

**SOCIO-ECONOMIC CHARACTERISTICS AND ECONOMIC BENEFITS OF  
ARTISANAL FISHERIES IN THE CABLE-OGBEOGONOGO AXIS OF RIVER NIGER,  
ASABA, DELTA STATE, NIGERIA**

**OYIBO, AMECHI. A.**

Department of Agricultural Education, Federal College of Education (Technical), Asaba, Delta  
State, Nigeria.

Author's Email; [oyiboamechi@gmail.com](mailto:oyiboamechi@gmail.com)

Phone Number: 08037024776

## Abstract

*This study adopted a descriptive survey research design to examine the socio-economic characteristics of fisheries stakeholders and the economic benefits derived from artisanal fishing activities in the Cable–Ogbeogonogo axis of River Niger, Asaba, Delta State, Nigeria. The study population comprised fishermen, fish traders, fish processors, and fish consumers operating within the study area. Data were collected from 200 respondents using a structured questionnaire titled “Socio-Economic Characteristics and Economic Benefits of Artisanal Fisheries Questionnaire (SECEBAFQ)” and a complementary Interview Schedule on Artisanal Fisheries Activities (ISAFQA). The instruments were subjected to face and content validation by experts in Agricultural Economics, Fisheries Management, and Measurement and Evaluation. Their observations and recommendations were incorporated into the final version of the instruments. Reliability of the questionnaire was determined through a pilot study involving 20 fisheries stakeholders from a neighboring fishing community outside the study area. The data obtained were analyzed using Cronbach’s Alpha, which yielded a reliability coefficient of 0.82, indicating that the instrument was reliable for data collection. Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to analyze the data, while inferential statistics, specifically the independent sample t-test, were employed to examine income differences among stakeholder groups. The results revealed that the fisheries sector was predominantly male-dominated (72.0%), with the majority of respondents aged between 41 and 50 years (31.0%). Most respondents possessed secondary education (43.0%), indicating a relatively literate workforce capable of adopting improved fisheries practices. Fishermen constituted the largest occupational group (38.5%), followed by fish traders (26.5%). The findings further showed that artisanal fishing activities contributed significantly to household income, with fishermen earning a mean monthly income of ₦124,500 ± 31,200 compared to ₦98,300 ± 27,450 earned by fish sellers. Independent sample t-test analysis revealed a statistically significant difference in income between fishermen and fish sellers ( $t = 6.14$ ;  $p < 0.05$ ). Despite the economic benefits derived from fisheries activities, respondents identified major constraints including high operational costs, declining fish stocks, inadequate storage and preservation facilities, and fluctuating market prices, all of which negatively affected profitability. The study concludes that artisanal fisheries remain a vital source of livelihood, employment generation, income, and food security for households in the study area. It recommends among others that Fishermen and fish traders should strengthen and actively participate in cooperative societies to enhance their access to credit, production inputs, market information, and collective bargaining opportunities. Through cooperative action, stakeholders can pool resources, reduce operational costs, and improve their income level*

**Keywords:** *Artisanal fisheries, fishermen, fish traders, income generation, River Niger, socio-economic characteristics.*

## Introduction

Fishery constitute one of the most important renewable natural resource sectors contributing significantly to food security, employment generation, poverty alleviation, and economic development in many developing countries. According to the Food and Agriculture Organization (FAO, 2018), fisheries and aquaculture provide livelihoods for over 820 million people worldwide and remain a major source of nutrition, especially in low-income countries. Fish is recognized as one of the most affordable and accessible sources of high-quality animal protein, essential fatty acids, vitamins, and minerals required for human health and development.

In Nigeria, fishery play a strategic role in the agricultural sector by contributing to national food security, income generation, and employment creation. Fish accounts for a significant proportion of the animal protein consumed by Nigerians and serves as a major source of livelihood for millions of people engaged in fishing, processing, transportation, distribution, and marketing activities (FAO, 2020; Chubado, 2021). Despite the importance of the sector, domestic fish production remains inadequate to meet the growing demand resulting from population growth, urbanization, and changing dietary preferences. Consequently, Nigeria spends substantial foreign exchange on fish importation to bridge the supply gap (Odioko & Becer, 2022).

The River Niger is one of the most important inland water bodies in Nigeria, supporting diverse fish species and sustaining artisanal fishery activities across several states. Communities located along the river depend heavily on fishing and related enterprises as primary or supplementary sources of income. In Delta State, particularly within the Cable–Ogbeogonogo axis of River Niger in Asaba, artisanal fishery constitute an important economic activity that supports household welfare and local economic development.

The productivity and profitability of fishery activities are influenced by several socio-economic factors, including age, educational level, household size, occupation, fishing experience, access to fishing inputs, capital availability, and market opportunities. These factors affect the ability of stakeholders to adopt improved technologies, manage fishery resources effectively, and maximize economic returns. Understanding the socio-economic characteristics of fishery stakeholders is therefore essential for developing policies and interventions aimed at improving productivity, enhancing livelihoods, and ensuring sustainable resource utilization.

Although numerous studies have focused on fish biodiversity, fish production, and fishery management in Nigerian inland waters, there is limited empirical information on the socio-economic characteristics of fishery stakeholders and the economic benefits derived from fishery activities in the Cable–Ogbeogonogo axis of River Niger, Asaba. This study was therefore undertaken to assess the socio-economic characteristics of fisheries stakeholders and evaluate the economic benefits associated with artisanal fishing activities in the study area.

### **1.1 Statement of the Problem**

Fishery remain an important source of livelihood and food security for many households residing along the River Niger. In the Cable–Ogbeogonogo axis of Asaba, a substantial proportion of the population depends directly or indirectly on fishing-related activities such as fish harvesting, processing, marketing, and transportation for income generation and household sustenance. Despite the significance of these activities, fishery stakeholders continue to face numerous socio-economic and operational challenges that may limit productivity and economic returns.

Over the years, concerns have been raised regarding declining fish catches, increasing operational costs, inadequate fishing equipment, poor storage and preservation facilities, limited access to credit, and fluctuating market prices. These challenges may adversely affect the profitability and sustainability of fishery enterprises in the area. Furthermore, there is inadequate information on the socio-economic profile of fishery stakeholders and the extent to which fishery activities contribute to their livelihoods and income generation.

Most previous studies on the River Niger have concentrated on fish species composition, biological characteristics, and fisheries production, with limited attention given to the socio-economic dimensions of fishery stakeholders. Consequently, policymakers, development agencies, and fishery managers lack sufficient empirical evidence required for designing appropriate interventions aimed at improving the welfare of stakeholders and enhancing the economic performance of the fishery sector.

It is against this background that this study seeks to investigate the socio-economic characteristics of fishery stakeholders and evaluate the economic benefits derived from artisanal fishery activities in the Cable–Ogbeogonogo axis of River Niger, Asaba, Delta State, Nigeria.

### **Purpose of the Study**

The main purpose of this study was to assess the socio-economic characteristics of fisheries stakeholders and evaluate the economic benefits derived from artisanal fisheries activities in the Cable–Ogbeogonogo axis of River Niger, Asaba, Delta State.

Specifically, the study sought to:

1. determine the socio-economic characteristics of fishery stakeholders in the study area;
2. identify the economic benefits derived from artisanal fishery activities; and
3. determine the major constraints affecting fishery activities and profitability in the study area.

### **Research Questions**

The following research questions guided the study:

1. What are the socio-economic characteristics of fishery stakeholders in the Cable–Ogbeogonogo axis of River Niger, Asaba?
2. What economic benefits do stakeholders derive from fishery activities?
3. What challenges constrain fishery activities and profitability in the study area?

### **Research Hypothesis**

The following null hypothesis was tested at the 0.05 level of significance:

**H<sub>0</sub>:** There is no significant difference in the mean income earned by fishermen and fish sellers in the Cable–Ogbeogonogo axis of River Niger, Asaba, Delta State.

**H<sub>1</sub>:** There is a significant difference in the mean income earned by fishermen and fish sellers in the Cable–Ogbeogonogo axis of River Niger, Asaba, Delta State.

### **Materials and Methods**

This study adopted a descriptive survey research design. The design was considered appropriate because it enabled the researcher to obtain relevant information from various categories of

respondents involved in fisheries activities and to describe the socio-economic characteristics, income status, and challenges associated with fishery operations within the study area. The descriptive survey design also facilitated the collection of quantitative data from a relatively large number of respondents at a single point in time.

The study was conducted in the Cable–Ogbeogonogo axis of River Niger, Asaba, located in Oshimili South Local Government Area of Delta State, Nigeria. The area lies along the lower reaches of the River Niger and is renowned for its extensive artisanal fishing activities. Fishing, fish processing, and fish marketing constitute important livelihood activities among residents of the area. The river provides a major source of fish supply to Asaba metropolis and neighboring communities, thereby contributing significantly to food security, employment generation, and income creation. The area was selected because of its strategic importance in fisheries production and marketing within Delta State.

The target population for the study comprised fishermen, fish traders, fish processors, and fish consumers operating within the Cable–Ogbeogonogo axis of River Niger, Asaba. A sample size of 200 respondents was selected for the study. The respondents were chosen using a combination of purposive and simple random sampling techniques. Purposive sampling was used to identify individuals actively engaged in fishery-related activities, while simple random sampling was employed to ensure that every eligible respondent had an equal chance of being selected. The sample consisted of fishermen, fish traders, fish processors, and consumers who provided relevant information concerning fisheries operations and their socio-economic implications.

The instruments used for data collection were a structured questionnaire and an interview schedule developed by the researcher. The questionnaire contained both closed-ended and open-

ended questions designed to elicit information on respondents' demographic characteristics, occupational status, income levels, fish marketing activities, and challenges affecting fishery operations. The interview schedule was administered to respondents who were unable to complete the questionnaire independently, thereby ensuring adequate coverage and reliability of responses.

To ensure the validity of the instruments, the questionnaire and interview schedule were subjected to face and content validation by experts in Fisheries Economics and Agricultural Extension. Their observations, comments, and recommendations were incorporated into the final version of the instruments to ensure that the items adequately measured the variables of interest. Reliability of the questionnaire was established through a pilot test conducted among respondents with similar characteristics outside the study area. The responses obtained were subjected to reliability analysis using Cronbach's Alpha technique, and the reliability coefficient obtained indicated that the instrument was sufficiently reliable for data collection.

Primary data were collected directly from the respondents through the administration of questionnaires and interview schedules. The researcher, with the assistance of trained field assistants, administered the instruments to the selected respondents. Information collected included demographic characteristics such as age, gender, educational status, household size, and marital status, as well as occupational characteristics, income levels, fish marketing activities, and constraints affecting fisheries operations. The administration and retrieval of the questionnaires were carried out within the study period to ensure a high response rate.

Data collected from the field were coded, organized, and analyzed using descriptive and inferential statistical tools. Descriptive statistics such as frequencies, percentages, means, and

standard deviations were used to summarize and present the socio-economic characteristics of respondents and other relevant variables. Independent sample t-test analysis was employed to determine whether significant differences existed between the income levels of fishermen and fish sellers. All statistical tests were conducted at a 5 percent level of significance.

## Results

### Socio-Economic Characteristics of Respondents

**Table 1: Demographic Profile of Respondents***Note* (N = 200).

| Category                                  | Frequency  | Percentage (%) |
|---|------------|----------------|
| Male                                      | 144        | 72.0           |
| Female                                    | 56         | 28.0           |
| <b>Age (yrs)</b>                          |            |                |
| 18-30                                     | 33         | 16.5           |
| 31-40                                     | 45         | 22.5           |
| 41-50                                     | 62         | 31.0           |
| 51-60                                     | 41         | 20.5           |
| Above 60                                  | 19         | 9.5            |
| <b>Educational Level</b>                  |            |                |
| No Formal Education                       | 30         | 15.0           |
| Primary                                   | 33         | 16.5           |
| Secondary                                 | 86         | 43.0           |
| <b>Occupation</b>                         |            |                |
| Fisher                                    | 77         | 38.5           |
| Fish Trader                               | 53         | 26.5           |
| Fish Processor                            | 27         | 13.5           |
| Consumer                                  | 38         | 19.0           |
| <i>Knowledge of Dominant Fish Species</i> |            |                |
| Tilapia                                   | 66         | 33.0           |
| Catfish                                   | 47         | 23.5           |
| Mudfish                                   |            | 16.5           |
| Snakehead                                 |            | 14.5           |
| Multiple Species                          |            | 12.5           |
|   | <b>200</b> | <b>100</b>     |

The gender distribution revealed that 72.0% of respondents were male, while 28.0% were female. This finding confirms that fisheries activities in the study area are largely male-dominated, particularly in fish harvesting operations. Similar observations have been reported in Nigerian inland fisheries where men dominate capture fisheries while women are more involved in processing and marketing activities (Ugwumba & Ani, 2006).

The age distribution indicated that respondents aged 41–50 years constituted the largest proportion (31.0%), followed by those aged 31–40 years (22.5%). This suggests that fishery activities are predominantly undertaken by economically active adults with considerable experience in fishing and fish marketing.

Educational attainment showed that 43.0% of respondents had secondary education, 25.5% possessed tertiary education, 16.5% completed primary education, while 15.0% had no formal education. The relatively high literacy level among respondents may facilitate the adoption of improved fishery technologies and management practices.

Regarding occupational distribution, fishermen represented the highest proportion (38.5%), followed by fish traders (26.5%), consumers (19.0%), and fish processors (13.5%). This distribution reflects the importance of fishery as a major source of employment and livelihood in the study area.

### **Economic Benefits of Fishing Activities**

Fishing activities contributed significantly to household income among respondents. Results showed that fishermen earned an average monthly income of ₦124,500 ± 31,200, whereas fish

sellers earned ₦98,300 ± 27,450 per month. These findings demonstrate the economic viability of artisanal fisheries and their contribution to poverty reduction and livelihood sustenance.

The higher earnings recorded among fishermen may be attributed to direct access to fish resources and reduced dependence on intermediaries. Conversely, fish sellers incur additional costs associated with transportation, storage, spoilage, and market fluctuations, which reduce net income.

**Independent samples t-test showed a significant difference between mean monthly income of fishermen (₦124,500 ± 31,200) and fish sellers (₦98,300 ± 27,450),  $t(198) = 6.14$ ,  $p < .05$ .**

**Table 2:** *Independent t-test Comparing Income of Fishermen and Fish Sellers*

| Group        | Mean income (₦) | SD     | T    | P     |
|--------------|-----------------|--------|------|-------|
| Fishermen    | 124,500         | 31,200 | 6.14 | .000* |
| Fish sellers | 98,300          | 27,450 |      |       |

The result suggests that fishing remains economically viable but constrained by high fuel costs, gear maintenance and declining fish stocks, as earlier noted by FAO (2018) and Mehmood (2022).

### Test of Hypotheses

**H<sub>1</sub>:** There is no significant difference in income between fishermen and fish sellers.

The t-test result ( $p < .05$ ) led to the rejection of the null hypothesis.

### **Challenges Affecting Economic Returns**

Despite the profitability of fisheries activities, respondents identified several constraints affecting income generation. These include high fuel costs, expensive fishing gear maintenance, declining fish stocks, inadequate cold storage facilities, and fluctuating market prices. Post-harvest losses resulting from inadequate preservation infrastructure were particularly pronounced among fish traders and processors.

The predominance of traditional preservation methods such as smoking and sun-drying further highlights infrastructural deficiencies within the fisheries sector. Similar observations have been reported by FAO (2020), which noted that inadequate post-harvest facilities significantly reduce profitability in many African fisheries.

### **Implications for Rural Livelihoods**

The findings underscore the importance of artisanal fisheries as a source of employment, income, and food security. The sector supports multiple actors including fishers, traders, processors, and consumers, thereby contributing to local economic development. However, sustaining these benefits requires interventions aimed at improving fisheries management, enhancing market access, and reducing post-harvest losses.

### **Conclusion**

The study demonstrated that artisanal fisheries in the Cable–Ogbeogonogo axis of River Niger contribute significantly to the livelihoods of local communities. The fisheries workforce is predominantly male, middle-aged, and moderately educated. Fishing activities provide substantial income, with fishermen earning significantly higher incomes than fish sellers.

However, operational challenges including high costs, inadequate preservation facilities, and declining fish stocks threaten the sustainability of economic benefits derived from the sector. Addressing these challenges through improved infrastructure, financial support, and sustainable fisheries management practices is essential for enhancing productivity and livelihood outcomes.

### **Recommendations**

1. Fishermen and fish traders should strengthen and actively participate in cooperative societies to enhance their access to credit, production inputs, market information, and collective bargaining opportunities. Through cooperative action, stakeholders can pool resources, reduce operational costs, and improve their income levels.
2. The Delta State Government, through the Ministry of Agriculture and Natural Resources and relevant fisheries departments, should facilitate access to affordable credit schemes and fisheries support programmes for fishermen, fish processors, and fish marketers. Such interventions would enable stakeholders to expand their operations, adopt improved technologies, and increase productivity.
3. Fish processors and traders should adopt improved fish handling, preservation, and storage practices to minimize post-harvest losses and maintain product quality. Stakeholders can also jointly invest in community-based cold storage facilities through cooperative arrangements to improve the shelf life of fish products.
4. Development agencies such as the Food and Agriculture Organization (FAO), International Fund for Agricultural Development (IFAD), United Nations Development Programme (UNDP), and relevant non-governmental organizations should collaborate with local fisheries groups to organize training programmes on fisheries enterprise

management, value addition, fish processing, marketing strategies, and financial management.

5. Fishermen should adhere to sustainable fishing practices, including compliance with fisheries regulations, the use of approved fishing gears, and the avoidance of destructive fishing methods. This will help conserve fish stocks and ensure the long-term sustainability of fisheries resources in the River Niger.
6. Consumers should support sustainable fisheries by patronizing legally sourced and properly handled fish products. Increased consumer awareness of fish quality and sustainability issues can encourage responsible fishing and marketing practices among fisheries stakeholders.
7. Community leaders, fishermen associations, and fisheries cooperatives should work together to create awareness on environmental conservation and responsible resource utilization. Such collaborative efforts can help reduce practices that degrade aquatic ecosystems and threaten fish production.

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