

## *Full Length Research Paper*

# **Neighbourhood Acceptability and Environmental Implications of Fish Farms Location in Ikorodu Local Government Area of Lagos State, Nigeria**

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**ABSTRACT:** The environment of fish farming operation is a major constraint to farm location acceptability by neighbourhood community members. This study therefore examined the neighbourhood acceptability and environmental implications of fish farms location in Ikorodu Local Government Area of Lagos State. A multi-stage sampling technique was used to select one hundred and ten respondents. Descriptive statistics such as frequency, percentage and weighted mean were used while inferential statistics such as chi square and PPMC were used to analyze the hypotheses. The result revealed that most of the respondents were female (54.5%) and 30% within their active years of 40-49. The chi square result revealed that 84.5% of the respondents live in the area of fish farm activities and 70.0% of the respondents said the

fish farmers power their water sources with generators which cause noise pollution to the environment. The level of significance of the study was 5%, the level of acceptability of fish farm activities among respondents is low in the study area and recommendations are made that Government and non government organizations where fish production is usually practiced should formulate policies which will ensure quality health management in fish farm neighborhood, and adequate information dissemination through extension agent on how environmental effects can be managed, Government should also provide reserved estates for practicing fish farm activities.

**Keywords:** Neighbourhood, Acceptability, Environmental implication, Fish farms.

## **INTRODUCTION**

In Nigeria, Agriculture provides between 80 to 90 percent of the country's food needs (Odife, 2002). It however has diverse aspects and this includes fish farming which involves the rearing of fish for the purpose of consumption or sale. Fish is acclaimed to be the principal source of animal protein for over one billion people globally and provides many important nutritional and health benefits. Fish has the highest level of easily metabolisable proteins; it is reputed for its high quality proteins, fats, vitamins, calcium, iron and essential amino acids. The use of fish as a source of protein to aid growth and development of both human and livestock cannot be overemphasized. Mafimisebi, (2004) reported that fish is

a valuable source of complete protein, the flesh of fish is similar to that of meat in structure, but contains a greater percentage of water. He further notes that fish is more easily digested than meat.

Fish farming is a profitable venture and it is rapidly expanding and it will continue to be profitable if the planning and management are well taken care of Fish farming started in Nigeria over 40 years ago (Lamac, 2010). The Nigerian government has recognized the importance of the fishery sub-sector and it has made several attempts over the years to increase their productivity through institutional reforms and the various economic measures. Some of these measures provided

subsidy for inputs and exemption from tax for fishermen. Fishing, like any other hunting activities has been a major source of food for human race and has put an end to the unsavory outbreak of anemia, kwashiorkor and so on. Fish is one of the most diverse groups of animals known to man with more than 20,500 species in existence (Eyo, 2006).

Fish accounts for about one fifth of world total supply of animal protein and this has moved up five folds over the last forty years from 20 million metric tons to 98 million metric tons by the year 1993 and projected to exceed 150 million metric tons by the year 2010. Fish farming also generates employment directly and indirectly in terms of people employed in the production of fishing output other allied business (Masser *et al.*, 2007). An estimated 43.5 million people were directly engaged (part time or full time) in primary production of fish either in capture from the wild or in aquaculture representing 3.2 percent of global 1.37 people in active agriculture and a further 4 million people were engaged on an occasional basis (FAO, 2009). The major constraint of fish farming was identified to be those of environment of fish farming operation i.e. water pollution (Spaulding and Blasco, 1997) inadequate supply of fingerlings, inadequate information and feeds supply (Assiah, 1997). In spite of the ever increasing growth being witnessed by other major source of animal protein such as livestock and poultry industries, this problem of protein deficiencies has continued unabated. The need therefore arose to explore fish farming as a means of curbing this menace. Fish farming offers myriad benefits to the people in the area of employment creation and supply of animal protein. Many of the surrounding fish farming arise from the concentration of fish in intensive culture. Waste products, including faeces, uneaten food, and dead fish are flushed into the surrounding water where they may add to the contamination of the water supply. Quarrels and fights may result from neighbor over fish farming related activity. Backyard farms have folded up in neighbourhoods following quarrels and mismanaged disputes. Communities or religious groups that do not eat scale-less fish such as catfish may frown at the idea of establishing a backyard fish farm to rear scales fish. Clearing of land for backyard fish farming may affect other use of the land. Economic crops and trees may be affected and habitat for wildlife may be disturbed. Vegetable around homes are major refuge for wildlife in urban areas and when such spaces are utilized for aquaculture, local wildlife are displaced (Alum-Udensi, 2016). Fish farm can generate significant employment, enhance the socioeconomic status of the farmers as well as generate foreign exchange (Oluwasola and Ajayi, 2013).

### General objectives

The general objective of the study is to determine

neighbourhood acceptability and environmental implications of fish farms location in Ikorodu Local Government Area of Lagos State. The specific objectives are to:

- (a) Describe the socio- economic characteristics of respondents in the study area.
- (b) Examine the neighbourhood acceptability of fish farm location in the respondents in the study area
- (c) Ascertain perceived environmental implications of fish farming in the study area.
- (d) Identify benefits derived based on fish farms located in the study area.

### METHODOLOGY

The Study was carried out in Ikorodu Local Government Area of Lagos State; Ikorodu is a city in Lagos State, Nigeria Located North East of Lagos State along the Lagos Lagoon, it shares a boundary with Ogun State. As of the 2006 Census Ikorodu had an enumerated population of 535,619. Ikorodu is situated at a distance of approximately 36 km north of Lagos. The town is bounded on the South by the Lagoon. In the north, Ikorodu shares common boundary with Ogun State. While in the East, it has common boundary with Agbowal-kosi, a town in Epe Division of Lagos State. The population of this study consists of residents in Odogunyan, Lasunwon, and Rofo areas of Ikorodu local government of Lagos state. 1<sup>st</sup> stage: Odogunyan, Rofo, and Lasunwon were purposively chosen from the local government because of their high concentration of fish farms. 2<sup>nd</sup> stage: A simple random sampling technique was used in selecting the representative residents to be used in the study area based on the high concentration of fish farms. 3<sup>rd</sup> stage: A total of 110 were selected in the study.

### RESULTS AND DISCUSSION

Table 1 shows the result of the socio-economic characteristics of the respondents in the study area. It was revealed that most (54.5%) of the respondents were female while 45.5% were male. Also, 31.8% of the respondents fell within the age range of 40-49 years age range while the least category (17.3%) fell within between the age ranges of 20-29 years. Majority (53.6%) of the respondent were married, (17.3%) were single, divorced were (12.7%) of the respondents, the widowed were (16.4%). Educational level shows that (32.7%) has Tertiary education, (28.3%) has primary education, (24.5%) of the number of respondents have no formal education, (14.5%) of the respondents has secondary education Educational achievement is quite impressive among respondents in the study area and this however implies that education enables to cope with everyday

**Table 1:** Socio-Economic characteristics of the respondents.

Variable	Frequency	Percentage
<b>Sex</b>		
Male	50	45.5
Female	60	54.5
Total	110	100
<b>Age</b>		
<30 years	19	17.3
30-39 years	33	30.0
40-49 years	35	31.8
50 years above	23	20.9
Total	110	100
<b>Marital status</b>		
Single	19	17.3
Married	59	53.6
Divorced	14	12.7
Widowed	18	16.4
Total	110	100
<b>Educational background</b>		
No formal education	27	24.5
Primary education	31	28.3
Secondary education	16	14.5
Tertiary education	36	32.7
Total	110	100
<b>Religion</b>		
Islamic	37	33.6
Christianity	49	44.6
Traditional	24	21.8
Total	110	100

**Table 2:** Level of acceptability of fish farm location

	Highly acceptable	Acceptable	Not acceptable
Fish farm location in my area	63(57.2)	30(27.3)	17(15.5)
Interest derived from fish farm location	54(49.1)	30(27.3)	28(25.5)
Preferred to live in fish farm location	54(49.1)	24(21.8)	32(29.1)
Preferred to stay in fish farm location for many years	49(44.6)	26(23.6)	35(31.8)
I preferred concrete pond in fish farm location	0(0.0)	47(42.7)	63(57.3)
I preferred earthen pond in fish farm location	0(0.0)	60(54.5)	50(45.5)
Regular discharge of water from fish farm location	38(34.5)	30(27.3)	42(38.2)
Creation of additional fish farms in my location	18(16.4)	57(51.8)	35(32.9)
Offensive odour discharge	50(45.5)	45(40.1)	15(13.6)
Fish farm location noise	57(51.8)	40(36.4)	13(11.8)
Locating fish farm pond near my house	7(6.4)	8(7.3)	95(86.3)

problems and to realize their opportunities, Omitoyin, (2007), Anthonio and Akinwumi,(2002) reported that education level is one of the factors that influences adoption of new innovations . Also (44.6%) of the populations interviewed were Christian, (33.6%) were Muslim, (21.8%) were neither Christians nor Muslims, this means that despite the dominance of the first two religions, some of the respondents still practice the religion of their fore-fathers and encourage culture, which means Christian are predominant in the studied area.

Table 2 revealed the level of acceptability of fish farm location in the study area. 57.2% of the respondents accepted fish farm location in their area. This means that

the level of acceptability of fish farm location was high. Also, 49.1% of them developed interest in fish farm location in their area, 49.1% preferred to live in location of fish farming while 44.6% preferred to stay in fish farm location for many years. The result in Table 2 further revealed that 45.5% of the respondents accepted the offensive odour discharge from fish farm location while most (51.8%) accepted to cope with the noise from fish farm location.

From the result in Table 3, majority (84.5%) of the respondents agreed that they encounter inconvenience as a result of fish farm located in their area. This is in support with the findings of Shayo, (2006) which stated

**Table 3:** Environmental effect of fish farming production on the neighbourhood.

Environment effects	Frequency	Percentage
Inconveniency encountered by people living in fish farm area	93	84.5
Discharged water affect households living around fish farm	67	60.9
Daily activities on fish farm affect people living in the neighbourhood	81	73.6
Pollution and waste generated in fish farm location affect people living in the neighbourhood	71	64.5

**Table 4:** Perceived effect of fish farm location in the neighborhood environment.

Variables	SA	A	U	D	SD	Weighted
Irritation	52(47.3%)	29(26.4%)	28(25.5%)	1(0.9%)	0(0%)	4.2
Erosion	39(35.5%)	29(26.4%)	36(32.7%)	6(5.5%)	0(0%)	3.9
Odours	49(44.5%)	32(29.1%)	21(19.1%)	7(6.4%)	1(0.9%)	3.95
Infection	46(41.8%)	42(38.2%)	18(16.4%)	4(3.6%)	0(0%)	4.18
Damages road	35(31.8%)	22(20.0%)	46(41.8%)	6(5.5%)	1(0.9%)	3.8
Run off	29(26.4%)	37(33.6%)	32(29.1%)	11(10.0%)	1(0.9%)	3.4
Soil depletion	12(10.9%)	54(49.1%)	32(29.1%)	12(10.9%)	0(0%)	3.6
Harbors diseases	35(31.8%)	31(28.2%)	19(17.3%)	12(10.9%)	13(11.8%)	3.6

**Table 5a:** Benefits derived from fish farm location.

Benefits	Not beneficial	Beneficial	More beneficial	Most beneficial	Weighted mean	Rank
Job opportunity	41(37.3)	36(32.7)	11(10.0)	22(20.0)	1.13	5 <sup>th</sup>
Sources of dietary nutrient	22(20.0)	50(45.5)	21(19.1)	17(15.5)	1.30	4 <sup>th</sup>
Provision of fresh fish	11(10.0)	31(28.2)	33(30.0)	35(31.8)	1.84	2 <sup>nd</sup>
Fresh fish market	29(26.4)	26(23.6)	13(11.8)	42(38.2)	1.62	3 <sup>rd</sup>
Irrigation purpose	47(42.7)	40(36.4)	17(15.5)	6(5.5)	0.84	6 <sup>th</sup>
Increase in protein intake	11(10.0)	14(12.7)	15(13.6)	70()	2.31	1 <sup>st</sup>

**Table 5b:** Categorization of respondents based on benefits derived.

Variable	Frequency	Percentage
Low	66	60
High	44	40
Total	110	100

that improper management of farm wastes pollutes the environment. Also, 60.9% identified that discharge water from fish farm affect the respondents. Most (73.6%) considered daily activities on fish farm location as activities that affect them. Also, (70%) of the respondents agreed that the discharged water from the pond causes pollution and affect their household.

The Table 4 shows the perceived effect of fish farm location in the neighborhood. Most of the respondents agreed that irritation from fish location affect them (4.2). This was closely followed by effect of infection (4.13). Also, most of the respondents identified odours (3.95), erosion (3.9) and road damage (3.8). the result in Table 4 as presented by weighted score further revealed that other perceived effect of fish farm location were soil depletion (3.6), harbouring of diseases (3.6) and runoff water (3.4). This implies that the environmental effect observed from fish farms located in residential areas are high and this should be considered in locating a fish farm.

The result in the (Table 5a) indicate the benefits derived by respondents revealed that benefit of increase protein intake (2.31) was ranked first, this was followed by provision of fresh fish (1.84), fresh fish market (1.62), sources of nutrient (1.30), job opportunity (1.13) while benefit for irrigation purpose (0.84) was rank lease of the benefit. This means that fish farm location is highly beneficial to some of the residents in the study area. This might be linked to the fact that fishes produced were not available and accessible to the people living in this location rather to the people in other places for commercial purpose.

The result in the (Table 5b) shows the level of benefits derived in fish farm located among the respondents. It shows that 60.0% of the respondents had low level of benefits derived of the fish farm located in neighborhood while 40.0% of the respondents had high level of benefits derived of the fish farm located in neighborhood. This means that most of the respondents had low benefit from

**Table 6:** Chi-square results showing the relationship between the socio-economic characteristics of respondents and the level of acceptance.

Variable	Values( $X^2$ )	df	P- value	Decision
Sex	11.076	1	0.001	S
Age	4.350	3	0.226	NS
Marital status	5.880	4	0.208	NS
Educational background	5.692	3	0.128	NS
Religion	3.224	2	0.200	NS
Occupation	6.892	4	0.142	NS

**Table 7:** Pearson product moment correlation (PPMC) analysis of level of acceptability and its environmental implications.

Variables	r-value	p-value	decision
Level of acceptability and environmental implications	0.252	0.041	S

fish farm location. Table 6 showed that there was significant relationship between sex and level of acceptability of the respondents. This means that there is variation in the acceptability of fish farm by sex in the study area. It suggests that acceptability varied across the sex of the respondents based on benefit derived from such activities. Table 7 shows significance at  $p$  value ( $>0.05$ ) indicating that there is significant relationship between environmental implication and level of acceptability fish farms location. This means that as the environmental implications of fish farm location as perceived by the residents influences the level of acceptability in the study area.

## Conclusion

The result obtained from this study revealed that the effect of fish farming is experienced more by the females residents of the study area, high percentage of the respondents are in their working ages at the range of 30-39 and 40-49 years, and also the level of literacy among respondents is tertiary education, both Christianity and Islamic religion are the dominant religion practiced by the respondents in the study area. The study further revealed that there is low level of acceptability among respondents in the study area. Sex has significant association with the level of acceptability while age, marital status, educational status, religion and occupation had no significant association with level of acceptability.

## Recommendations

Based on these findings which showed that there is there is low level of acceptability in the study area.

(i) Government and non government organizations where fish production is usually practiced should formulate

policies which will ensure quality health management in fish farm neighbourhood.

(ii) Adequate information dissemination on how environmental effects can be managed.

(iii) Government should provide reserved estates for practicing fish farm activities.

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