
ASSESSMENT OF SUSTAINABLE FISHING TECHNIQUES AND CHALLENGES AMONG ARTISANAL FISHERS IN RIVER IBI, TARABA STATE, NIGERIA

¹*Onimis, M. M., ²Dauda, A. K., ²Oshimagye, M. I., ²*Ogunremi, J. B. and ³Adesina, S. A

¹Department of Fisheries and Aquaculture, Prince Audu Abubakar University, Kogi State, Nigeria

²Department of Fisheries and Aquaculture, Federal University Wukari, Taraba State Nigeria

³Department of Fisheries and Aquaculture Technology, Olusegun Agagu University of Science & Technology

*Corresponding author's email: jogunremi@gmail.com

ABSTRACT

The study investigated the assessment of sustainable techniques in fishing activities and challenges among Artisanal Fishers in River Ibi, Taraba State, Nigeria. A total of 200 respondents were used as the sample size for the study through purposive and simple random sampling techniques selected in four major fishing communities (Ibi town, Sarkin kudu, Dampar, and Nwonyon) within the Local Government Area. Data obtained was subjected to descriptive (percentage and frequency) and inferential (mean). The result showed that the artisanal fishers are predominantly male (87.5%), married (70.0%); had formal education (81.9%). Ban on use of explosive (\bar{x} =3.00) and ban on use of chemicals (\bar{x} =2.98) are the major sustainable fishing techniques among artisanal fishers, Payments of fine (\bar{x} =3.00), seizure of fish caught (\bar{x} =2.89) are the major penalties for the contravention of sustainable fishing techniques while open access nature of the fisheries (100.0%), climate change (100.0%) and post-harvest losses (99.0%) are the major challenges among the artisanal fishers.. The study recommended that Government should enlighten fishers on the awareness on sustainable fishing techniques its implications and proper enforcement on the fishing regulation should be put in place.

Keywords: Artisanal, challenge, fishers, penalty, sustainable

INTRODUCTION

The fishing industry is of prime importance for food supply and employment. Globally, fish production provides the major portion of animal proteins to billions of people. In addition to this, millions of people find a source of income and livelihood in the fisheries sector. About 40.4 million people are employed in the fisheries sector worldwide, comprising a significant portion of the global population (Shrestha *et al.*, 2023). Artisanal fishery operates at different organizational levels, from self-employed single operators, through informal micro-enterprises to formal sector businesses. Men and women are involved throughout small scale fish value chains (at input, production and post-production), although local gender norms dictate participation, and in different cultural and spatial contexts (Stacey *et al.*, 2021). Artisanal fishers harvest fishes for their livelihood generation after generation by using traditional technique and equipment. Usually, they live in the coastal or riverine community learns conventional fishing techniques from one generation to other generation inheritably (Rahman, 2017). Artisanal fishing indicates method and technique using for catching fish. Generally, it means simple traditional methods such as simple traps and traditional boats and equipment (Batista *et al.*, 2014). It is commonly argued that renewable natural resources (such as fisheries) tend to be characterized by detrimental externalities stemming from ill-defined property rights or a lack of adequate environmental control policies (Costello *et al.*, 2019). Optimal use of fishery resources differs from controlling and monitoring regimes, which can explain to a certain extent why natural resources are prone to depletion, especially in developing countries. In line with this argument, many economists believe that fishery resources are identified by their open-access characteristics, in which input factors are believed to be allocated to the fishery sector higher than their optimal level, which is supposed to be found when property rights are appropriately enforced (Güven, 2023). It is this common pool nature of these resources which provides an open access to all users (artisan fishers) that could lead to its demise. Therefore, this study investigated assessment of the sustainable fishing techniques and challenges among artisanal fishers in river Ibi, Taraba State, Nigeria. Specific objectives include: (i) investigate sustainable fishing techniques (ii) identify penalties for the

contravention of sustainable fishing technique (iii) determine the challenges in fishing activities among artisanal fishers in the study area.

MATERIALS AND METHODS

Ibi River is found in Ibi Local Government Area, which lies between Lat. 8° 11'N and longitude 8° 47'51"E. It has a land area of 1410.99km² with an annual rainfall of 1016-1270 mm, and an average temperature ranging from 21°C to 35°C and a population of 116,930 per square meter. Rivers Taraba and Donga flow into River Benue within the Local Government Area (LGA). Ibi is one of the Sixteen LGA located in Southern Taraba, shares boundaries with Plateau State to the North, Nasarawa State to the West, Gassol LGA to the East, and Wukari LGA to the South. (Gabriel *et al.*, 2015). Fishing and agricultural activities are the major occupation with crops like yam, rice, maize, and guinea corn constituting It was part of the Jukun kingdom whose capital was Kwararafa. The selection of the study area was purposive based on the population of fishing communities, geographic distribution, and catch volume and species diversities of the fish catches in the area. Fifty artisanal fishers were randomly selected from each of the four fishing communities randomly picked (Ibi, sarkin kudu, dampar and nwonyon) with a total population of two hundred sample size. Data for the study were collected from the respondents through structured questionnaire and interview scheduled, and analyzed with the use of frequency, percentage and inferential analyses mean score determined through 3 points Likert scale.

RESULTS AND DISCUSSION

Demographic characteristics of Artisanal Fishers

Table 1 indicated that 87.5% of the respondents are male, 31.0% are 20-30 years and 31-40 years respectively, 70.0% are married, 50.5% had secondary education while 19.0% had no formal education. Only 29.5% had 5-10 years fishing experience while 21% had over 20 years. Higher number of male involvement in fishing apart from hereditary is also related to the strenuous activities associated with fishing in large water body. Married artisanal fishers can be assisted by their household as crew members, processors or any other related activities to the profession. Literacy is important in the profession to be able to read extension guides and fisheries manuals without interpreters. Magego *et al.* (2021) opined that fishing is considered a male-dominated activity in which men are seen to occupy the upper position in the sector while women remain and participate in the activities at the periphery.

Table 1 Demographic characteristics of Artisanal Fishers

s/n	Variable	Labels	Frequency	Percentage
1	Gender	Male	175	87.5
		Female	25	12.5
2	Age	Less than 20 years	32	16.0
		20-30 years	62	31.0
		31-40 years	63	31.5
		41-50 years	19	9.5
		Above 50 years	24	12.0
3	Marital status	Single	55	27.5
		Married	140	70.0
		Divorced	4	2.0
		Separated	1	0.5
4	Level of education	No formal education	38	19.0
		Primary education	34	17.0
		Secondary education	101	50.5
		Tertiary education	27	13.5
5	Fishing experience	1-4 years	35	17.5
		5-10 years	59	29.5
		11-14 years	31	15.5
		15-19 years	33	16.5
		20 and above years	42	21.0

Source: Field survey, 2023**Sustainable fishing techniques among Artisanal fishers**

Sustainable fishing techniques among artisanal fishers are presented in Table 2. Ban on use of explosive (\bar{x} = 3.00), ban on use of chemicals (\bar{x} = 2.98), ban on closed area (\bar{x} = 2.98), fishing guards to monitor catches (\bar{x} = 2.98), issue of fishing license to members (\bar{x} = 2.92) and restriction on types of fishing gear (\bar{x} = 2.88). This finding is in agreement with Nwabeze and Erie (2016) who reported weighted mean of 2.47 in similar study on ban on the use of explosives and use of poison.

Table 2 Sustainable fishing techniques among Artisanal fishers

s/n	Variables	Not sever	Sever	Very sever	\bar{x}	S.D
1	Ban on use of chemicals	1(0.5%)	2(1.0%)	197(98.5%)	2.98	0.172
2	Ban on use of explosive	-	-	200(100.0%)	3.00	0.000
3	Ban on closed season	4(2.0%)	124(62.0%)	72(36.0%)	2.34	0.515
4	Ban on closed area	2(1.0%)	-	198(99.0%)	2.98	0.199
5	Restriction on types of gear	11(5.5%)	3(1.5%)	186(93.0%)	2.88	0.470
6	Restriction on size of fishes	68(34.0%)	128(64.0%)	4(2.0%)	1.68	0.509
7	Regulation of mesh size	12(6.0%)	125(62.5%)	63(31.5%)	2.26	0.558
8	Restriction on species of fish	196(98.0%)	2(1.0%)	2(1.0%)	1.03	0.222
9	Issue of fishing license	8(4.0%)	-	192(96.0%)	2.92	0.393
10	Report water pollution to government agencies	197(98.5%)	-	3(1.5%)	1.03	0.244
11	Fishing guard monitoring	1(0.5%)	2(1.0%)	197(98.5%)	2.98	0.172
12	Fisheries rules and regulations	4(2.0%)	127(63.5%)	69(34.5%)	2.33	0.511

Source: Field survey, 2023**Penalties for the contravention of sustainable fishing techniques**

Table 3 indicated the penalties for the contravention of sustainable fishing techniques among artisanal fishers in the study area, payment of fine (monetary); (\bar{x} = 3.00), seizure of fish caught (\bar{x} = 2.89), withdrawal of fishing license (\bar{x} = 1.80) and temporary ban from fishing (\bar{x} = 1.70). Payment of fines is believed to be a strong penalty in the sense that what artisans are expected to pay are usually higher than what the fisher would have imagined as gain if he/she goes ahead to contravene any of the fishing techniques. Ogunremi *et al.*, (2018) reported that the essence of penalties for the contravention of sustainable fishing techniques is to serve as deterrent to members and also protect the overall interest of fishers' association members for continuous exploitation of the resources on a sustainable level.

Table 2 Penalties for the contravention of sustainable fishing techniques

s/n	Variables	Not sever	Sever	Very sever	\bar{x}	S.D
1	Withdrawal of fishing license	111(55.5%)	19(9.5%)	70(35.0%)	1.80	0.931
2	Temporary ban from fishing	130(65.0%)	-	70(35.0%)	1.70	0.956
3	Permanent ban from fishing	198(99.0%)	-	2(1.0%)	1.02	0.199
4	Payment of fine (monetary)	-	1(0.5%)	199(99.5%)	3.00	0.071
5	Payment of fine (non-monetary)	200(100.0%)	-	-	1.00	0.000
6	Seizure of fish caught	10(5.0%)	3(1.5%)	187(93.5%)	2.89	0.450

Source: Field survey, 2023**Challenges in fishing activities among Artisanal fishers**

Table 4 showed the challenges in fishing activities among Artisanal fishers. Open access nature of the fisheries (100.0%), climatic change (100.0%), lack of modern fishing equipment (100.0%), post-harvest losses (99.0%), and siltation (98.0%) are the major challenges confronting fishing activities in the study area. Inland water bodies are generally classified as gift of nature and so open to all intending fishers so little or no emphasis is laid on regulation. In a similar study, Ogunremi *et al.*, 2023 reported challenges in fishing weighted mean scores as sufficient capital (3.70), decrease in catch (3.68), aquatic weed (3.65) and problem of middle men/women. (3.61).

Table 3 Challenges in fishing activities among Artisanal fishers

s/n	Variables	No	Yes
1	Open access nature of the fisheries	-	200(100.0%)
2	Climatic change	-	200(100.0%)
3	Obnoxious/illegal fishing practices	198(99.0%)	2(1.0%)
4	Post-harvest losses	2(1.0%)	198(99.0%)
5	Distribution and marketing of fish products	138(69.0%)	62(31.0%)
6	Lack of credit facilities and revolving loan	2(1.0%)	198(99.0%)
7	Lack of modern fishing equipment	-	200(100.0%)
8	Siltation	4(2.0%)	196(98.0%)
9	Political party affiliation	198(99.0%)	2(1.0%)
10	Tribal discrimination	198(99.0%)	2(1.0%)

Source: Field survey, 2023

CONCLUSION AND RECOMMENDATION

Artisanal fishers are predominantly male, married; educated and practiced various sustainable fishing techniques as ban on use of explosives, chemicals, closed areas. Open access nature of the fisheries, climate change and post-harvest losses were major challenges. The study recommended that Government should enlighten fishers on the awareness on sustainable fishing techniques its implications and proper enforcement on the fishing regulation should be put in place.

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