CONSTRAINTS TO ARTISANAL FISHING IN WARRI SOUTH WEST LOCAL GOVERNMENT AREA, DELTA STATE, NIGERIA

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ABSTRACT

This research investigated the socio-economic characteristics of artisanal fishermen and analyzed the challenges facing artisanal fishing in Warri South West Local Government Area, Delta State, Nigeria. Information was gathered using structured questionnaires and analyzed with descriptive statics and multiple regression techniques. A two-stage sampling method was employed to select 100 respondents for the study. The results showed that labour and fishing experience positively influenced the quantity of fish caught. The study identified polluted rivers/streams, gas flaring, scarcity of fish, inadequate finance, and activities of oil exploring companies as serious constraints. These challenges are addressed by the implementation of effective pollution control measures, regulation of fishing activities, and simplified access to credit facilities. The findings offer useful insights for policymakers and stakeholders in designing targeted interventions aimed at improving the livelihoods of artisanal fishermen in the study area.

Keywords: Constraints, artisanal, fishing

INTRODUCTION

Background to the Study

According to Odioko and Becer (2022), the Nigerian fisheries sector plays an important role in economic development, employment creation, food security and the livelihoods of many households. The fishing and aquaculture industry is essential for the economy as well as individuals in several industrialized and developing nations (Alhassan, Ibraham, Yusuf, and Ahmed (2023). The Nigerian federal government has made significant investments in several projects to enhance local fish availability. Certain initiatives cover both the second and third phases of the Fadama programs. In contrast, some gains have been observed regarding fish production, the deficit between the demand for and availability of fish continues to widen as a direct consequence of the widespread adoption of old-fashioned fishing practices (DFID, 2015).

Fish accounts for over sixty percent of the planetary protein availability, especially among nations that are developing. The significance of it is likely to be felt in both direct and indirect ways by Nigerians in agricultural areas and cities. In Nigeria, fisheries represent a very substantial subsector, generating around three to five percent of the agricultural share of gross domestic product (GDP). Regardless of abandonment, the artisan fishery provides the vast majority of Nigeria's internal fish supply. Artisanal fisheries support those who are impoverished by improving employment, income, and food supply (Chilaka, Nnadi and Eze (2016). Artisanal fisheries play a key part in Nigeria's economy by catering to the

population's dietary requirements (Degefa, 2017).

In the words of Ella (2018), Nigeria has adequate marine fishery assets to boost fish production. Underdeveloped nations play a significant part in the industry of fishing (DFID, 2015). According to Ekpo and Essien (2017), 43.5 million people worldwide are directly involved in the principal farming of fish, whether through traditional fishing or aquaculture. The overwhelming majority of the 43.5 million people worldwide engaged in artisanal fishing operate on a small scale, in both coastline and interior seas. Artisanal fishing and aquaculture underpin the economic well-being of millions of individuals worldwide, assisting in food security and reducing extreme poverty. In Nigeria, consumer interest in fish has been growing rapidly primarily because of a rise in population, income per household, and the cost of other protein from animal supplies. (Ellis 2018).

The nation's supply of fish fails to keep up with demand. The attempts to satisfy demand led to increases in the nation's fish importation. Overall national fish demand exceeds 3.2 million metric tons. The national supply is roughly 1.1 million metric tons from every possible source, including the aquaculture sector, artisanal, and the industrial fishing fields, which results in a supply shortage or vacuum of about 2.1 million metric tonnes (Chilaka et al., 2016). Given the existing contributions and advantages associated with artisanal fishing in Nigeria, its long-term viability is jeopardized by the overexploitation of the natural reserve (which also is approaching its threshold) and the widespread use of unsafe and detrimental artisanal practices by fishermen (Sogbesan and Kwaji 2018). In the words of Damilare (2014) the artisanal fishery holds significant socioeconomic as well as cultural relevance, and it has been distinguished by local structures made up of skilled small- to medium-coastal fishing communities on the coast.

Objectives of the study

The aim of the study is to assess the constraints to artisanal fishing in Warri South West Local Government Area of Delta State, Nigeria.

The specific objectives were to;

i. examine the socio-economic characteristics of artisanal fisher folks in the study area;
ii. determine the factors influencing the quantity of fish caught through the artisanal fishing in the study area; and
iii. identify the challenges faced by the artisanal fishermen in the study area.

METHODOLOGY

Area of Study

The study area is Warri South West Local Government Area of Delta State, Nigeria. Delta State, which is one of six states in Niger Delta region of Nigeria, lies approximately between longitudes 5° 00` and 6° 45` east of the Greenwich Meridian and between latitudes 5° 00` and 6° 30` north of the equator (Onemolease and Oriakhi 2011). The State is made up of 25 Local Government units, with Asaba serving as its capital. It covers 17,698 square kilometers and has a population of 5,663,400 people (National Population Commission of Nigeria, 2016). Warri South West Local Government Area was established in 1997, with its administrative center in the town of Ogbe-Ijoh. Based on the 2016 census, the population was 160,500 with an estimated land area of 1,722 km². However, the population has subsequently increased. The Ijaw and Itsekiri ethnic groups live in Delta State's Warri South West region. The Ijaws live in Ogbe-ijoh, Gbaramatu, Isaba, and Diebiri, while the Itsekiris live in Ugborodo and Madangho. This LGA has

some of the most proven oil and gas reserves in Delta State and the Niger Delta. Farming and fishing are the most common jobs among the people (Onemolease and Oriakhi, 2011).

Sources of Data

The study utilized both primary and secondary data sources. Primary data were gathered through the administration of a structured questionnaire, while secondary data were obtained from existing materials such as these, journals and other relevant academic publications.

Sampling Procedure

A two-stage sampling procedure was adopted for this study. In the first stage, a purposive sampling technique was used to select ten communities (2014), namely Oporoza, Okerenkoko, Tebijor, Opuedebubor, Eguwa I, Eguwa II, Isaba, Ugborodo, Ogidigben, and Odidi. The second stage involved the random selection of artisanal fishermen from each of the ten communities where artisanal fishing activities are predominant, as noted by Pius and Victoria. Ten fishermen were selected from each community, giving a total sample size of one hundred (100) artisanal fishermen.

Model Specification

To determine the determinants of the quantity of fish caught by the artisanal fishers, the following econometric model was explicitly specified as follows:

$$Q = b_0 + b_1X_1 + b_bX_2 + b_3X_3 + b_4X_4 + b_5X_5 + e \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

Where;

Q = Quantity of fish caught (kg)

X_1= Labor input in man-days

X_2= Fishing experience (years)

X_3= Income of fishermen from other sources other than fishing (₦)

X_4= Age of fishermen (years)

X_5= Cost of fishing nets/baits incurred by fishermen (₦)

$b_0 – b_5$ = Coefficients to be estimated

e = Error term (which was assumed to be normally distributed with zero mean and constant variance).

To determine the constraints to artisanal fishing, a five -point Likert scale was employed with the following categorization: very high (5), high (4), medium (3), low (2) and not at all (1). The decision rule was determined by taking the average of the values; $\frac{5+4+3+2+1}{5} = \frac{15}{5} = 3$. Any mean score greater than or equal to 3 is considered significant.

RESULTS AND DISCUSSION

Socioeconomic Characteristics of Artisanal Fishermen

Age

The result presented in Table 1 shows the age distribution of artisanal fishermen in the study area, with an average age of 48years according to the National Bureau of statistics (NBS, 2018). This indicates that the fisherfolk are within the economically active age group and are capable of coping with the physical demands of fishing activities. The outcome aligns with the findings of Okeowo et al. (2015), who observed that most fishermen in the Epe and Badagry areas of Lagos State fell within the 40-49years age of range

Sex

About 83.1% of the fishermen were males while 17.0% were females as indicated in Table 1. This result can be attributed to the high energy and labor-intensive nature of fishing activities, which female fisherfolk may not be able to undertake. The finding of this study corroborates the findings of Ipinmoroti et al., (2018) in Ilaje LGA, Ondo State that majority (83%) of artisanal fishermen were males. This result also supports the findings of Okeowo et al., (2015) who reported that majority of artisanal fishermen in Badagry area of Lagos were males with small proportion of females.

Marital Status

The findings presented in Table 1 indicate that 82.1% of artisanal fishermen were married. This might corroborate the stand that the marriage institution is still cherished and an indication of economic responsibilities of the respondents in caring for their dependents (Anene et al., 2010). This outcome is in consonance with the report of George et al., (2021) who posited that majority of artisanal fisher folks in Asari Toru, Degema, and Akukutoru L.G.A. in River State were married.

Educational Level

The literacy level of the artisanal fisher folk was low as more than half of the fishermen (51.0%) had no formal education. This suggests that the level of illiteracy is relatively high in rural communities. This result agrees with the findings of Olojede et al., (2013) who is of the opinion that illiteracy has been a problem of development in Nigeria. However, a higher level of educational attainment may discourage some individuals from actively participating in artisanal fishing operators.

Fishing Experience

The result in Table 1 shows the average fishing experience of the fishermen in the study area was found to be 30 years. This shows that a good number of the fisher folk were relatively experienced in their fishing activities and possessed the necessary knowledge and skills that are necessary to manage fishing resources more efficiently. This outcome justifies the findings of Alhassan et al., (2023) who stated that fishers in Shiroro and Kainji Dams, Nigeria possessed more than 20 years of fishing experience. However, the more their years of experience in the fishing business, the more they may tend to resist technological innovations.

Household Size

The average household size was shown to be 9 persons. Artisanal fishing is highly labor-intensive and often requires the involvement of the fisher's household. As a result, many fishers tend to have larger families that can contribute positively to their livelihood. Family members, particularly women, are often engaged in post-harvest and other ancillary activities that support fishing operations. The findings of this analysis agreed with the findings of Ashley-Dejo et al. (2022) who discovers a large household size among fishers in Yobe State, Nigeria.

Membership of Cooperative

Only 43.0% of the fishermen belonged to cooperative societies. This result indicates that majority of the fishermen in the study area may have no access to assistance from these groups in form of loan. This finding agrees with the findings of Okpeke and Akarue (2015) in Warri South Local Government Area of Delta State that less than 50% of the farmers belonged to cooperative societies.

Source of Credit

The result in Table 1 shows majority of fisher folk sourced credit majorly from friends and relatives (49.0%). Sourcing of credit from financial or cooperate bodies such as banks and government were low. This indicates lack of financial support from financial institutions to support artisanal fishing in the study area. This finding agrees with Abolagba (2015) who opined that in Badagry and Epe, Lagos State, family source of credit dominated the source of credit among the artisanal fishers.

Factors affecting the productivity of artisanal fishing

A multiple regression Semi-Log model was used to analyze the factors influencing the productivity of artisanal fishing in the study area (Table 2). The Semi-Log model was used for the analysis as it provided the best fit for the data variables. The results showed that only two variables, labour and fishing experience, were significant at 10% and 1% respectively; variables such as income from other sources, cost of fishing net, and age were not significant.

The coefficient of labour input (man days) was found to be significant at 1% and had a linear positive relationship with the level of output as shown in Table 2. This indicates that a percentage increase in labour input will lead to increase in output. This result agrees with Ojo (2000) who reported that a percentage increase in labour will lead to 12% increase in output. Table 2 also revealed that the coefficient of fishing experience was positively signed and was found to be significant at 10%. This indicates that the more the fishermen were experienced in the fishing business, the more they will get more output. This finding supports with Gbigbi (2013) who opined that a percentage increase in fishing experience increase fish caught (output) by 10%.

Table 2: Factors Affecting the Productivity of Artisanal Fishing

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	26.8642588	47.84710769	0.56146	0.575834
Labour input (man days)	10.90416754*	6.41563254	1.699625	0.092544
Fishing Experience (years)	1.812894315***	0.547775516	3.309557	0.001331
Income from other sources (N)	-1.93214E-05	5.24733E-05	-0.36822	0.71355
Age (Years)	0.286537483	0.54204419	0.528624	0.598326
Cost of fishing nets (N)	0.006607673	0.043324947	0.152514	0.879112

R Square = 0.19 Adjusted R Square = 0.13

(* 1%, **5%, *10%) Level of Significance**

Constraints faced by Artisanal Fishermen in the Study Area

The results presented in Table 3 indicate that nearly all the challenges faced by artisanal fishermen in the study area are considered serious, with the exception of piracy. Factors such as polluted rivers and streams, gas flaring, scarcity of fish, inadequate access to finance, activities of oil exploration companies, and noise pollution were identified as the most critical constraints, as their mean scores exceeded the benchmark value of 3. This finding is consistent with Obi et al. (2021), who similarly reported that inadequate finance, gas flaring, and water pollution, among other factors, constitute major challenges confronting artisanal fishermen in the study area.

Table 3: Constraints faced by Artisanal Fishermen in the Study Area

S/N	Constraints	Mean (x̄)	Standard Deviation
1.	Activities of Oil Exploring Companies	4.82*	0.520
2.	Polluted Rivers/Streams	4.76*	0.495
3.	Scarcity of fish in Rivers/Streams	4.59*	0.753
4.	Gas Flaring	4.40*	0.586
5.	Inadequate Finance	3.79*	0.518
6.	Noise	3.03*	0.771
7.	Pirates	2.64	0.948

Decision Rule: *Serious (Mean > 3.0)
Source: Field Survey, 2025

CONCLUSION

This study examined the constraints affecting artisanal fishing in Warri South West Local Government Area of Delta State. Nigeria and their relationship with fish output (quantity of fish caught). Data collected were analyzed using tables, means, standard deviation, a five-point Likert scale, and multiple regression analysis. The findings revealed that polluted rivers and streams, gas flaring, scarcity of fish, inadequate finance, and the activities of oil exploration companies were major challenges affecting artisanal fishermen in the study area. The regression results showed that labour (man-days) and fishing experience had a positive and significant relationship with fish output. Based on the findings, it is recommended that pollution control measures and development projects beneficial to fishing communities should be implemented by the government and oil and gas companies operating in the area. The government should also regulate fishing activities to prevent overfishing. In addition, to address the problem of inadequate finance, banks and other lending institutions should simplify loan procedures and create more favorable conditions that will improve fishermen's access to credit facilities.

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