



**CONSTRAINTS AFFECTING ARTISANAL COOPERATIVE OF  
FISHERWOMEN IN ONDO STATE NIGERIA**

**<sup>1</sup>Shittu, K. A., <sup>2</sup>Jimoh, B. O. and <sup>3</sup>Adeeko-Bakare, F. A.**

<sup>1</sup>Department of Cooperative Economics and Management, Nnamdi Azikiwe University Akwa, Anambra State, Nigeria

<sup>2</sup>Department of Cooperative Economics and Management, Federal Polytechnics Bayelsa State, Nigeria

<sup>3</sup>Department of Cooperative Economics and Management, Federal College of Agriculture, School of Agricultural Management and Vocational Studies, Moor Plantain Oyo, State, Nigeria

**Correspondence Email:** shittuadesina81@gmail.com.

**GSM:** +2348074359460

**ORCID ID:** 0009-0003-6381-8926

**ABSTRACT**

The study examined the constraints affecting artisanal cooperative of fisherwomen in Ondo State, Nigeria. A multistage sampling technique was employed to select three local government areas (Irele, Ilaje, and Ese-odo) with a sample size of one hundred and twenty (120) respondents. Data were collected using structured interview schedules and analyzed using descriptive statistics and inferential statistics. The findings indicated that the majority 90.1% of respondents were actively involved in fishing production belonging to the middle age category, married 83.3%, educated 95.8%, and possessed substantial expertise in their fishing operations. Artisanal fisherwomen faced numerous challenges such as low income, high cost of equipment, inadequate fund and others. It was also observed that a majority 72.5% of fisherwomen utilized traditional dug-out canoes for fishing in rivers, where many of them enlisted men to capture fish on their behalf and remunerated them for their services. The study recommended that artisanal cooperative fisherwomen should receive governmental assistance through the provision of easily accessible credit facilities. Fisherwomen should be encouraged to pool their financial resources together to mitigate the challenges arising from financial scarcity by establishing cooperative associations. The establishment of adequate infrastructure such as reliable power supply, and proper preservation equipment by government at all levels and also empowered artisanal fisher women in aiding poverty alleviation.

**Keywords:** Artisanal, Cooperative, Challenges, Income and Production

**INTRODUCTION**

In Nigeria for example, the coastal artisanal fishery makes use of traditional dug-out canoes, ranging from three to eighteen metres in length, while the gears used include cast nets, hand lines, baskets, traps, long lines, set gill nets and beach and purse seines (Akinrotimi *et al.*, 2017). The importance of their contribution to food production, particularly in coastal fisheries, has gained prominence as a means of alleviating poverty and bolstering food security. Globally, women in fishing communities have been actively engaged in fisheries and have played pivotal roles in sustaining their families (Shahadul *et al.*, 2013). Women exhibit the highest participation rates in agriculture across all regions



worldwide. (Odili *et al.*, 2012). Notably, women represent approximately 43% of the global agricultural workforce, particularly in developing nations, as reported by the FAO (2022). However, accurately quantifying this crucial role remains a challenge (Olapade and Sesay, 2019). Traditionally, the labour of rural women has been predominantly confined to domestic duties due to cultural, religious, and societal constraints. Fish serve as vital sources of sustenance, nutrition, income, and livelihood for millions of people in the worldwide (Endalew *et al.*, 2020). Nigeria annually consumes over 1.5 million tons of fish (Ozigbo *et al.*, 2014), with fish comprising roughly half of the animal protein in the typical Nigerian diet (Abolagba and Akise, 2017).

Artisanal fishery, also known as traditional or small-scale fishing, is characterized by non-mechanized fishing activities with relatively low production levels (Inoni and Oyaide, 2017). For instance, in Nigeria, coastal artisanal fishing employs traditional dug-out canoes ranging from three to eight meters in length, along with gear such as cast nets, hand lines, baskets, traps, long lines, set gill nets, beach seines, and purse seines. Artisanal fishing encompasses coastal, brackish water, and inland fishery sources including rivers, reservoirs, dams, lakes, lagoons, and other major waterways in Nigeria (Nlerum and Bagshaw, 2015). Artisanal fishing accounted for more than 80% of the total fish production in Nigeria for 20 years from 1985-2005, while aquaculture accounted for less than 8% of the production and industrial fishing fluctuates with a peak of 13.9% and minimum of 5% for the period under review (Onoja and Emodi, 2011). Although artisanal fishery production is the main stay of Nigeria domestic fishing industry, researchers have paid little attention to the experiences of the artisanal fisher folks (Nlerum and Bagshaw, 2015) and especially the role played by women in its development. Although, fish production is traditionally considered a masculine enterprise, women's role in fishing is complementary and important. The fishing activities of women include unloading of fish from landing canoes, fish processing, fish marketing, actual fishing of marine food resources, production of fish drying cards, canoe hiring and sale of fishing gears (Olaoye *et al.*, 2019).

The challenges encountered by women engaged in fishing activities have been thoroughly examined, alongside an exploration of the roles they fulfill in the fishing industry. Comprehending gender roles is a fundamental aspect of fisheries management as it facilitates the implementation of targeted interventions for specific groups of fishers. Notwithstanding, the role and huge contributions of women, they have continued to be marginalized all over the world, more importantly in development issues (Chando, 2020), a situation that has led to underperformance of the agricultural sector in many developing countries. Traditionally, the work of rural women is mostly confined to the homestead due to, religious and social restrictions. In male dominated family, female members depend upon the earning of men. Therefore, almost all economic decision is ordinarily taken by men. In rural areas role of women has always been supplementary to that of bread-winner, although they contribute substantially to the family.



Commercial fisheries include wild fisheries and fish farms, both in freshwater (about 10% of all catch) and the oceans (about 90%). Over 10% of the world population are economically dependent on fisheries as a source of employment, of which most are women (OECD, 2020). The world population is presently over 7.8 billion with a projection of about a 25% increase in the next 30 years which will make the world population 9.9 billion by 2050 (Population Reference Bureau, 2021). Nigeria, the 7<sup>th</sup> most populated country globally with a population of 211 million people makes up 2.64% of the global population (Population Reference Bureau, 2021). While the global population is projected to increase by 25% by 2050, Nigeria's population is projected to be 401.3 million (99.82% increase) by 2050 (Population Reference Bureau, 2021). This rapid increase in Nigeria and the world population in general, has led to high competition for natural resources, especially food resources. To attain global food security, the fisheries and aquaculture sector has been identified as an important sector (FAO, 2020). While over half a billion is employed by the fisheries sector globally, over 1.477.651 people were reported to have been engaged in the fisheries sector of Nigeria in 2014 (World Fish, 2022).

Fishery production is significant to the Nigerian economy given its importance in providing a cheap source of food/nutrition security, income, employment and serves as a source of foreign exchange particularly those of the riverine communities (NBS, 2021) Nigeria has a continental shelf area of 43,514 km<sup>2</sup> (Sea Around Us, 2016) and a continental coastline length of 853 km (Nwilo and Badejo, 2017), be it as it may, Nigeria is not utilizing its full fisheries resources potential. Nigeria is considered a net importer of fishery products. In 2020, the country spent over \$876,081,485.00 million on the importation of frozen fish (excluding fish fillets and other fish meat) and only generated \$106,964.00 thousand in export (Trend Economy, 2021). It is not a hidden fact that fish is a major source of animal proteins in the diet of most Nigerians, especially those living in rural areas. Nigerian Minister of Agriculture and Rural Development, estimated Nigeria's total fish production at 1.123 million metric tonnes (Vanghan *et al.*, 2024), to which marine catches contributed 36 per cent, inland waters catch contributed 33 per cent and aquaculture 31 per cent (FAO, 2019). Akinsorotan *et al.* (2019) reported that the yearly fish demand of Nigeria is about 2.1 million metric tons with Nigeria only able to meet up just about 38.1% of its fish needs and depends on imports to cover the shortfall of about 61.9% of its population need yearly.

In 2021, the Nigerian Ministry of Agriculture and Rural Development put the fish demand of the country at 3.6 million metric tonnes of which the country only meet up about 31.19% and depends on importation to meet up the huge gap of about 68.80% (Vanghan, *et al.*, 2024). The estimated annual average per capita fish consumption for Nigeria is 13 Kg (FAO, 2022), although the Directorate of Agriculture and Rural Development – ECOWAS Commission, (2020) reported a lower estimate of 8.33 Kg. Fish remains an important dietary element for Nigeria, especially in the southern part of the country where fish is highly valued and one of the cheapest sources of animal protein available to many



Nigerians (FAO, 2021). The fishery sector is 1.09% of the national GDP in 2020 and 0.97% in 2021 (NBS, 2021).

The broad objective of the study was to investigate constraints to artisanal cooperative fisher-women in selected three Local Government Areas in Ondo State, Nigeria. The specific objectives of the study seek to: examine Socio-economics characteristics of artisanal cooperative fisher-women, identify the type of craft used by the artisanal cooperative fisher-women and identify constraints faced by the cooperative fisher-women in their fishing operations.

### **Hypothesis**

**Ho<sub>1</sub>:** There is no significant relationship between the constraints faced by the fisher-women and the modern type of craft adopted by the respondents.

## **MATERIALS AND METHODS**

### **The Area of study**

Ondo State in Nigeria was established on the 3rd of February, 1976, as one of the seven states created during that period. Ondo State is one of the 36 States of the Federation of Nigeria. Ondo State, made up of 18 Local Government Areas is located in the South Western Zone of Nigeria. The capital of the state is Akure. The state lies between longitudes 4°30' and 6° East of the Greenwich Meridian, 5°45' and 8° 15' North of the Equator. This means that the state lies entirely in the tropics. It is bounded in the North by Ekiti/Kogi State; in the East by Edo State; in the West by Oyo and Ogun States and in the South by the Atlantic Ocean. It was delineated from the former Western State, encompassing Akoko, Akure, Okitipupa, Ondo, and Owo Divisions. Akure stands as the distinguished state capital.

Geographically, it shares borders with Edo and Delta states to the East, Ogun and Osun States to the West, Kogi and Ekiti to the North, Bright of Benin of the Atlantic Ocean. The State occupies a land area of about 14,788.723 square kilometers with population of 3,441,924 people (Census, 2006). Ese-Odo is 155 km distance to the state capital about three (3) hours while Ilaje is 145 km distance to the State capital. The people are mostly subsistence farmers, traders and fishermen. A high forest zone (or rain forest) is found in the south, while the northern fringes are mostly sub-savannah forest. The climate is tropical with two distinct seasons viz the rainy season (April-October) and the Dry season (November - March). The temperature throughout the year ranges between 21°C-29°C while humidity is relatively high. The annual rainfall varies from 2,000mm in the southern parts to 1150mm in the northern areas. Extensive fertile soil suitable for agriculture with sub- savannah forest suitable for cattle grazing in the Northern fringes. Vast forest resources, variety of timber species e.g. Teak, Gmelina, Mansonia etc. Ondo State is the largest producer of Cocoa in Nigeria. Other cash crops grown in the state include rubber, cashew, kolanut, palm oil etc.



## **Methods of Data Collection and Sampling Technique**

Primary data was acquired through a well-structured questionnaire and oral interviews to extract pertinent information from the respondents.

### **Sampling technique**

Data were gathered from one hundred and twenty (120) female artisanal fishers using a multi-stage sampling technique. Initially, three (3) Local Government Areas (Irele, Ilaje, and Ese-odo) were selected due to their substantial fishing activities. Subsequently, five (5) fishing communities/villages were chosen from each Local Government Area. In the final phase, eight (8) fisherwomen were purposefully selected from each community, resulting in a total sample size of one hundred and twenty (120) respondents.

### **Data Analysis**

Both descriptive and inferential statistics were used to analysed the data. Descriptive statistical tools, encompassing central tendency measures such as frequency distribution tables, mean, and percentage, as well as Likert-type and inferential statistic such as ANOVA analysis. In order to determine whether there were any significant differences ( $P < 0.05$ ,  $P < 0.1$ ) between the data. One-way analysis of variance (ANOVA) was used.

## **RESULTS AND DISCUSSIONS**

### **Distribution of artisanal fisher-women based on age, marital status, education, religion, household size and years of experience**

The result in Table 1 revealed that a significant proportion (46.4%) and (27.5%) of the respondents were aged between 26-35 years and 36-45 years, respectively. Additionally, 16.6%, 5.0%, and 4.5% of the respondents were in the age brackets of 46-55 years, 56 years and above, and below 25 years, respectively. This indicates that the majority (90.1%) were in their prime working age, demonstrating physical strength to work productively. The marital status of the respondents revealed that 83.3% were married while 16.7% were single this, aligning with the findings of (Anyim *et al.*, 2021), who indicated that majority of the fisher-women 90.4% were married). This suggests that they carry family responsibilities, including caring for children and dependents. The study also showed that a substantial percentage (57.5%) of the fisherwomen had secondary education, 25.8% were primary school graduates, 12.5% had tertiary education, while 4.2% had no formal education. The results indicated that a majority of the respondents were educated, enabling them to read and write, enhancing their ability to generate more income from their business.

Furthermore, the study revealed that 63.3% of the respondents practiced Christianity, 33.3% practiced Islam, and 3.4% followed traditional beliefs, indicating a diverse religious landscape within the fishing community. In terms of household size, the majority (28.3%) had less than 4 members, while 37.5% had between 4 and 6 individuals,



and 34.2% had 7 or more in their household. This suggests a moderately sized household among the fisherwomen in the study area. Experience in the fishing business is expected to correlate with increased productivity and efficiency. Table 1 showed that 47.5% of the respondents had 5 years or less of experience, 16.7% had between 6 and 10 years, 19.1% had 11-15 years, 12.5% had 16-20 years, and 4.2% had over 21 years of experience in various aspects of the fishing business. This indicates that most of them possess significant experience in their fishing operations.

**Table 1: Distribution of artisanal fisher-women based on age, marital status, education, religion, household size and years of experience**

| Variables                  | Frequency  | Percentage | Mean       |
|----------------------------|------------|------------|------------|
| <b>Age</b>                 |            |            |            |
| ≤ 25                       | 5          | 4.5        |            |
| 26 – 35                    | 51         | 46.4       |            |
| 36 – 45                    | 33         | 27.5       |            |
| 46 – 55                    | 20         | 16.6       |            |
| 56 and above               | 6          | 5          | 30.5 years |
| <b>Marital status</b>      |            |            |            |
| Single                     | 20         | 16.7       |            |
| Married                    | 100        | 83.3       |            |
| <b>Education</b>           |            |            |            |
| Primary education          | 31         | 25.8       |            |
| Secondary education        | 69         | 57.5       |            |
| Tertiary education         | 15         | 12.5       |            |
| No formal education        | 5          | 4.2        |            |
| <b>Religion</b>            |            |            |            |
| Christianity               | 76         | 63.3       |            |
| Islam                      | 40         | 33.3       |            |
| Traditionalist             | 4          | 3.4        |            |
| <b>Household size</b>      |            |            |            |
| < 4                        | 34         | 28.3       |            |
| 6-Apr                      | 45         | 37.5       |            |
| 7 and above                | 41         | 34.2       | 5 people   |
| <b>Years of experience</b> |            |            |            |
| Less than equal 5          | 57         | 47.5       |            |
| 10-Jun                     | 20         | 16.7       |            |
| 15-Nov                     | 23         | 19.1       |            |
| 16-20                      | 15         | 12.5       |            |
| 21 and above               | 5          | 4.2        |            |
| <b>Mode of occupation</b>  |            |            |            |
| Full-time                  | 82         | 68.3       |            |
| Part-time                  | 38         | 31.7       |            |
| <b>Total</b>               | <b>120</b> | <b>100</b> |            |

**Source:** Field Survey (2024)



**Distribution of artisanal fisher-women based on mode of occupation, farm distance (km), occupation and monthly income (₦)**

The majority (68.3%) of the respondents were engaged in full-time fishing activities as their primary occupation, mainly in fish catching, marketing, and processing, while 31.7% viewed fishing as a secondary source of income. This suggests that less than 40% of them have additional income sources beyond fishing. Apart from fishing, respondents also engaged in activities such as palm oil processing, trading, tailoring, hairdressing, and other farming activities like crop cultivation, with percentages of 37.5%, 10.8%, 18.3%, 12.5%, and 20.9%, respectively. Most respondents (59.2%) traveled 3 to 5 kilometers to reach their fishing grounds, with 32.5% covering less than 2 kilometers and 8.3% traveling 9 kilometers or more to the fishing location. Although some respondents have relatively short distances to their fishing spots, the majority rely on road transportation to access these areas.

Table 2 also indicated that 55.8% of the respondents earned less than ₦100,000 per month, while 31.7% and 8.3% earned between ₦100,000 and ₦150,000, and ₦150,001-₦200,000, respectively. Only 4.2% of the respondents generated ₦200,001 and above. This suggests that the income derived from fishing activities by the majority of fisherwomen is still relatively low, potentially contributing to their poor living conditions, consistent with the findings of Cliffe and Akinrotimi (2019) who concluded that majority of the fisherwomen income realized per month from fishing farming is very low.

**Table 2: Distribution of artisanal fisher-women based on mode of occupation, farm distance (km), occupation and monthly income (₦)**

| Variables                 | Frequency  | Percentage | Mean   |
|---------------------------|------------|------------|--------|
| <b>Mode of occupation</b> |            |            |        |
| Full-time                 | 82         | 68.3       |        |
| Part-time                 | 38         | 31.7       |        |
| <b>Farm distance (km)</b> |            |            |        |
| < 2                       | 39         | 32.5       | 2kms   |
| 2-5                       | 38         | 31.7       |        |
| 6-9                       | 33         | 27.5       |        |
| >9                        | 10         | 8.3        |        |
| <b>Occupation</b>         |            |            |        |
| Palm oil processing       | 45         | 37.5       |        |
| Trading                   | 13         | 10.8       |        |
| Tailoring                 | 22         | 18.3       |        |
| Hair dressing             | 15         | 12.5       |        |
| Farming                   | 25         | 20.9       |        |
| <b>Monthly income (₦)</b> |            |            |        |
| > 100,000                 | 67         | 55.8       | 86,455 |
| 100,000-150,000           | 38         | 31.7       |        |
| 150,001-200,000           | 10         | 8.3        |        |
| >200,000                  | 5          | 4.2        |        |
| <b>Total</b>              | <b>120</b> | <b>100</b> |        |

Source: Field Survey (2024)



### Adoption of Fishing crafts by fisher-women in the study area

The data from Table 3 revealed that the vast majority (72.5%) of the fisher-women utilized traditional dug-out canoes for their fishing endeavors as women, depending on the water type and fishing gear used. In contrast, only a minority (27.5%) of the respondents had the financial means to acquire motorized boats. It was noted that individuals opting for dug-out canoes, propelled either by paddling alone or with the aid of cloth sails, allocated almost half of their fishing time to paddling. This arduous task posed significant challenges for women, hindering their fishing activities. On occasion, these women found it imperative to engage men in assisting with river work, remunerating them accordingly. The finding was in consistent with Mufutau *et al.* (2022) who reported that due to hard task involved in fishing farming the number of women involvements is very low compared to their counterpart men involvement in fishing farming.

**Table 3: Distribution of Fishing crafts adopted by fisher-women in the study area**

| Types of fishing crafts                       | Frequency  | Percentage   |
|-----------------------------------------------|------------|--------------|
| Traditional Dug-out canoe (unmotorized canoe) | 87         | 72.5         |
| Canoe with outboard engine (motorized canoe)  | 33         | 27.5         |
| <b>Total</b>                                  | <b>120</b> | <b>100.0</b> |

Source: Field Survey (2024)

### Constraint affecting fisher-women in fishing business in the study area

Any constraints scoring below the average (<2.55) on the Likert-type scale are considered minor, while those equal to or above the average score (2.66) are classified as major constraints. The results showed the mean ratings of the fisher-women in fishing business in the study area. The primary constraint identified was low income (3.06), followed by the exorbitant cost of equipment (2.85) and Inadequate health facilities ranked 3<sup>rd</sup> (2.84) as presented in Table 4.

**Table 4: Distribution of Constraint faced by fisher-women in fishing enterprise**

| Statement                       | SA |      | A  |      | D  |      | SD |      | Mean         | Rank             |
|---------------------------------|----|------|----|------|----|------|----|------|--------------|------------------|
|                                 | F  | %    | F  | %    | F  | %    | F  | %    |              |                  |
| High cost of equipment          | 9  | 8.2  | 77 | 70.0 | 21 | 19.1 | 3  | 2.7  | 2.85         | 2 <sup>nd</sup>  |
| Poor marketing                  | 8  | 7.3  | 67 | 60.9 | 30 | 27.3 | 5  | 4.5  | 2.71         | 5 <sup>th</sup>  |
| Inadequate fund                 | 15 | 13.6 | 63 | 57.3 | 30 | 27.3 | 2  | 1.8  | 2.83         | 4 <sup>th</sup>  |
| Lack of preservation facilities | 24 | 21.8 | 25 | 22.7 | 42 | 38.2 | 19 | 17.3 | 2.49         | 10 <sup>th</sup> |
| Low income                      | 37 | 33.6 | 45 | 40.9 | 25 | 22.7 | 3  | 2.7  | 3.06         | 1 <sup>st</sup>  |
| Lack of processing facilities   | 15 | 13.6 | 49 | 44.5 | 30 | 27.3 | 16 | 14.5 | 2.57         | 7 <sup>th</sup>  |
| Transportation problem          | 16 | 14.5 | 42 | 38.2 | 33 | 30   | 19 | 17.3 | 2.48         | 11 <sup>th</sup> |
| Problem of water weeds          | 14 | 12.7 | 45 | 40.9 | 35 | 31.8 | 16 | 14.5 | 2.52         | 8 <sup>th</sup>  |
| Poor health facilities          | 29 | 26.4 | 43 | 39.1 | 29 | 26.4 | 9  | 8.2  | 2.84         | 3 <sup>rd</sup>  |
| Inaccessible to good roads      | 14 | 12.7 | 44 | 40.0 | 32 | 29.1 | 20 | 18.2 | 2.47         | 12 <sup>th</sup> |
| Poor storage facilities         | 20 | 18.2 | 44 | 40.0 | 28 | 25.5 | 18 | 16.4 | 2.60         | 6 <sup>th</sup>  |
| Lack of electricity supply      | 40 | 36.4 | 30 | 30.9 | 20 | 22.7 | 10 | 10.0 | 2.51         | 9 <sup>th</sup>  |
| <b>Total mean</b>               |    |      |    |      |    |      |    |      | <b>31.93</b> |                  |
| <b>Grand mean</b>               |    |      |    |      |    |      |    |      | <b>2.66</b>  |                  |

Source: Field Survey (2024) SA= Strongly Agreed, A= Agreed, D=Disagreed, SD= Strongly Disagreed.



While insufficient funds (2.83), and poor marketing (2.71), were placed 4<sup>th</sup> and 5<sup>th</sup> respectively, storage facilities was positioned (2.60) 6<sup>th</sup>, absence of processing facilities (2.57) trailing in 7<sup>th</sup> position. These challenges listed above (Table 4) were all categorized as major constraints due to their scores meeting or exceeding the average threshold. Conversely, issues related to water weeds (2.52) were deemed to be the 8<sup>th</sup> constraint, followed by lack of electricity supply (2.51) in 9<sup>th</sup> position. The absence of preservation facilities (2.49) ranked 10<sup>th</sup>, with transportation problems (2.48) securing 11<sup>th</sup> spot, and lack of access to good roads (2.47) concluded the list in 12<sup>th</sup> place, these constraints were deemed or regarded as minor constraints in the study area.

### Relationships between constraints faced by the women and the modern type of craft adopted

At a significance level of 5%, a significant correlation was observed between inadequate financial resources and the adoption of modern craft ( $X^2 = 0.091$ ;  $p < 0.05$ ), high equipment costs and the adoption of modern craft ( $X^2 = 0.1223$ ;  $p < 0.05$ ), and low income and the adoption of modern craft ( $X^2 = 1.011$ ;  $p < 0.05$ ). Consequently, the null hypothesis was rejected for all three variables as presented in Table 5. This suggested that low income significantly hindered the utilization of modern craft in the study area. Overcoming these challenges could potentially lead to increased fish catch, enhanced fish production, improved standards of living, and greater profitability for fisherwomen. On the other hand, the null hypothesis was accepted for other constraints such as poor marketing, issues with water weeds, and the ability to operate modern craft (canoe with outboard motor). This indicates that these particular challenges may not be as significant to the fisherwomen, as they do not perceive them as major obstacles. Many fisherwomen faced financial constraints and were unable to afford the modern craft (canoe with outboard motor) to enhance their fishing operations.

**Table 5: Relationship between constraints faced by cooperative fisher-women and the modern type of craft adopted**

| Variables                         | $X^2$   | Df | Level of significance | Remarks         |
|-----------------------------------|---------|----|-----------------------|-----------------|
| High cost of equipment            | 5.77*   | 1  | 0.108                 | Significant     |
| Poor marketing                    | 1.433   | 1  | 0.991                 | Not significant |
| Inadequate fund                   | 7.087   | 1  | 0.082                 | Significant     |
| Low income                        | 9.760** | 1  | 0.027                 | Significant     |
| Problem of water weeds            | 0.953   | 1  | 0.891                 | Not significant |
| Inability to operate modern craft | 3.643** | 1  | 0.032                 | Significant     |

**Source:** Field Survey (2024) \*\*Significant at 5% and \* Significant at 10% respectively

### CONCLUSION AND RECOMMENDATIONS

The research findings indicated that the majority of the surveyed participants were actively engaged, falling within the middle-aged demographic, married, and well-educated. In addition to their fishing activities, fisherwomen also pursued various entrepreneurial



endeavors either concurrently with or subsequent to the fishing season. They faced a range of challenges that could potentially impact their fishing operations in diverse manners. Moreover, a significant portion of fisherwomen relied on traditional dug-out canoes, while a minority preferred motorized canoes equipped with outboard engines for fish harvesting in rivers. The artisanal cooperative women fisheries ought to receive governmental backing through the provision of easily accessible credit facilities to facilitate seamless operations, business expansion, and capacity building, particularly in fishery management. This endeavour should be perceived as a method of empowering women, fostering rural transformation, and aiding in poverty alleviation.

The study therefore recommended that, artisans cooperative women fisher folks should be encouraged to pool their financial resources to alleviate the challenges posed by financial constraints and resource scarcity by establishing an association. There is a need to develop adequate infrastructure, such as well-maintained roads, reliable power supply, and advanced preservation equipment, to enhance the fishery operations of women, reduce post-harvest fish losses, to elevate the income and living standards of women engaged in fisheries with the support of the three tiers of government – local, state, and federal.

## **REFERENCES**

- Abolagba, O. J. and Akise, O. G. (2017). A survey on the processing and utilization of fatty fish in Ikpohaokha and Egor Local Government Area of Benin City. *Nigerian Journal of Agriculture, Food and Environment*, 7(3): 39-44.
- Akinrotimi, O. A., Cliffe, P. T. and Ibemere, I. F. (2017). Integration of rural aquaculture in to small scale farming in Niger delta region of Nigeria. *Global Approaches to Extension Practice*, 7: 43-48.
- Akinsorotan, A. M., Akinsorotan, O. A., Jimoh, J. O., Adene, I. C. and Akiwowo, U. A. (2019). Offshore aquaculture practice; a potential for meeting Nigeria fish demand – a review. *Journal of Physics: Conference Series* 1299,012111. DOI:10.1088/17426596/1299/1/012111
- Anyim, C.O., Odoemelam, L. E. and Okorie, N. U. (2021). Women participation in fish processing and packaging in rural communities of Delta State, Nigeria. *Journal of Agricultural Extension and Rural Development*, 13(1):34-43.
- Chando, C. M. (2020). Gender roles in fishery planning and projects: The case study of coast region in Tanzania. M.Sc. Thesis, University of Tromsø Norway. Downloaded August 26, 2020 from [citeseerx.ist.psu.edu/viewdoc/download](http://citeseerx.ist.psu.edu/viewdoc/download).
- Cliffe, P. T. and Akinrotimi, O. A. (2019). Promoting women participation in aquaculture as a viable tool for poverty alleviation in the rural areas of Nigeria. *Global Approaches Extension: Practice*. 7: 98-105.
- Endalew, B., Zeleke, M., Yenewa, W. and Ayalew, Z. (2020). Determinants of farm households' participation in fish production in Southwest Ethiopia, Food and Agriculture organization (FAO) 202 .6:1,1728107,DOI:10.1080/23311932.200.1728107
- Food and Agriculture Organization (FAO). (2022). Fisheries and aquaculture. [https://www.fao.org/rural-employment/agricultural-sub-sectors/fisheriesandaquaculture/en/file:///C:/Users/HP/Downloads/%20Fisheries%20in%20Nigeria%20\(1\).pdf](https://www.fao.org/rural-employment/agricultural-sub-sectors/fisheriesandaquaculture/en/file:///C:/Users/HP/Downloads/%20Fisheries%20in%20Nigeria%20(1).pdf) (7/03/2022).
- Food and Agriculture Organization (FAO). (2020). The State of World Fisheries and Aquaculture 2020. <http://www.fao.org/state-of-fisheries-aquaculture> (18.08.2021)



- Food and Agriculture Organization (FAO). (2019). Establishing and linking global fish-trade information networks, 2019. [http://www.fao.org/in-action/establishing-andlinking-global-fish-tradeinformationnetworks/en/\(20.04.2019\)](http://www.fao.org/in-action/establishing-andlinking-global-fish-tradeinformationnetworks/en/(20.04.2019))
- Inoni, O. E. and Oyaide, W. J. (2017). Socio-economic analysis of artisanal fishing in the South agrological zone of Delta State, Nigeria.
- National Bureau of Statistics, Nigeria (NBS) (2021). Nigeria's Fish Production: 2010-2020. [https://www.nigerianstat.gov.ng/download/509\(10.02.2020\)](https://www.nigerianstat.gov.ng/download/509(10.02.2020))
- Nlerum, F. E. and Bagshaw, A. (2015). Role of Women in Artisanal Fishery: Implication for Food Security in Rivers State, Nigeria. *Asian Journal of Agricultural Extension, Economics and Sociology*, **4**(2): 137-145.
- Nwilo, P. C. and Badejo, O. T. (2017). Impacts and Management of Oil Spill pollution along Nigeria Coastal Areas. [http://www.fig.net/pub/figpub/pub3bchapter/chapter\\_r.pdf](http://www.fig.net/pub/figpub/pub3bchapter/chapter_r.pdf) (12.11.2020)
- Odili, O. E., Nwabeze, G. O., Tafida, A. A. and Chilaka, M. (2020). Contribution of women to fisheries development in Nigeria: A review. In: *Proceedings of the 27<sup>th</sup> Annual Conference and Biennial General Meeting of the Fisheries Society of Nigeria. Held in Bayelsa, 25 – 30 November 2012. pp* 435-438.
- OECD. (2020). Sustainable fisheries and aquaculture policies for the future. <https://www.oecd.org/agriculture/topics/fisheries-and-aquaculture/> 10.06.2021
- Olaoye, O. J., Ojebiyi, W. G., Olalekan, T. O., Abdulsalami, S. A. and Opele, I. A. (2019). Contribution of women fish merchants in artisanal fisheries development in Ogun Waterside Local Government Area, Ogun State. *Nigerian Journal of Fisheries*, **16**(2):1729-1736.
- Olapade, O. J. and Sesay, D. F. (2019). Women involvement in the fishery activities of two coastal communities in Sierra Leone. *African Journal of Agricultural Research*, **14**(5):279-286.
- Onoja, A. O. and Emodi A. I. (2017). Econometric determinants of profit among plantain farmers in Rivers State, Nigeria. *The Nigeria Agricultural Journal*, **4**(2):202-208.
- Ozigbo, E., Anyadike, C., Adegbite, O. and Kolawole, P. (2024). Review of Aquaculture Production and Management in Nigeria. *American Journal of Experimental Agriculture*, **4**(10):1137-1151.
- Population Reference Bureau. (2021). 2021 world population data sheet. <https://interactives.prb.org/2021-wpds/> (18.08.2021)
- Sea Around Us. (2016). A global database on marine fisheries and ecosystems. <http://www.seaaroundus.org/data/#/eez/566?chart=catchchart&dimension=taxon&measure=value&limit=10> 18.05.2021
- Shahadul, I., SelimReza, M. D., Roknuzzaman, A. R. and Joadder, S. A. (2017). Socioeconomic status of fishermen of the Padma River in Chapai Nawabganj district, Bangladesh. *International Journal of Fisheries and Aquatic Studies*, **5**(1):101- 104.
- Trend Economy, (2021). Annual International Trade Statistics by Country (HS02). <https://trendeconomy.com/data/h2/Nigeria/0303> (10/03/2022)
- Vaughan, I. O., Afolami, C. A., Oyekale, T. O. and Ayegbokiki, A. O. (2014). An analysis of Nigeria food imports and bills. *International Journal of Economics, Commerce and Management*, **2**(9):1-14
- World Fish, (2022). WorldFish in Nigeria. <https://www.worldfishcenter.org/where>
- World Fish, (2018). WorldFish Nigeria Strategy 2018-2022. <https://digitalarchive.worldfishcenter.org>