

## Research Paper

# Demographic distribution of fish farmers in Maiduguri, North-Eastern Nigeria

U. I. Ibrahim<sup>1\*</sup>, B. U. Shamaki<sup>2</sup>, J. R. Lawal<sup>1</sup>, H. A. Grema<sup>1</sup>, A. Ibrahim<sup>1</sup>, Y. B. Majama<sup>3</sup>, S. J. Badau<sup>4</sup> and C. D. Kushi<sup>1</sup>

<sup>1</sup>Department of Veterinary Medicine, Faculty of Veterinary Medicine, University of Maiduguri, Nigeria.

<sup>2</sup>Department of Veterinary Physiology, Pharmacology and Biochemistry, Faculty of Veterinary Medicine, University of Maiduguri, Nigeria.

<sup>3</sup>Department of Veterinary Anatomy, Faculty of Veterinary Medicine, University of Maiduguri, Nigeria.

<sup>4</sup>Department of Veterinary Pathology, Faculty of Veterinary Medicine, University of Maiduguri, Nigeria.

\*Corresponding Author E-mail: [umarisaibrahim@yahoo.com](mailto:umarisaibrahim@yahoo.com)

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A survey of the demographic distribution of fish farmers was carried out in Maiduguri metropolitan using open ended questionnaire. Random sampling of fish farms was carried out and results analysed using simple percentages. A total of one hundred (100) copies of a structured questionnaire were administered to fish farmers who had once harvested fish from their ponds/farm. Ninety one (91) copies of the questionnaire were retrieved. Results from the study showed that married couples have higher (58%) participation in fish farming as compared to singles (37%), divorcees (2%), and widows (3%). The results further showed that there were more young adults (75%) participating in fish farming activities than elderly (33%) and teenagers (2%). Nineteen

percent (19%) of the fish farms were located in the Government Reserved Area (GRA) of Maiduguri town as compared to other locations within the metropolis. While majority (71%) of the fish farmers had education at tertiary level, others had lower levels of education. Most of the farmers (46%) are serving civil servants while only (15%) practice fish farming as a full time business. The survey suggests that fish farming in Maiduguri is thriving especially among young ages and the average income earners to complement their family income.

**Key words:** Demographic distribution, fish farmers, freshwater fish, North-Eastern Nigeria.

## INTRODUCTION

Aquaculture as a branch of agriculture is described by many authors as the cultivation of aquatic plants and animals. It has also been described as the cultivation of waters natural produce, raising and fattening of fish in enclosed ponds (Olayemi, 1998). Fish farming development at the global level has been viewed as a measure of

improving food security and equally, to supplement income for rural farmers (FAO, 1999). Global consumption of fish has doubled since 1973, with the developing world, including Nigeria being responsible for over 90% of the growth. In some African countries, aquaculture is almost entirely for subsistence purpose

with little surplus for markets.

However, insufficient food production and limited protein supply, and per caput consumption of only 5 gm per day (Raufu et al., 2009) of animal protein, is a far cry from FAOs 35 gm per day (Afolabi and Oladimeji 2003). This made demand for fish to rise geometrically to over 1.5 million metric tonnes (Raufu et al., 2009) with a projected per caput consumption of 13.0 kg in Nigeria as at 2010 (Gabriel et al., 2007).

Extension service to fish farming has not been properly delivered due to lack of information on the actual population and demography of fish farmers in the study area. This has created a large gap between the fish farmers and the State Agricultural Development Programme and Ministry of Agriculture and rural development. The actual population of fish farmers and their location will adequately furnish the government to provide all forms of assistance to the farmer. This study therefore is aimed at investigating the demographic distribution of fish farmers in Maiduguri, metropolis with a view to providing baseline information on population of urban fish farmers in the study area.

## MATERIALS AND METHODS

### Study area

The area selected for the study was Maiduguri metropolitan formerly Yerwa Founded in 1902, the capital of Borno State. The city is located on latitude 11° 48'1N and 11° 52'1 N and Latitude 13° 02'1 E and 13° 12'1 East. It is the largest metropolis in the northeastern region of Nigeria (Iliyasu, 1998).

### Questionnaire preparation

An open ended questionnaire was designed to identify the demographic distribution of the respondents, with the aim of ascertaining the spread of fish farmers in the study area.

### Data collection

A random selection of one hundred (100) fish farmers that once harvested from their ponds/farm were served with a questionnaire each. Ninety one (91) copies of the questionnaire were eventually retrieved and the data analysed.

### Data analysis

Percentages were used to analyze the data from the duly completed copies of the questionnaire and results presented as proportion of total respondents.

## RESULTS

The results from sex distribution indicated that out of the 91 respondents, 58% were married, 37% were single, 2% were divorced and 3% were widows (Table 1). Out of the 58% married respondents, 42% were males, 16% were females. Out of 37% singles respondents, 31% were males, 6% were females whereas 2% were divorced females, while 2% were widows and 1% a widower (Table 1).

The age group of the respondents showed that 75% were adults aging between 25–35 years, 23% were elderly with age between 35–50 while 2% were teenagers aging between 13 – 19 years (Table 2).

The location and number of fish farmers is presented in (Table 3). Out of the 91 fish farmers that responded, 19% were residents of old GRA/Polo ward, 10% at new GRA/Bama road, 16% located in Bolori ward, while, 8% at Goni Kachari (near Lake Chad Research Institute), 6% in University of Maiduguri (UNIMAID) staff quarters. Others were located at Bulumkutu, Gamboru, Molai and new layouts (others) 5(5%) with 10%, 6%, and 20% respectively (Table 3).

The educational levels of fish farmers in Maiduguri are presented in (Table 4). From the 91 respondents, 8% had only primary school education, 13% attained secondary school level of education, 71% tertiary level of education, while 8% attended vocational training institutes where they acquired various skills.

The occupational status of the respondents is presented in (Table 5). Out of the 91 respondents the survey showed that 46% were civil servants, 16% students, 15% full time fish farmers, 10% traders, 4% housewives and 9% of the respondents have not specified their occupations.

## DISCUSSION

The study revealed that adults are more into fish farming activity than other age groups, this may be related to the fact that the age range of this group are mostly found in the working class, and therefore, can afford to starting capital to establish a fish pond.

The findings from this study showed that married couples showed more interest in fish farming than other groups of people. Males engaged in fish farming activity more than females. This could be due to the fact that men may be economically buoyant than their female counterpart, these associated with increasing family demand on the males, necessitate looking for other source of extra income to accomplish contending domestic demands, hence the need for extra source of income. Besides, males monopolizes source of income and can have the capital requirements to establish fish farm. This findings agrees with the reports of Raufu et al., (2009), Sikiru et al., (2009) and Adewuyi et al., (2010),

**Table 1.** Gender and marital status of fish famers in Maiduguri and environs.

Gender	Marital Status				Total (%)
	Married	Single	Divorced	Widow	
Male	38(42)	28(31)	-	1(1)	67(74)
Female	14(16)	6(6)	2(2)	2(2)	24(26)
Total	52(58)	34(37)	2(2)	3(3)	91(100)

**Table 2.** Age profile of fish famers in Maiduguri metropolitan.

Age	Frequency/Percentages (%)
Adults (25-35)	70 (75)
Elderly (35-50 years)	21(23)
Teenagers (13-19)	2(2)
Total	91(100)

**Table 3.** Locations and number of fish farmers in Maiduguri and environs.

Location	Frequency	Percentages (%)
Old GRA/Polo ward	17	19
New GRA/Bama Road	9	10
Bolori ward	14	16
Goni Kachalari ward	7	8
Unimaid staff quarters	6	6
Bulunkutu Ward	5	5
Gamboru Ward	9	10
Molai ward	6	6
Others	18	20
Total	91	100

**Table 4.** Educational level of fish farmers in Maiduguri.

Education	Frequency	Percentages (%)
Primary school	7	8
Secondary school	12	13
Tertiary Institution	65	71
Vocational Education	7	8
Total	91	100

Occupation	Frequency	Percentages (%)
Civil servants	42	46
Students	15	16
Fish farming	14	15
Business	9	10
House wives	3	4
Others	8	9
Total	91	100

**Table 5.** Occupational status of fish farmers in Maiduguri and environs.

observed similar trend in their studies in the South-West Nigeria. The higher numbers of adults between 30-50 years engaged in fish farming in this study area is in agreement with that of (Sikiru et al. 2009; Raufu et al. 2009; Adewuyi et al., 2010; de Graaf and Abdul Latif, 2002).

Fish farming can be part time or full time activity (Adewuyi et al., 2010). Fish farmers located in old GRA

and Bolori layout accounted for a large number of fish farmers. Because majority of the residents of this area are either retired civil servants or in their advanced stage of civil service carrier, and therefore, may be proffering a post civil service/retirement engagements. Establishment of fish farms in the study area was observed in this study to thrive better among civil servants, and retired civil servants, where 46% of the respondents engaged in fish

farming are serving or retired civil servants, while 16% were students, thus informing the financial needs and educational knowledge of establishing a fish farm which may be only afforded by informed class who have a steady source of income.

The study equally indicated that the respondents who have attained tertiary level of educational are much informed about of fish farming compared to other levels of education (Raufu et al., 2009). This assertion varied with the view of Adewuyi et al. (2010) who reported higher (82.9%) percentage of secondary school student engaged in fish farming. However, this finding is a signal to the authorities concerned that providing soft loans and financial aids to widows, divorcees, and youths can provide self employment to this unemployed class through fish farming, thus reducing social ills in the society. The findings also underscores the level of self dependence, awareness of fish farming benefits and means of employment for populated area with less job opportunities.

## Conclusion

Based on the results of this study, it was concluded that married individuals are more involved in fish farming compared to singles who could not engage in fish farming activity due to financial constraints or lack of information on fish farming. Divorcees and widows were also engaged in fish farming as a source of income to the family, since they have no one to provide for their needs.

## Recommendations

This study recommends that concerned authorities should design a programme of fisheries extension service to educate and encourage these farmers having known their correct distribution. The authorities concerned should also provide soft loans to interested people so as to engage in meaningful activity such as fish farming, increase productivity of the society and improve economy of the country. In that way, the farmers may benefit from capacity building through workshops and seminars, provision of inputs, market linkages etc.

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## AUTHORS' DECLARATION

We declare that this study is an original research by our research team and we agree to publish it in the journal.

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