers moving from capital-rich to capital-poor countries in order to reap high returns on their skills in a human capital-scarce environment, leading to parallel movement of managers, technicians and other skilled workers;” (Massey *et al*, 1993:433).

In fisheries, the migration of fishermen from one water body to another is caused by the differences in the supply and demand of economic fish species. A fisherman who is better equipped in terms of skill and modern fishing technology, especially Out-Board-Engine (OBE) is more likely to migrate in search of commercial fish species compared to his counterpart who lacks the required inputs. The introduction of technological innovations involving the use of appropriate fishing inputs (outboard engines, synthetic nettings and net accessories) has reduced the drudgery associated with fishing. The use of

outboard engine has also extended the fishing range and coverage. Thereby the fisherman has the privileges of longer fishing periods, further fishing grounds into sea and increased fish catch.

2.2.2 Neoclassical Economics: Micro Theory

The microeconomic model reveals decisions taken at the individual level before migrating. “Individual rational actors decide to migrate because a cost-benefit calculation leads them to expect a positive net return, usually monetary, from movement. International migration is conceptualized as a form of investment in human capital.

The decision process is summarized by equation 1 (Massey *et al*, 1993:435).

$$ER(0) = \int_0^{\infty} [P_1(t)P_2(t)Y_d(t) - P_3(t)Y_o(t)]e^{-rt} dt - C(0) \quad (1)$$

Where:

$ER(0)$ is the expected net return to migration calculated before departure time 0

$P_1(t)$ is the probability of avoiding deportation from the area of destination

$P_2(t)$ is the probability of employment at the destination area

$P_3(t)$ is the probability of employment in the community of origin

$Y_o(t)$ is earnings if employed in the community of origin

r is the discounted factor

$C(0)$ is the sum total of the costs of movement (including psychology costs)

According to Massey *et al*, (1993) if the quantity $ER(0)$ is positive for some potential destination, the individual migrates, but if negative, he will not likely move from the community of origin and be indifferent if zero.

Due to the seasonal migration of commercial fish species, artisanal fishermen have moved from various countries to fish within the Nigerian water bodies. Nationals of Cameroon, Chad, Mali, Ghana, and Togo fish in the inland, lagoon, brackish and marine waters of Nigeria during certain periods of the year, while some of the migrants have permanently settled in the fishing communities. Nine households of Malian migrant fishermen are located in Camp, one of the fishing settlements of the Ikare Gauge Dam in Oyo State.

The decision why a fisherman will migrate into an under-exploited fishery is if there is a high probability that he will experience high catch rates thereby leading to high economic rent (value of landings minus costs of catching and delivering the fish). It is observed that Ghanaian fishermen are more experienced in the art of fishing and equipped in modern fishing inputs compared to Nigerians. Therefore the movement of their skill coupled with efficient fishing inputs to harvest the abundant fisheries resources in the Nigerian marine waters ensures their reaping high returns on their skills. The decision to migrate is based mainly on their cost-benefit calculation and they expect positive net returns in monetary terms. That is why there has been a continuous movement of fishermen in terms of skill labour and fishing inputs between Ghana and

Nigeria over the years. Among artisanal fishermen, the problem of deportation does not exist, as long as you are willing to obey the rules of the Chief or Baale of the hosting fishing community.

2.3 Perpetuation of International Movement: Network Theory

Massey *et al*, (1993:448) defines migrant networks as “sets of interpersonal ties that connect migrants, former migrants and non-migrants in origin and destination areas through ties of kinship, friendship and shared community origin. They increase the likelihood of international movement because they lower the costs and risks of movement and increase the expected net returns to migration. Network connections constitute a form of social capital that people can draw upon to gain access to foreign employment”.

Among the migrants located in fishing communities of Lagos State west coast, there is good network between the old migrants and the new ones as well as between the migrants and natives of the fishing communities. In some communities, the migrants are given land to farm and to cultivate crops such as cassava, coconut and cowpea. Contrary, where there are predominately Nigerians e.g. Ijebus (Yoruba natives) in Ogun State and in the eastern coast of Lagos State, the Baales or Chiefs provide their network by playing host to the migrant fishermen, but the latter do not own land.

As observed by Tawari (2002: 4) in her study in Bayelsa State, “any new person coming to fish in that camp for the first time must report to the overall leader of the Brass natives who are in dominance and are the indigenous owners of the fishing camp before to his tribe or country leader in the camp. Thereafter he will be permitted to settle down to fish. The relationship existing between all parties concerned is cordial”.

3.0 Study Area, Data collection and Analytical Tools

3.1 Study Area

3.1.1 Description of the Environment

Nigeria has a coastline of 853 km bordering the Atlantic Ocean in the Gulf of Guinea, a maritime area of 46,300km between 0-20m depths and an Exclusive Economic Zone area of 210,500 km² (Tobor, 1993). As presented in Figure 1, the country also has numerous rivers such as Niger and Benue with several tributaries, in addition to natural lakes (e.g. Lake Chad) and man-made lakes (e.g. Lake Kainji) and flood plains. The vast inland, brackish and marine bodies of water contain numerous fin and shell fish resources with estimated total yield potential of 517, 3360 tonnes.

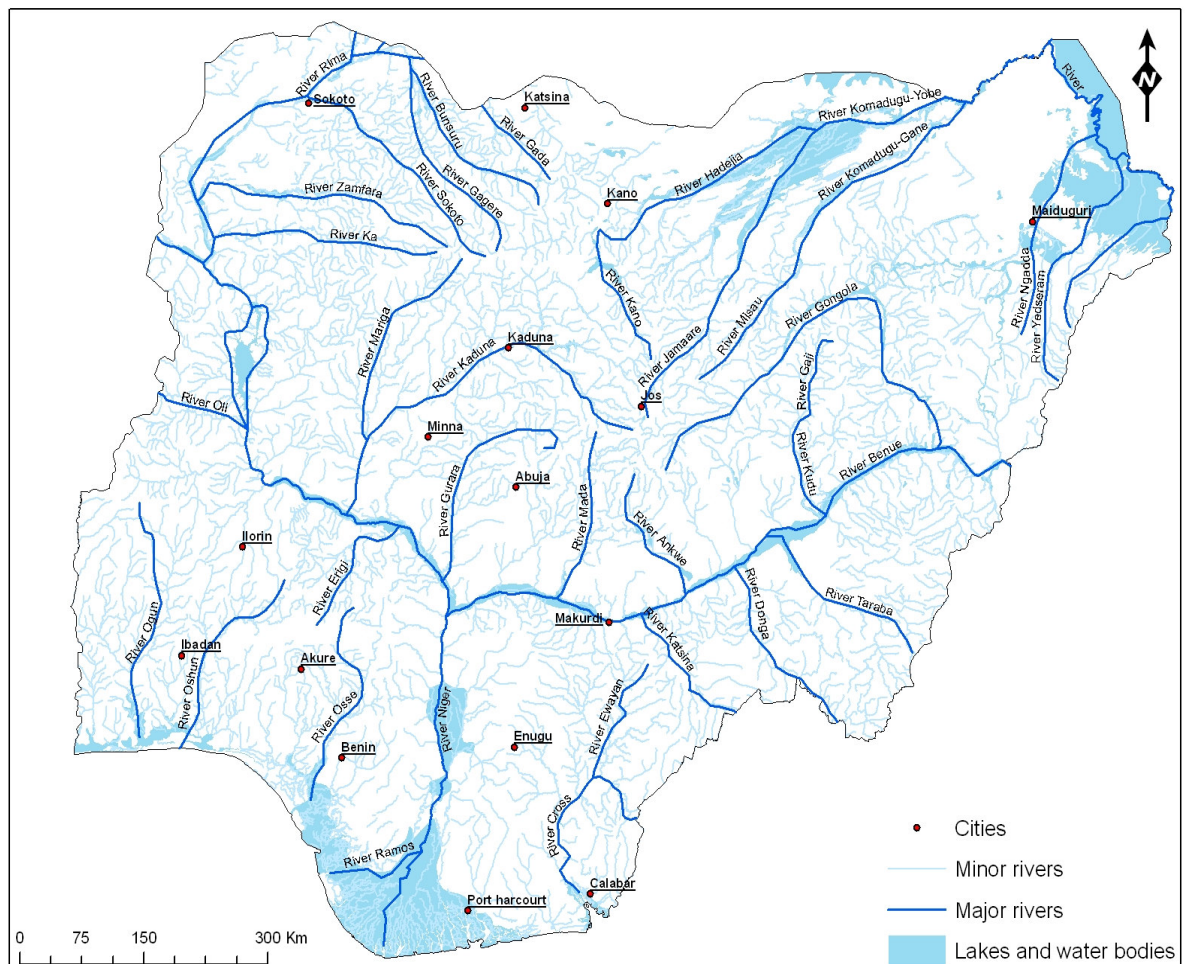


Figure 1: Major Water Bodies in Nigeria

3.1.2 Fishermen Settlements

Fishing communities in Nigeria are usually located near water bodies and are not accessible all year round due to poor or no access roads and liable to flooding during the rainy seasons (example are the fishing communities of Ijebu Water-Side Local Government Area of Ogun State). The western coast of Lagos State is lined up with fishing settlements of migrants from various parts of West Africa, especially Ghana. These marine and lagoon fishing communities are less developed compared to those in the eastern part and lack electricity, access roads, hospitals and secondary schools. Some of the communities date back to the 18th century when the original settlers first arrived (e.g. Orimedu, Lagos State)

The population densities per habitable area are usually high. The wetland ecology of the region restricts habitation to the relatively small area of higher elevation. This therefore translates to higher pressure on the fisheries resources that are the bedrock of the coastal communities' livelihood. The population presents a difficult challenge to food security and employment opportunities (SFLP, 2002). According to data gathered by the researcher, in Yovoyan, there are 1,913 and eight households of Ghanaian migrants (Aganrins) and Eguns respectively. Moba has a mixture of households as follows: 74 Yorubas (Awories), 482 Ghanaians (Aganrins) and four from Togo, while Avijio has a mixture of Ghanaians (Aganrins, 342) and those from Cotonu (Eguns, 264)

3.2 Data Collection

In a study conducted by Fregene (2002), a two stage stratified sampling method was used with initial strata being the types of fishing ground (lagoon and coastal waters) and the Lagos State Agricultural Development Program (LADP) administrative zones (NIOMR, 1988) for selection of 25 lagoon and ten coastal communities (Figure 2). Collection of primary data used include observation and measurements by enumerator to responses of the heads of household to pre-tested structured questionnaires, key informant interview, participation observation and collection of field notes. Data were collected from six households per community.

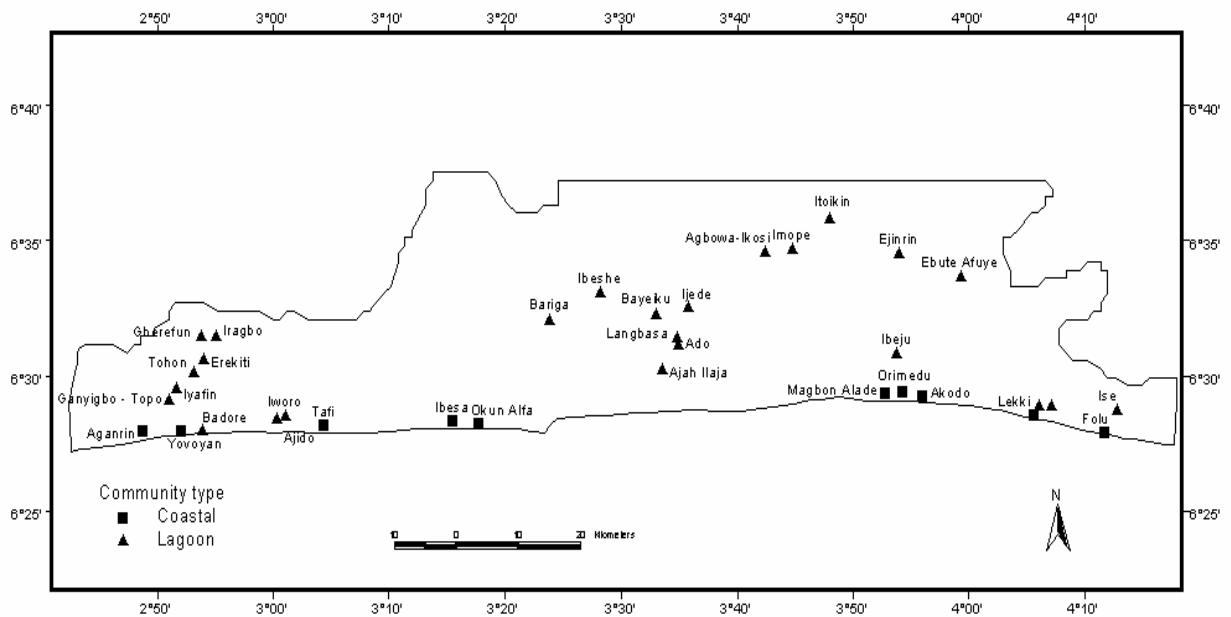


Figure 2: Location of Sampled Communities in Lagos

Data collected include demographic characteristics of household head in terms of sex, age level of education, marital status, number of wives and household size. Occupational variables are type of primary and secondary occupations, possession of outboard engine, types of fishing craft and gears, access to extension services and membership of cooperative society;

Other fishing communities in Ogun State (one of the South-West Maritime states) were visited in 2006. Between June and July, 2007, the researcher was able to visit three main migrant fishing communities Avigo, Yovoyan and Moba in the Western Zone of Lagos State. Focus Group Discussion and In-Depth-Interview were carried out with the fishing households.

Secondary data were collected from government establishments such as Federal and State Departments of Fisheries and Lagos State Agricultural Development Program (LADP).

3.3 Method of Data Analysis

The descriptive statistics used for the study include frequency counts and percentages. The logit model was used to measure the parameters of the conditional probability (chance) of being a migrant fisherman assuming a non-normal distribution (binomial/bernoulli distribution). The procedure computes a maximum likelihood estimator of β given the non-linear probability distribution of the random error v . Fishing households were classified into migrants and non-migrants based on their tribe or nationality of origin.

The relationship between the binary variables (S_i) and its determinants (x_i) is given as:

$$\text{Log} [P (S_i =1)/\{1-P (S_i =1)\}] = \mathbf{X} \mathbf{B}' + \nu \quad \text{for } i = 1, \dots, 210 \quad (2)$$

$$\text{Or} \quad \text{Logit (P)} = \mathbf{X} \mathbf{B}' + \nu \quad (3)$$

$$\text{Hence,} \quad P^* = \exp(\mathbf{X} \mathbf{B}') / (1 + \exp(\mathbf{X} \mathbf{B}')) \quad (4)$$

Where:

- $S_i = 1, 0$ otherwise (migrant status of a household).
- \mathbf{X} = a vector of k explanatory variables ($k=20$ in the study)
- \mathbf{B} = the vector of respective parameters
- \mathbf{P}^* = predicted probabilities of being a migrant fisherman

The expression $P(S_i =1)/\{1-P(S_i =1)\}$ is the odds ratio in favour of being a migrant fisherman and the logarithm of the expression is referred to as the logit (Gujarati, 1995).

The independent variables specified as determinants of being a migrant fisherman are regional and demographic variables of the fisherman. Statistical Package for (SPSS) Social Sciences (Statistical Analysis System) version 11.0 and LIMPDEP were used for the statistical analysis.

4.0 Results

4.1 Sources of Origin

Fisher folks in Nigeria are of different ethnic origins comprising indigenous and non-indigenous groups. Non nationals, especially Malians, Chadian and Cameroonians are also involved in fishing the Chad and Kainji/ Jebba Lake Basins in Northern Nigeria in addition to the Niger/Benue confluence at Lokoja (middle of Nigeria), while Ghanaians fish the coastal waters of the country as migrant fishermen. Fishers have long time involvement, spanning several generations in which parents pass on fishing skills to their children (SFLP, 2002). Tawari (2002) in her study on the Igbabele fishing camp in Brass LGA of the oil rich Bayelsa State, Nigeria found nationals from Ghana, Togo, Cameroon etc. and people from different States of Nigeria. Each people group had a leader.

In the study conducted by Fregene (2002) on 25 lagoon and 10 marine fishing communities of Lagos State, results show that the main tribe in the study area are the Ijebus who are natives of the state (59.1%) as shown in Table 1. Migrants from other parts of Nigeria include the Ilajes (25.3%); Ijaws and Urhobos (1.9%). The Eguns (22.7% and 15% in lagoon and marine fishing communities respectively) and Aganrins (10%) are Non-Nigerians whose grand parents have esettled for long in the fishing communities and now claim to be Nigerians. Migrant fishermen who came from Ghana for the fishing season make up 8.4% the sample size in marine fishing communities (Fregene, 2002).

Table 1: Migrants and None Migrant Fishing Households of Lagos State

Tribe	Lagoon Communities		Marine Communities		Total of Communities	
	Female	Male	Female	Male	Female	Male
Ijebus	16 (10.7)	75 (50.0)	5 (8.3)	26 (43.3)	23 (11.0)	101 (48.1)
Ilajes	4 (2.0)	13 (8.7)	-	3 (5.0)	4 (1.9)	16 (7.6)
Ijaws and Urhobos	-	4 (2.6)	-	-	-	4 (1.9)
Eguns	5 (4.0)	28 (18.7)	2 (3.3)	7 (11.7)	6 (2.9)	35 (16.7)
Aganrin	-	-	1 (1.7)	5 (8.3)	1 (0.5)	5 (2.4)
Aworis	-	5 (3.3)	1 (1.7)	5 (8.3)	1 (0.5)	10 (4.8)
Ghanaians	-	-	1 (1.7)	4 (6.7)	-	4 (1.9)
Total	25 (16.7)	125 (83.3)	10 (16.7)	50 (83.3)	35 (16.7)	175 (83.3)
Grand Total	150 (100)		60 (100)		210 (100)	

Source: Fregene, 2002

4.2 Demographic Characteristics of Migratory Fishermen

The household structure in the fishing communities is usually large due to the polygamous nature of the marital status of the fishermen. On the average fisherman marry between two to three wives who will assist him in sales and processing of the fish catch. Usually, the fisherman has a compound which consists of four or more number of huts. A hut for each of the wives and one for the husband, but they all eat from the 'same pot'. They also operate the extended family system. This household is similar to what operates in the fishermen places of origin.

Usually households in fishing communities in Nigeria are male-headed. According to the data collected by Fregene (2002), from a sample of 210 households; female headed households were 35 (16.67%). The female heads were either *de jure* or *de facto*. *De jure* female households are mostly widows without an adult male son of social and productive age. On the other hand, *de facto* female heads are essentially those whose husbands work away from the fishing enterprise and were not permanently living in the community leaving their wives to manage the fishing enterprise (World Bank, 1996). This was observed in the data collected for fishing communities in Lagos State

The average age of sampled fisher-folks was 42.5 for those in the lagoon communities, while, among the coastal dwellers, it was 38.2 years (Fregene, 2002). The coastal fishermen were more exposed to formal education than the lagoon fisher-folks. On the contrary; most of the women from both lagoon and coastal communities had no form of education. Female-headed households had smaller household size when compared to households with males head because of the need for fishing labour. Small households of 1-5 were 3.9 %, 6-10 and more than 10 persons were 71.4 % and 24.7% respectively.

During the off fishing season, migrant fishermen in the west coast (marine) of Lagos State are involved in farming cassava and coconut. Strangers and women are allowed to own land. In the marine coastal communities, women are involved as fish mongers, petty trading and they also farm. Migrants are not allowed to purchase land; therefore their only source of livelihood is fishing.

4.3 Causes of Fishermen Migration,

The main reason why fishermen migrate is because of the seasonal migration of fish species. Major fish species caught include *Cynoglossis* species, (soles); *Arius* species, (marine catfish); *Sphyraena* species, (baracudas); *Polydactylus quadrifilis*, (shiny nose); *Tarpon atlantica*, (ten pounder); *Hemirhamphus* species, (half beak); *Lutjanus* species, (snapper); *Pomadasys* species, (grunters); sharks (*Hexanchus griseus*).

Bonga (*Ethmalosa fimbriata*) is during the dry season and are more abundant in Nigerian estuaries during the period October-April (FAO, 1986). Sardine (*Sardinella species*) is found from Mauritania to Angola and most often found to be abundant near the outlet of water courses. Jacks (*Caranx species*) have wide distribution along the West African coast from Senegal to Angola. Atlantic Pumber (*Chloroscombrus chrysurus*) occurs along the West African coast from Mauritania to Angola. The bobo and longneck croakers (*Pseudotolithus elongates* and *Pseudotolithus typus*) are the important sciaenid species in Nigeria. The main fishing ground for this species is from the Gulf of Guinea to the Congo. *Penaeus notialis* (the pink shrimp) and the white shrimp (*Palaemon hastatus*) become accessible to artisanal fishermen when the shrimps leave the nursery edges.

The first set of migrants settled in Yovoyan (western coast of Lagos State) towards the end of the eighteenth century after the slave trade ended. There were migrants from Keta, Ghana of Ewe tribe led late Chief Kotokpa. Other communities where they are predominantly migrants from Ghana, Togo and Benin are Aivogi, Yovoyan and Moba respectively. A main reason for migration was initiated by the need for fish catch since the fish species of their home origin are much smaller in size (except in Accra and Tema and for business expansion. They came along with the experience they had gained from their fathers and their fishing inputs. The migrating fishermen come

by canoe especially when they are bringing in a new Ghanaian canoe and those coming to work as labourers in fishing companies. Circular fishermen migrate from Keta, Ghana to Akodo and Orimedu (marine fishing communities along the east coast of Lagos State) and the marine fishing communities of Ijebu Water-Side Local Government Area, Ogun State, between November and October and stay for a period of six months to two years.

Cause of migration was determined statistically using the logit model. Regression coefficients of the analysis are presented in Table 2. Five variables were significantly related to the probability of a fisherman being a migrant. Result reveals that migrant fishermen are likely to be located in the west coast of Lagos State ($p < 0.01$). Migrant fishermen have fishing as a primary source of livelihood ($p < 0.05$), are likely to be literate ($p < 0.10$) and are members of fishermen cooperatives ($p < 0.05$), but are not likely to use family labour ($p < 0.05$).

Table 2: Maximum Likelihood Estimates of the Logit Parameters of the Probability of being a Migrant Fisherman in the Lagoon and Marine Fishing Communities of Lagos State

Variables	Reg. Coefficient (β)	Standard Error	t-test
ZONE	-2.1456	0.3804***	-5.6400
FAMLAB	-0.3391	0.1692**	-2.0041
FISHPRI	1.3180	0.6472**	2.0364
EDUS	0.0980	0.0528*	1.8561
COOP	0.7992	0.3981**	2.0075

*** Significant at 1% ** Significant at 5% * Significant at 10%

4.4 Courses of Migration among Fishermen

The migrant marine fishermen move from Yovoyan to Moba or Olomometa ((30-50 Km apart or 55 minutes by engine-powered canoes) to fish schools of fish species like as Sardine (*Sawa*). They also fish out to sea as far as 120 nautical miles. When they get to a community, they spend at least one week and as much as three months till the season for the fish species is over. In the community of destination, there are usually given temporary accommodation or given land to put up temporary huts if they intend to stay as long as two years. Fishermen wives will not be equipped at the community of destination if they accompany them due to the lack of processing units. Those who settle in Ogun State, fish as far as the coastlines of Ondo and east coast of Lagos States.

Major fishes targeted are croaker (June –February), Sardine (October-February), shinny nose and bonga (September – February). The Aganrins, the Eguns, use drag nets for fishing once a day between 6am-12 noon during the period the sea is calm and 2-3 times or more a week. Fishes caught from April to September include crayfish, shiny nose, croakers and especially sharks which must be a canoe powered by 40 horse power OBE. Rough periods at sea are from July to September when the sea is stormy. Only those with OBE of 40 horse power are able to go to sea during this period.

The structure of the fishing industry among Ghanaian migrants consists of company and independent fishing operation. In the former, the owner of the company employs the services of 40-50 fishermen to drag the drag net called “*dogbo*” to harvest school of fishes. The independent fishermen have their own fishing outfit made up of at least one fishing canoe, various types of fishing nets and maybe an OBE if he can afford to buy one. Fifty percent of the employed fishermen are also independent fishermen.

In Keta the fishermen operate the same fishing structure, but the use of company fishing is more prevalent. The fishermen do not use tonga fishing net because the fish species such as shining nose, barracuda and croakers are not available in the waters.

5.0 Challenges of Fishermen Mobility

5.1 Declining Fish Stock and Sustainability of Fishing as a Livelihood

DFID (1999) observed that people's livelihoods are fundamentally affected by seasonality, over which they have limited or no control. According to Chambers and Conway, (1992) a livelihood is only sustainable when it can cope with and recover from stresses and shocks maintain or enhance its capabilities and assets, while not undermining the natural resource base. But in fisheries, human activities for the past three decades have adversely affected the ecosystem, which are critical for breeding, nursery, feeding, growth and migration to marine finfish and shellfish species. In some water bodies, the economic impact of excessive fishing effort exploiting declining fish stocks leave fishermen and their dependents potentially with an ever-declining source of income. Declining fish stocks means local marine fishermen using canoes have to fish further out to sea; which is only visible for those who own OBE. A bleak future faces the rural fisher folks as they face the likelihood of losing their livelihood over time. Due to the constant reduction in fish stocks and inadequacy of most of the coastal areas for small-scale agriculture, the last options for the improvement of their livelihood conditions entails to migrate to other areas within or outside the country.

But, the marine migrate fishermen in Lagos State do not foresee fish depletion in the Atlantic Ocean because they use the right mesh size for the fishing nets, except for the destruction of their fishing nets by industrial trawlers. On the contrary in the lagoon waters, there are evidences of fish stock depletion due to the usage fishing nets of the mesh size of mosquitoes net (5/8th of an inch) of monofilament and multifilament. In the inland waters, fisher folks are vulnerable to depleting fish stock (due to over-fishing and environmental degradation). Unfortunately, the Nigerian Fisheries Department and other relevant government institutions have not been able effectively monitor and control the utilization of fishery resources of the water bodies.

5.2 Attitude to Management of Common Property Resource

Management of common management system by the Nigerian government has not been effective due to decrease in funding for the development and maintenance of fisheries resources at the Federal and State Levels since 1992. The traditional systems of regulating access to fish resources and the capacity of the fishing fleet have also collapsed. In areas where they still exist, they are not as effective and are helpless in the face of invasion from migrant fishermen. In many instances, the national government has over estimated its ability to manage these resources (Pomeray, 1993). Among the several constraints are resource characteristics such as fish and fishermen migratory patterns of the area, which make it difficult for the community to manage the resource.

Efforts to include migrant fishermen in the management of the community imply a difficult and complicated balance between the will of the local residents (often influenced by socioeconomic standing, cultural and religious affinities, temporariness of stay, etc.), available resources, and the desire of the migrants themselves as to whether they want to play an active part in the new community (UNFPA, 2005).

But migratory fishermen from Mali have introduced to the western (floodplain) shore of Lake Chad communities of North-Eastern part of Nigeria an environmental sustainable fishing regulatory method called a *dumba* which has been able to generate fund through license fees from the users of the water body for the local communities. “A *dumba* is a row of fish basket traps (*gurun Mali* in *Hausa*), placed close together to form a fence across a channel or stream and it is one of the most profitable local fishing techniques. The profitability of *dumba* fishing coupled with the limited availability of sites suitable for this practice has made it a target for regulation” (Neiland *et al*, 2005: 133).

“Traditional management of some water bodies prevails in some remote fishing areas” as observed by Jallow *et al* (2004:181), “but the system lacks recognition and the legal backing required to make them sustainable under population and fisher migratory factors. Some of the traditional systems can strengthen social and cultural elements in the respective communities”. The traditional management system as a fisheries management tool can be an effective collaborative and participatory method for ensuring environmental sustainability by representatives of user groups, relevant government agencies and research institutions.

5.3 Lack of Basic Social Infrastructures in Fishing Communities

Fishing communities usually do not have access to basic social infrastructures. But in Lagos State, the fishing communities in the west zone are less developed compared to those in the east. They lack access roads and some of them like Yovoyan are only accessible by canoe through the lagoon as observed in Ogun State marine communities. There are three primary schools in Yovoyan, Bobloh and Akaran, while only one secondary school in Gbethromeh Beach near Seme (border town between Nigerian and Republic of Benin) to serve all the communities in the west zone. The nearest hospital is located in Badagry which is 25 Km to Yovoyan.

5.4 Impact of Period and Length of Migration on Fishing Households

The very experience of migration can expose migrants to increased risk of physical and mental health problems (UNFPA, 2005). The burden of illness puts additional stresses on households, preventing them from accumulating assets derived from fishing income. Premature death robs fishing communities of the knowledge gained by experience and reduces incentives for longer-term and inter-generational stewardship of resources.

The HIV/AIDS pandemic threatens the sustainability of fisheries by eclipsing the futures of many fisher folks. Recent projects championing local knowledge and resource-user participation in management need to take these realities into account. If the fishing communities of developing countries that account for 95% of the world's fisher folk and supply more than half the world's fish are adversely impacted by HIV/AIDS, then the global supply of fish, particularly to lower-income consumers, may be jeopardized.

According to Allison *et al* (2006) “fishing communities are often among the highest-risk groups in countries with high overall rates of HIV/AIDS prevalence. They are vulnerable to HIV/AIDS due the period spent away from their spouses. Vulnerability

to HIV/AIDS stems from complex, interacting causes that may include the mobility of many fisher folks, the time fishermen spend away from home, their access to daily cash income in an overall context of poverty and vulnerability, their demographic profile, the ready availability of commercial sex in fishing ports and the subcultures of risk taking and hyper-masculinity among some fishermen”.

In FGD with the marine fishermen, the Aganyin and Egun marine fishermen usually do not move with their wives when they migrate seasonally (3 month) to fishing grounds. The women stay at home to care for the children and are actively involved in fish processing and as fishmongers. According to the wives of the fishermen, while their husbands are absent from home, they are not expected to be involved in patronizing commercial sex workers, but actively involved in fishing. Lagoon fishermen usually move with their wives especially they are newly wedded or if the women gave them money on credit to purchase the fishing inputs as they migrate seasonally from one fishing ground to another. The fishermen deny the prevalence of HIV/AIDS among them.

The continual absence of the fishermen over the years has the possibility of increasing the number of female-headed households and household poverty level. This is because the fisherman may likely settle in the new community of destination, marries another wife and later abandon the previous one. The subordinate economic and social position of women in many fishing communities in low-income countries makes them even more vulnerable.

The children of migrant fishermen have limited possibilities of attending primary schools due to nature of their parents’ occupation which warrants older male children to move along with their parents from one fishing community to another.

6.0 Conclusion and Research Options

6.1 Conclusion

Empirical evidence provided in this study reveals that the cause of flow of migrant fishermen into the fishing communities of Nigeria is due to her abundant fisheries resources. Possession of modern fishing inputs have enhanced their potential for migrating coupled with the network connection of old migrants and Baale (community leader) of the community of destination who give them temporary places to stay at a fee which is a stipulated portion of their fish catch. This confirms the assumptions of the neoclassical economic and networking theories.

As postulated by the neoclassical economics (macro-economics) theory that movement of migrants will increase till equilibrium is reached between community of origin and destination area, it has been observed that the number of migrants from Ghana has reduced since ten years ago. This is because Ghana has economically improved and many fishermen have trained their children who have gotten 'white-collar' jobs such as teaching, office and bank jobs in Ghana. But in the marine fishing communities of Ogun State, number of migrant Ghanaian fishermen has not reduced because they are financially empowered by the Baales or some affluent indigenous fisher folks to buy the input fishing required for the fishing season from Ghana. As they fish, the migrant fishermen are expected to pay back the loan for the purchase of the inputs in terms of fish catch. But in some few cases, the Ghanaian fishermen are only employed to fish with the inputs bought and paid for services rendered.

Despite the fact that there has been a drop in fishing effort due to an over-exploitation of some water bodies, inland water fishermen have continued to migrate due to the lack of alternative sources of livelihood. Those who are still in fishing as migratory fishermen are because they are not literate have been involved in fishing right from their childhood and lack other skills.

Fishermen migrants are at a disadvantage in the destination country, despite the fact they settled for more than a hundred years (e.g. the Eguns and Aganrins of Lagos State west coast). These communities still lack basic infrastructures. If their communities are to benefit from development programmes, there is a need for them to integrate into the day-today running of the community and Local Government of destination by forming social groups whereby they can present their needs to the central government. Due to lack of skills other than fishing and appropriate fishing inputs, inland fishermen have continued to migrate to various water bodies which have been over exploited, while industrial development and trawlers have destroyed the marine fishing grounds of artisanal fishermen. It is also unfortunate that in this period of the 21st century some fishermen do not see the need to educate their children, but prefer to use them as cheap sources of labour, while others lack the financial means to train their children.

6.2 Prospects of Fishermen Migration

It is anticipated that as long as they are migratory fish species, fishermen will continue to migrate especially for the wet season shark fishery. According to the migrant fishermen, there are more fish species (shining nose, barracuda and croakers) and bigger in sizes in Nigerian waters compared to those in Keta. There is a larger market in Nigeria for fish due to the country's large population. Ghanaians bring fish (especially those in the catfish family) to sell in Nigeria and Republic of Benin. This is because the Ewes and

Eguns do not eat none-scaly fish. Fish sent to their home of origin are usually salted or sun dried; while shark is sent in the smoke-dried form.

Considering the high cost of fishing inputs especially the drag net (*'dogbo'*), the OBE, and Ghanaian dug-out canoe; the fishermen who can not afford the cost and others who come because they have owe some debt back in Ghana will come to work in fishing companies as a labourers. The lack of alternative sources of livelihood and other skills except that of fishing learnt from their fathers, will continue to encourage those have not been adequately educated to be employed elsewhere will continue as migrant fishermen

6.3 Research Options

Studies should be carried out for relevant statistics on migrant fishermen activities. Such research should identify other sources of livelihood to empower them to survive during off-fishing season. The need to raise public awareness and to improve knowledge on the danger of HIV/AIDS on their household and livelihood is also crucial.

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