# Catfish Production to Household Income in Lagos State, Nigeria.
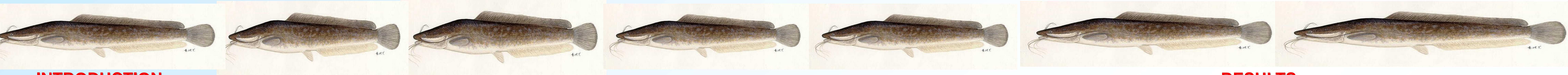
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## INTRODUCTION

•Fisheries represent an important part of the world's economy.

•In Nigeria, like other parts of the world, inland and coastal fisheries and related fish processing and trading provide full or part time employment for between 6 and 9 million people in African, Nigeria inclusive (CBN, 2004)

•Fish is a major source of animal protein and an essential food item in the diet of many Nigerians, being relatively cheaper than meat.

•Much of the fish consumed consists of cheap species such as Sardinella, Bonga, Moonfish, Ilisha, catfish and Tilapia.

•Many fish farms focus on catfish, as they can have a market value of two to three times that of tilapia (F.A.O 2005).

• Catfishes of the family Claridae comprise the most commonly cultivated fishes in Nigeria.

• The growth of aquaculture in Nigeria now is largely being boosted by a steady rise in catfish culture.

•The favoured catfish species in Nigeria aquaculture include: *Clarias gariepinus, Heterobranchus bidorsalis, Clarias X Heterobranchus* hybrid *(Heteroclarias) and Clarias nigrodigitatus. Heterobranchus sp.*

•Statistics indicate that Nigeria is the largest African aquaculture producer, with production output of over 15,489 tonnes per annum, which constitutes about 4% of the nation's agricultural G.D.P.

### OBJECTIVES:

This work assess the perception of catfish farmers on climate change and estimate the contribution of catfish production to household income in Lagos State, Nigeria.
Specifically, it:

• describes the socio-economic characteristics of catfish farmers in Lagos State,

• examine the factors that affect catfish production,

•estimate the cost and returns relationship involved in catfish farming, and

•identify the major constraints facing fish farming in Lagos State.

### METHOD

#### The Study Area

The study was conducted in Lagos State, Nigeria. Lagos State stretches for about 180 km. along the coast of the Atlantic Ocean. It therefore has 22.5% of Nigeria's coastline and occupies an area of about 3,577 square kilometres landmass with about 786.94 square kilometres, (22%) of it being lagoons and creeks. Although, the state is endowed with 147,877 hectares of swampland and large areas of water bodies suitable for aquaculture to feed its ever increasing human population of over 10 million people, only 61.28 hectares (about 0.04%) is used for aquaculture (Lagos State Fisheries Department, 1998).

#### Sampling Technique and Sample Size

• Data were collected from Fish farmers in five (5) Local Government Areas (LGAs) which were purposively selected based on the fact that they have a concentration of fish farming communities in the State.

• They are: Ikorodu, Epe, Ibeju-Lekki, Alimosho-Ikeja and Eti-Osa LGAs. From each LGA, 50 fish farms were selected randomly.

• The list of fish farmers was obtained from the ADP office and used for the selection process. Thus a total of Two hundred and fifty catfish farmers (respondents) were used for this study.

• Data were collected using a well-structured questionnaire and Focus Group Discussion (FGD).

#### Analytical Techniques

The Analytical tools used in the study are:

**(a) The descriptive Statistics** such as frequency distribution, mean, standard deviation and percentages. These were used to describe the socio-economic variables of the catfish farmers such as age, years of experience, household size and marital status and fish related information, such as pond size, stocking rate and volume of catch.

(b)**Budgeting Analysis**, which involves the use of Net Farm Income was used to estimate the contribution of catfish production to household income.

(c) **The production function analysis** which involved the use of the regression model was used to examine the relationship between the dependent variable (output) and a set of independent variables.

The implicit form of the regression model specified is presented by the equation:

$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, U$

The explicit linear function in linear format is presented by equation:

$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6$

Where: Y= dependent variable

X's= independent variables

b's= regression coefficients to be estimated and,

U= error term

Y=quantity of catfish harvested (kg)

$X_1$= Age of Respondents

$X_2$= Present Capital

$X_3$= Stocking Rate

$X_4$= Cost of feeding

$X_5$= Source of Water

$X_6$= years of experience

U= error term

The double logarithmic of the regression model is presented as specified by:

$Log = b_0 + b_1X_1 + b_2\log X_2 + b_3\log X_3 + b_4\log X_4 + b_5\log X_5 + b_6\log X_6$

A five scaled likert was used to determine the perception of the fish farmers on climate change.

Table 1: Shows the socioeconomic characteristics of the catfish farmers in Lagos State Lagos

| GENDER | FREQUENCY | PERCENTAGE |
|---|---|---|
| MALE | 185 | 74 |
| FEMALE | 65 | 26 |
| TOTAL | 250 | 100 |

| MARITAL STATUS | FREQUENCY | PERCENTAGE |
|---|---|---|
| SINGLE | 70 | 28 |
| MARRIED | 160 | 64 |
| WIDOW/ER | 10 | 4 |
| DIVORCED | 10 | 4 |
| TOTAL | 250 | 100 |

| AGE RANGE | FREQUENCY | PERCENTAGE |
|---|---|---|
| <30 | 90 | 36 |
| 31-40 | 60 | 24 |
| 41-50 | 65 | 26 |
| 51-60 | 20 | 8 |
| >61 | 15 | 6 |
| TOTAL | 250 | 100 |

| EDUCATIONAL LEVEL | FREQUENCY | PERCENTAGE |
|---|---|---|
| PRIMARY | 10 | 4 |
| SECONDARY | 55 | 22 |
| TERTIARY | 165 | 66 |
| EDUCATION | 20 | 8 |
| TOTAL | 250 | 100 |

| OCCUPATION | FREQUENCY | PERCENTAGE |
|---|---|---|
| FARMING | 135 | 54 |
| TRADING | 25 | 10 |
| CIVIL SERVANT | 60 | 24 |
| FARMING | 30 | 12 |
| TOTAL | 250 | 100 |

| FISH FARMING EXPERIENCE | FREQUENCY | PERCENTAGE |
|---|---|---|
| ≤ 5 | 140 | 56 |
| 10-Jun | 55 | 22 |
| 16-Nov | 40 | 16 |
| ≥ 16 | 15 | 6 |
| TOTAL | 250 | 100 |

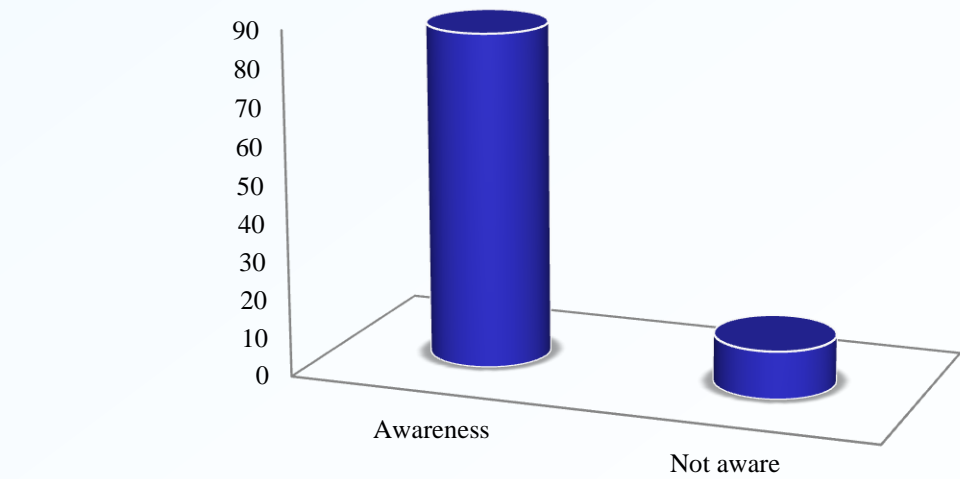| HOUSEHOLD SIZE | FREQUENCY | PERCENTAGE |
|---|---|---|
| ≤ 4 | 105 | 42 |
| 8-May | 90 | 36 |
| 12-Sep | 35 | 14 |
| 13-15 | 10 | 4 |
| ≥16 | 10 | 4 |
| TOTAL | 250 | 100 |

Source: Field survey 2011



**Figure 1:** Climate change Awareness in Lagos state Nigeria.



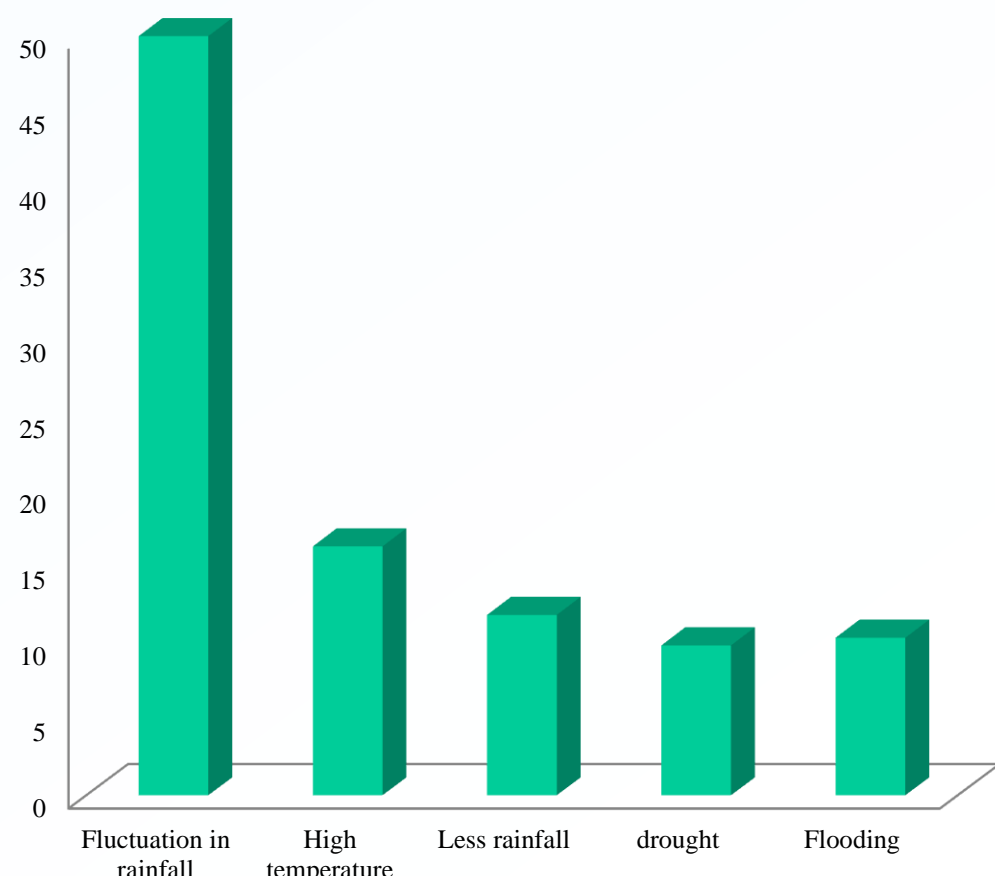**Figure 2:** Effect of climate change variables on African catfish production in Lagos state, Nigeria.

Table 2: Distribution of Respondents According to Total Revenue Realized from Catfish Production Enterprise.

| Revenue (US$) | Frequency | Percent |
|---|---|---|
| < 75000,000 | 115 | 46.0 |
| 75000,000 – 1.4999985 | 60 | 24.0 |
| 150,000,000–2.2499985 | 25 | 10.0 |
| 2.2500,000 – 2.9999985 | 15 | 6.0 |
| ≥ 3.0000000 | 35 | 14.0 |
| Total | 250 | 100.0 |

Source: Field survey 2011

Table 3: Distribution of Respondents According to Risks Associated with Catfish Production Table3:

| Risks Associated with Catfish production | Frequency | Percent |
|---|---|---|
| Fluctuating Prices Spoilage due to poor facility Infrastructure | 150 | 60.0 |
| Fluctuating prices and polluted Water | 50 | 20.0 |
| Total | 50 | 20.0 |
|  | 250 | 100.0 |

Source: Field Survey, 2011

Table 4: Profitability Analysis of the Fresh fish marketing in Lagos state, Nigeria

| A) Variable Cost | Price(N) | % of Total Cost |
|---|---|---|
| Opening Stock (stocking rate) | 38,130 | 6.32 |
| Quantity of Feeds (bags) | 13,992 | 2.32 |
| Cost of Labour | 30,000 | 4.97 |
| Utility (water, light e.t.c) | 50,000 | 8.29 |
| Miscellaneous | 1025 | 0.17 |
| **Total Variable Cost** | **132,122** | **22.07** |
| B) Fixed Cost |  |  |
| Cost of Pond Construction (m²) | 450,000 | 74.61 |
| Salaries (per production cycle) | 20,000 | 3.32 |
| Total Fixed Cost | 470,000 | 77.93 |
| **Total Cost** | **603,122** | **100** |
| C)Revenue | **854,000** |  |
| **Net Income** | **205,878** |  |

Source Field survey, 2011

### REGRESSION ANALYSIS
### Table 5: Factors affecting catfish farming in Lagos State, Nigeria

| Model | B |
|---|---|
| Constant | 188619.814 |
|  | (0.366) |
| Age of Respondents(yrs) | −7319.544*** |
|  | (−1.812) |
| Education attained | −36847.556 |
|  | (−0.520) |
| Production cycle | −77330.792 |
|  | (−0.893) |
| Size of Pond | 22124.450 |
|  | (0.589) |
| Stocking Rate | 97.007*** |
|  | (1.955) |
| Quantity of feeds (kg) | 6406.351 |
|  | (1.503) |
| Mortality Rate | −30887.242 |
|  | (−1.473) |
| Present Capital | 0.792* |
|  | (6.417) |
| Membership of Association | −94687.097 |
|  | (−0.861) |
| R² | 0.930 |
| Adjusted R² | 0.910 |
| F–Value | 46.205 |

Source: Field Survey, 2011

Figures in parentheses are t-ratio
*Estimate is significant at 1% level
***Estimate is significant at 10%

## RESULTS

**Table 1** shows the socioeconomic characteristics of the catfish farmers in Lagos state Nigeria.

• 74.0% were male and 64.0% were married this shows that the fish farmers were matured and are responsible to take good care of their households.

•60.0% of the respondents were between the age range of 30-40 this implies that the respondents falls between the active age and most of the labour will be provided by the respondents and labour cost will be reduced.

• 66.0% of the respondents had tertiary education certificates, this shows that the fish business in Lagos state is not only for the school leavers but for degree holders who believe in been self reliant by putting into use knowledge gain during their tertiary education. Hence adoption of new innovations will be easier for them and this will increase their fish production and their household income will also increase and this will have a positive effect in their standard of living.

•78.0% of the respondents had fishing experience of between 1-10 years the result was due to the effect of the Millennium Campaign for food security and aquaculture formed about 40.0% of the sea food consumed man worldwide and Nigeria is not exempted.

•42.0% of the fish farmers keep a moderate family size of 1-4.

**Table 2** : Distribution of Respondents According to Risks Associated with Catfish Production

**Table 3** Distribution of Respondents According to Total Revenue Realized from Catfish Production Enterprise.

**Table 4** Profitability Analysis of the Fresh fish marketing in Lagos state, Nigeria

•Net Income (the difference between total revenue generated and total cost) was estimated to be ₦205,878.00 ($1,286.74)

•. This implies that catfish production was highly profitable hence, food security in the study area.

**Table 5: Factors affecting catfish farming in Lagos State, Nigeria**

**Figure 1** Climate change Awareness in Lagos state Nigeria.

• 87.5% of the fish farmers were aware of climate change.

• 12.5% were not aware of climate change.

**Figure 2** Effect of climate change variables on the production of catfish in Lagos state, Nigeria.

•Fluctuation in rainfall pattern (50.0%)

•high temperature (16.5%)

•less rainfall (12.0%)

• drought (10.0%)

•Flooding (10.5%)

## CONCLUSION

The conclusion that could be drawn from this study is that catfish production enterprise is capital intensive and catfish farming was found to be profitable in the study area considering the fact that the farmers were able to cover their operating expenses and fixed cost respectively as shown by the Net revenue obtained. The enterprise has an average profit of ₦205,878.00/$ 1,286.74, per production cycle.

### RECOMMENDATIONS

• Join cooperative societies
• Provision of credit and incentives by the Government
• Locally produced fish feed should be encouraged.

### REFERENCES

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