



# Importance of Creation of Fisheries Cooperative Societies to Support Aquaculture in Nigeria

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## Abstract

Fish is reportedly a leading export for Africa with an annual export value running into billions of US dollars. In spite of this huge value and benefit attached, there exists the challenge of exploitation of natural fish stock. There are several factors attributed to the declining supply of fish in Africa as against the increased demand owing to the rise in population, disease, desertification, and decreasing livestock. This study investigates the importance of the creation of fisheries cooperative societies to support aquaculture in Nigeria. The study was carried out in Lagos state among 180 fishermen within the areas of Epe and Badagry regions. The questionnaire was adopted for data collection and the analysis was carried out using frequencies and percentages. The result indicated that several factors militating against aquaculture and fisheries development in Nigeria including poor access to credit facilities, Poor record keeping of all activities; Poor water quality management; Poor quality fisheries; Pollution-free sites for freshwater and marine aquaculture; Political instability; and Governmental support. The result of the study indicates that these problems can be resolved by engaging in cooperative societies that have the ability to support aquaculture by providing loan credit facilities, among others. Thus, the result concluded that becoming a member of the fishery cooperatives enhances the income of fishermen in Nigeria.

**Keywords:** fisheries. Cooperative societies and aquaculture.

## I. Introduction

Fish is reportedly a leading export for Africa with an annual export value running into billions of US dollars. In spite of this huge value and benefit attached, there exists the challenge of exploitation of natural fish stock. There are several factors attributed to for the declining supply of fish in Africa as against the increased demand owing to the rise in population, disease, and

desertification, and decreasing livestock (Olaoye et al, 2007). However, the main factor is the discovery of crude oil which has contributed to oil spillage and the destruction of fish natural habitat (Agu-Aguiyi, OnyiaUmebali and Sotonye, 2018). Fish, which is an aquatic animal is described as the most popular diet in the world and referred to in some regions as poor man's protein due to its quality protein fats (macro nutrient), vitamin and minerals (micro nutrient). In sum, it has made a significant contribution to the survival of humans (Agu-Aguiyi, OnyiaUmebali and Sotonye, 2018).

In Nigeria as is obtainable in most developing countries, the economy is dominated by agriculture, and is engaged in by a lot of Nigerians for their survival. The declining rate in agricultural production is influenced by factors such as inadequate infrastructure, poor mechanization and inadequate finance (Odetola, Awoyemi & Ajijola, 2015). Agricultural development in Nigeria is confronted by the lack of an appropriate organization charged with mobilizing and encouraging members of the rural sector to a greater productive effort (ICA, 2010). Hence, the inability of farmers to have access to resources that will aid them in increasing their income and living conditions, thus limiting agricultural production.

From the foregoing, capital can be described as being a significant factor in agricultural production but its availability is a challenge confronting small scale farmers (Ndifon et al., 2012). It is for this purpose that cooperative societies exist to serve the functions of production, processing, marketing, distribution and financing of agricultural products. So much importance is attached to loan disbursement in agricultural production however, accessing it is not without challenges. This inaccessibility has led to small scale farmers sourcing capital from friends, relations, money-lenders and contribution clubs; which are not effective means of raising substantial capital for agricultural production. In this regard,



the cooperative societies are recognized as a preferable means of credit delivery to farmers, given their ability to sustain the function of loan delivery. It is in this regard that Adekunle and Henson (2007) opined that no significant attention has been paid to the role of Cooperative Thrift and Credit societies to promote entrepreneurship.

Cooperatives is described as an independent union of individuals grouped by their common goal of fulfilling their economic and social interests through a jointly owned and democratically controlled enterprise, thus playing significant role in the provision of services that enhance agricultural development (Ndifon et al., 2012). The existence of Cooperatives enables the maximization of long-term community benefits in order address challenges, thus in the fisheries sector, it deals with the threats of poverty, fisheries mismanagement and livelihood insecurity, which are the harsh realities of small-scale fishers. Cooperatives play a significant role in the development of any community given their potential to empower small-scale fishers against harsh realities of the environment as well as socio economically, such as sickness, natural disasters, shortfalls and hunger (Food and Agriculture Organization, 2012).

Most of the fish from small-scale fisheries contribute makeup over half of fish catches used for consumption globally; and employs more than 90 percent (33 million) of the world's 36 million capture fishers (Mills et al., 2011). Despite the relevance of small-scale fishers, they lack access to resources and opportunities and are food-insecure, thus consistent with the report by FAO (2002) of 5.8 million small-scale fishers earning below USD 1 daily. In FAO (2009), it was recognized at the 2008 Global Conference on Small-scale Fisheries that the term cooperatives could have a negative connotation, it has the benefits of improving the stability of fishing communities (FAO, 2009). There also other benefits to the existence of Cooperatives such as market stability, increasing the price negotiating power of fishers with market intermediaries, provide marketing logistics and information, improving postharvest practices and facilities, facilitating investment, facilitate microcredit schemes for fishers and increasing market competition by setting up auctioning systems. Odetola, et al. (2015) was of the view that improving the welfare of fish farmers is subject to their membership and participation in cooperative society, as the study establishes its benefits in the welfare of farmers through the ease of access to

fund for their fish production and fish farming commercialization.

### Statement of the Problem

The inadequate supply of food is a challenge confronting the Nigerian government as well as various international agricultural agencies (Okunola & Oludarnwere, 2011). It is estimated that 13-18 million people comprising mostly of children die annually from fish protein deficiency related sickness (United Nation, 2012). The rationale behind this is that a lot of Nigerians live in abject poverty which hinders their ability to obtain the required food to enhance the nutrition of their children. There are two protein components recognized globally; food crop components and animal protein component derived from sources such as poultry, fish, eggs, milk, cattle, sheep and goat (Okunlola, Oludare; and Akinwalere, 2011). Of these listed sources of protein, fish is the one source of protein that is presumed to be readily available and equally affordable to every household, especially that of the poor, yet its production is not without challenges which makes it difficult to achieve the percentage of protein consumption (55gm out of which 10.6gm should be from animal origin) required by the average Nigerian. The consequence of this is sickness, malnutrition, and other related diseases (FAO, 2004). According to (Agu-Aguiyi, OnyiaUmebali and Sotonye (2018), only 10% of the recommended total protein intake is consumed by most Nigerians.

Remedying the above described situation above, the role and impact of the fishery cooperative societies on the amount of fish produced needs to be examined. Research carried out over the years, has revealed that the shortage of fish and the exorbitant prices attached to it is an indication that the domestic output is not sufficient to the fish needs of poor Nigerians at affordable prices. This factor is compounded negatively by the increasing rate of petroleum exploration, leading to fish being unable to survive in their natural habitat. Blessed with inland and marine waters for fish capture, the availability of fish remains a large concern, owing to increased population. Thus, every effort and ability of fishermen to catch fish is greatly hindered and their income affected. Fishermen are also faced by danger posed by constant movement of vessels, which affects fish capture and endangers their lives. Given the foregoing, this paper seeks to examine the importance of creating fisheries cooperative societies to support aquaculture in Nigeria.



### Research objectives

1. Assess the factors militating against aquaculture and fisheries development in Nigeria.
2. The extent to which creating fisheries cooperative societies will improve aquaculture in Nigeria
3. Determine the extent to which membership of fishery cooperatives will enhance the income of fishermen in Nigeria

### Research question

1. What are the factors militating against aquaculture and fisheries development in Nigeria?
2. To what extent will the creation of fisheries cooperative societies improve aquaculture in Nigeria?
3. To what extent will the membership of fishery cooperatives enhance the income of fishermen in Nigeria?

## II. Literature Review

### Overview of Cooperative society

A cooperative society refers to a group of people sharing an economic interest with the objective of empowering and improving the welfare of its members, as well as enhancing community development (Abdullahi et al., 2014). The establishment of Cooperatives is a measure that has been adopted in solving agricultural problems and increasing productivity (Abdullahi et al., 2014). Furthermore, it serves as a tool in eradicating poverty in Nigeria. Fish farming which entails the rearing of fish in controlled conditions for economic and social benefits has adopted the cooperative society model for improving living standards, achieving economic growth, ensuring financial security, generating employment generation and social security, and exchanging ideas (Achilike&Matanmi, 2014).

### Aquaculture

Aquaculture is a term encompassing activities ranging from the management of activities carried out in large bodies of water to intensive culture and fish feeding in small man-made ponds (Agu-Aguiyi, Onyia, Umebali&Sotonye, 2018). There are benefits attached to aquaculture which include human health and nutrition, employment generation, and foreign exchange earnings in the global markets. The potential for the development of aquaculture in Nigeria is quite high, however, fish production from aquaculture is reported to be very low (Ita, 1993 cited in Agu-Aguiyi, et al., 2018). Zanna, Tijjani, and Musa (2020) describe aquaculture as the farming of aquatic organisms on land and

coastal areas, as well as intervention in the rearing process to intensify the production of cultivated stock. In some rural areas of most developing countries, aquaculture is integrated with wild aquatic resource harvesting, agronomy, and water management, which makes aquaculture an integral aspect of aquatic resources management (FAO, 2007). Food Security describes a situation in which people have easy access to safe and nutritious food to fulfill their dietary needs to live a healthy and active life. To this end, food security covers food production and distribution, institutional, social and economic dimensions (Zanna, Tijjani, & Musa, 2020). As pointed out by Olufayo (2012) participation in aquaculture enhances household food security by increasing fish availability in the market; providing vulnerable groups with foods high in nutritional value as well as proteins with rich sources of fat and water; gainful employment; agricultural diversifications and farm sustainability

### Fishing in Nigeria

National Fish demand in Nigeria is estimated at about 27 million metric tons with domestic fish production estimated at 800,000 metric tons. About 30% of the total annual fish consumed by Nigerians is locally produced. Despite the benefits attached to aquaculture, it is not widely recognized by development professionals in the alleviation of poverty and malnutrition in Nigeria, as well as a source of foreign exchange earnings and sustainable community development (Abbas, Damisa& Ahmed, 2015). Nigeria, despite having large rivers, creeks, and miles of marine water, the performance of the fishery sub-sector is rated to be far below expectation and produces inadequate fish supply for domestic consumption. Zanna, Tijjani, and Musa (2020) reported domestic fish production in Nigeria to be about 800,000 million metric tons, which leaves a deficit of 1.9 million metric tons. The consequence of this is the importation of fish into Nigeria in order to supplement the local production of fish. To this end an annual expenditure of N125 billion is spent on the importation of fish in Nigeria, creating a dependent situation that is unfavorable to the Nigerian economy, especially in view of the potential of aquaculture in the country. The advantages of continuous fish importation have demerits such as draining foreign reserves, reducing foreign exchange earnings, and creating loss of employment opportunities, especially in rural areas thus increasing poverty levels and causing setbacks



to sustainable fisheries (Zanna, Tijjani& Musa, 2020).

### Empirical review

Ibemenuga and Orazulike (2021) investigated the impact of cooperative society on fish farming in Anambra State, Nigeria using data obtained from structured questionnaires randomly distributed to farmers. The study found that fisheries cooperatives provided fish farmers with incentives such as loans, and training. It recommended that government set up fisheries cooperatives to aid fish farmers.

Odetola, Awoyemi and Ajijola (2015) carried out a study to investigate the impact of cooperative society on fish farmers in Lagos State. The population size comprised of 150 fish farmers selected from both cooperative society and non cooperative society and structured questionnaire administered. The data derived was analyzed using descriptive statistics and Tobit regression Analyses. The study found that a large percentage of the cooperative fish farmers (50%) had between N100,000 to N500,000 as the initial investment while (56%) of the non cooperative fish farmers had this same amount as capital investment. Based on this finding, the study recommended that increase their credit supply to cooperative farmers as well as orientating them on the importance of active participation in cooperative activities

Agu-Aguiyi, OnyiaUmebali and Sotonye (2018) examined the performance of fishery cooperative societies in Rivers State, using data derived from questionnaires distributed to 360 cooperative fishermen, purposively selected from 12 Local Government Areas in Rivers State. Analysis was done by means of descriptive and inferential statistics. Several findings were made which included the fact that respondents with low educational qualification were unable to properly adopt initiatives that would improve their fish production techniques and management. The study also found that fishermen are confronted by challenges such as poor weather, finances, pollution, cost of materials, storage and processing facility. Based on this, it was recommended that a formal cooperative system of fish producers be set up to improve fish production in the region.

Gbigbi, Achoja, and Temile (2019) assessed the facilitators of cooperative aquaculture development in Delta State, Nigeria, using 240 aquaculture business cooperative members to whom questionnaires were administered to. Analysis was done using descriptive statistics, multiple regression model, cost and return analysis.

Findings made revealed that growth of cooperative aquaculture business is influenced by educational level, farming experience, cost of fingerlings, access to credit and pond size. It further identified challenges to include political instability, inaccessible credit facilities, and pilfering, organizational. The major aquaculture activities performed by cooperative members included Fish culture, fish product marketing and fish processing. Finally, it found that all surveyed aquaculture business cooperators were able to develop their fish production output.

Akinrotimi (2018) examined the roles of farmer's cooperative societies in aquaculture development in Rivers State using questionnaires randomly distributed to farmers. The study found that fish culture and marketing were the major activities carried out by the cooperative societies. It also found cooperative benefits to members to include granting of credit facilities and accessibility to land. The study further found the roles of cooperative societies in aquaculture development to include access to government intervention policies in aquaculture, improved culture techniques, increased returns, and provision of subsidized input. Constraints preventing the effectiveness of cooperative societies include mismanagement, insufficient capital and communal crisis and mismanagement. To this end, it is recommended that government encourage the activities of cooperative societies by increasing supply of credit facilities for sustainable development, and orientating members on the importance of participation.

### III. Theoretical framework

The Theory of Access is concerned with an individual of a group of persons can obtain and control resources (Ribot& Peluso, 2003). The rationale behind this theory is that a person might be able to access a specific resource, yet be unable to productively use it due to the absence of structural mechanisms. The theory of access therefore propounds that businesses as well as individuals be granted access to resources to enhance their production as well as ensure a sustainable means of livelihood. In applying the theory of access to the present study, the factors that enable small scale agricultural businesses to benefit from productive resources can be easily identified. As observed by McKay and Colque (2016), restricting the access of farmers to required resources, makes them susceptible to food insecurity and unsustainable means of livelihoods.



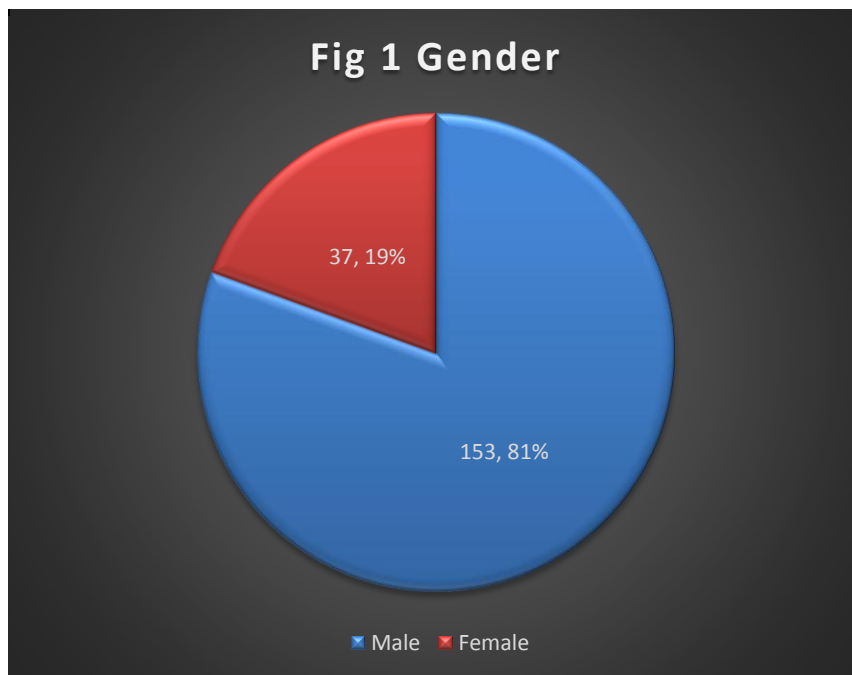
#### IV. Methodology

The study adopts the descriptive research survey method in examining the importance of creating fisheries cooperative societies to support aquaculture in Nigeria. The study made use of the purposive sampling method in selecting Epe and Badagry regions, comprising mainly of fishing communities and located in Lagos state as the place for the study. The study utilized the random sampling method in selecting three fishing areas from each of these communities, to get a total of six communities. The study further used a random

sampling method in selecting 30 fishermen from each of these communities, making a total of 180 fishermen as respondents for the study. The study used a questionnaire in deriving data from the respondents, which was designed using a four-scale Likert format. The researcher engaged the assistance of research assistants in distributing the questionnaires to the respondents given the low level of literacy among the farmers. The data collected were descriptively analyzed using frequency and percentages.

#### Data presentation and analysis

##### Gender



The study indicates that both male and female gender can be fishermen; however, the largest population are from the male gender. For instance, the result of this study revealed that 81% of the fishermen were males with only 19% female.



### Age group

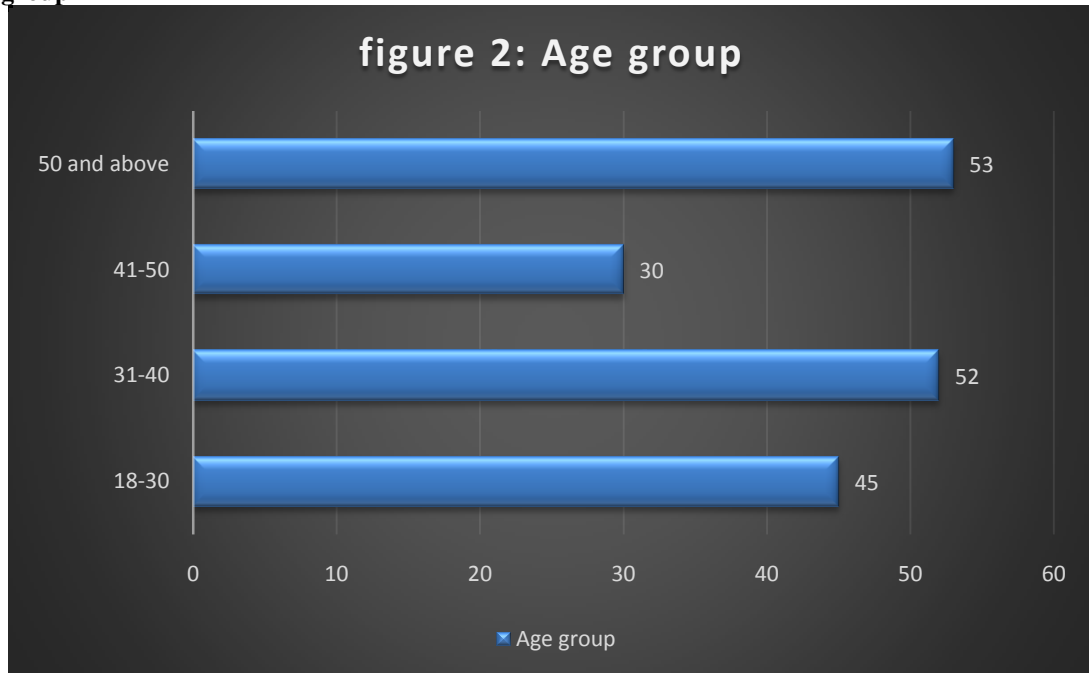


Figure 2 presents the different age group of the respondents. Among these are: 53 respondents where from the age group between 50years and above. 52 respondents falls within the age group 31-40years; 45 respondents falls within the age group 18-30 years; while 30 respondents were within the age group, 41-50 years. This goes a long way to show that, there is no specific age bracket for fishermen. In fact, majority of the fishermen came from the older generation.

### Working experience

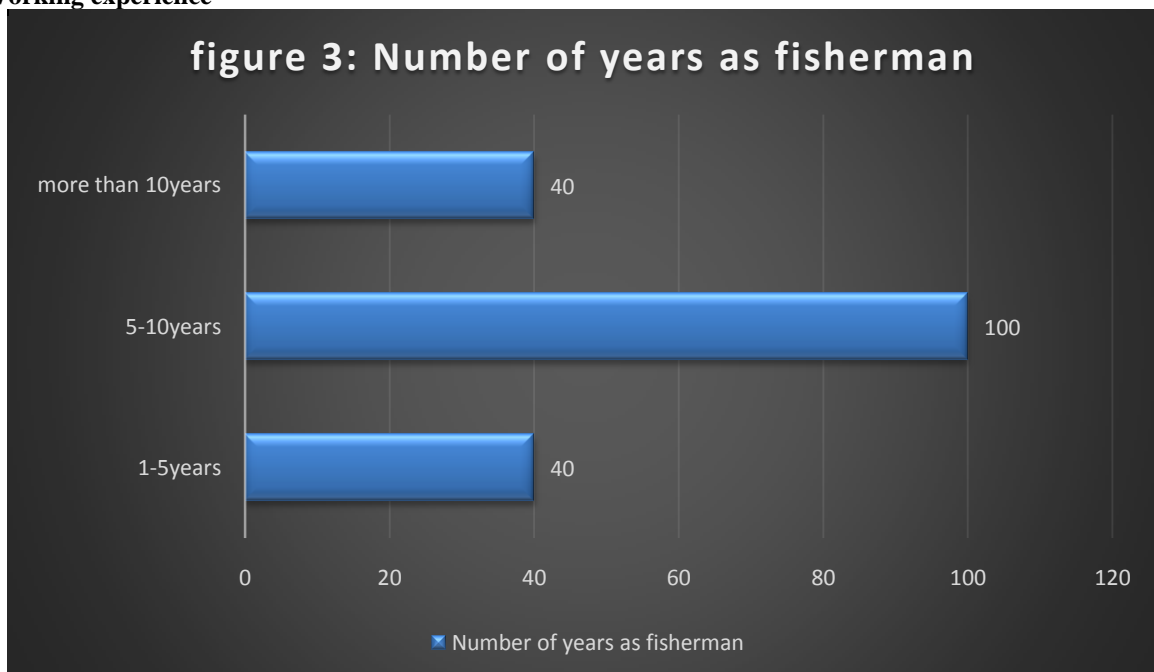


Figure 3 shows that many of the fishermen (100 of the respondents) have been in aquaculture for 5-10years; 40 respondents have been in fish farming between 1-5years and more than 10 years respectively.



**RQ1 What are the factors militating against aquaculture and fisheries development in Nigeria?**

**Table 1: Factors militating against aquaculture and fisheries development in Nigeria**

ITEMS	SA	A	D	SD	Total % in agreement
Access to credit facilities	58	109	9	4	<b>92.8</b>
Poor record keeping of all activities	113	60	2	5	<b>96.1</b>
Poor water quality management	78	99	1	2	<b>98.3</b>
Poor quality fish seed	80	99	0	1	<b>99.4</b>
Pollution-free sites for freshwater and marine aquaculture	77	89	7	3	<b>92.2</b>
Political instability	88	73	9	10	<b>89.4</b>
Governmental support	98	76	1	5	<b>96.7</b>

Field Survey (2022)

Table 1 above presents the factors militating against aquaculture and fisheries development in Nigeria. As indicated in the table above, 92.8% of the respondents agree that access to credit facilities is one of the factors militating against aquaculture and fisheries development in Nigeria. Other factors are Poor record keeping of all activities (96.1%); Poor water quality management (98.3%); Poor quality fish seed (99.4%); Pollution-free sites for freshwater and marine aquaculture (92.2%); Political instability (89.4%); and Governmental support (96.7%).

**RQ2 To what extent will the creation of fisheries cooperative societies improve aquaculture in Nigeria?**

**Table 2: the extent to which the creation of fisheries cooperative societies will improve aquaculture in Nigeria**

Items	SA	A	D	SD	Total % in agreement
Creation of fisheries cooperative societies will increase financial returns	60	95	13	12	<b>86.1</b>
Creation of fisheries cooperative societies will subsidize farm inputs	103	70	2	5	<b>96.1</b>
Creation of fisheries cooperative societies will expand fish farms	89	90	1	0	<b>99.4</b>
Creation of fisheries cooperative societies will improve culture techniques	80	99	0	1	<b>99.4</b>
Creation of fisheries cooperative societies will boost business growth	79	89	7	5	<b>93.3</b>
Creation of fisheries cooperative societies will increase the bargaining power of aquafarmers	88	80	9	3	<b>93.3</b>
Creation of fisheries cooperative societies will create economic opportunities	98	76	1	5	<b>96.7</b>

Field Survey (2022)

Table 2 presents items on the extent to which the creation of fisheries cooperative societies will improve aquaculture in Nigeria. As indicated in the table, 86.1% of the respondents support that creation of fisheries cooperative societies will increase financial returns; 96.1% support that the creation of fisheries cooperative societies will subsidize farm inputs; 99.4% are of the opinion that the creation of fisheries cooperative societies will expand fish farms; 99.4% indicates that the creation of fisheries cooperative

societies will improve culture techniques; 93.3% of the respondents are of the view that the creation of fisheries cooperative societies will boost business growth; 93.3% of the respondents support that the creation of fisheries cooperative societies will increase the bargaining power of aquafarmers; while 96.7% of the respondents are of the view that the creation of fisheries cooperative societies will create economic opportunities. This implies that creating a fisheries cooperative society will go a long way in improving aquaculture in Nigeria



**RQ3 To what extent will the membership of fishery cooperatives enhance the income of fishermen in Nigeria?**

**Table 3: the extent to which the membership of fishery cooperatives enhances the income of fishermen in Nigeria**

Items	SA	A	D	SD	Total % in agreement
Membership in fishery cooperatives will improve access to fishing permits and fishing gear	67	100	9	4	<b>92.8</b>
Membership in fishery cooperatives will purchase the catches of its members at a certain predetermined price, process it, and market it	117	61	0	2	<b>98.9</b>
Membership in fishery cooperatives will prevent the exploitation of the weaker members of society	79	99	1	1	<b>98.9</b>
Membership in fishery cooperatives will protect the rights of people both as producers and consumers.	86	93	0	1	<b>99.4</b>
Membership in fishery cooperatives will enable farmers to obtain higher returns	77	89	8	2	<b>92.2</b>
Membership of fishery cooperatives will increase the financial returns to their members through business transactions	88	73	9	10	<b>89.4</b>

Field Survey (2022)

The table above presents items that describe the extent to which the membership of fishery cooperatives enhances the income of fishermen in Nigeria. As indicated in the table, Membership in fishery cooperatives will improve access to fishing permits and fishing gear(92.8%); it will purchase the catches of its members at a certain predetermined price, process it, and market it(98.9%); it will prevent the exploitation of the weaker members of society(98.9%); it will protect the rights of people both as producers and consumers(99.4%); it will enable farmers to obtain higher returns(92.2%), and increase the financial returns to their members through business transactions(89.4%). Thus, with this result, it is concluded that, to a very large extent, membership in fishery cooperatives will enhance the income of fishermen in Nigeria.

**V. Discussion, Conclusions, and Recommendations**

Being a member of a cooperative society is not limited to a particular gender, and as indicated by the study, is for economically active people capable of contributing to its operations as well as engaging in productive activities to achieve a common goal. This study established that aquaculture activities are performed by the cooperatives, as most of the respondents were found to be actively engaged in fish farming. The

study concludes that aquaculture and fisheries development in Nigeria is confronted by challenges such as access to credit facilities, Poor record keeping of all activities, Poor water quality management, Political instability and Governmental support. This finding is consistent with Edun, Akinrotimi&Eshiett (2018) who identified the factors militating against the cooperative setup.

The study also concludes that the creation of fisheries cooperative societies will among other things increase financial returns, subsidize farm inputs, expand fish farms, improve culture techniques, and increase the bargaining power of aquafarmers. This finding is consistent with Odetola et al. (2015) who noted the reason behind most of the cooperatives to be due to the common nature of these activities, which enable them to raise finance. Finally, the study concludes that being a member of fishery cooperatives will improve access to fishing permits and fishing gear, prevent the exploitation of the weaker members of society, protect the rights of people and increase the financial returns to their members through business transactions. This finding is consistent with Kareem et al. (2012) who identified the major functions of a cooperative society in rural communities of Nigeria. In summary, there is fisheries cooperative is significantly important to the development and sustainability of aquaculture in Nigeria. Based on the findings made, it is





recommended that farmers should be enlightened and encouraged as to the benefits of joining cooperative societies, while the government should strategize a means of increasing the supply of credit facilities to aid the sustainable development of aquaculture in these areas. On the premise of these findings, this study recommends that fishermen establish cooperative societies to support aquaculture in Nigeria.

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**REQUEST FOR INFORMATION**

Dear Respondent,

I am carrying out a study on “importance of creating fisheries cooperative societies to support aquaculture in Nigeria.”, and you have been chosen to be part of the study. This questionnaire is only for academic purposes. Kindly select the response which applies to you and all information will be kept confidential

**SECTION A**

Please tick ( ) where appropriate

1. Gender: Female ( ) Male ( )
2. Age group: 18-30 ( ) 31-40 ( ) 41-50 ( ) 50 and above ( )
3. Number of years as an fisherman: 1-5 ( ), 5-10 ( ), more than 10 years ( )

**SECTION B:**

Instructions: Please tick (√) as appropriate where

**Key: Strongly agree (4), Agree (3), Disagree (2), and strongly disagree (1).**

S/N	ITEMS	SA	A	D	SD
<b>RQ1</b>	<b>What are the factors militating against aquaculture and fisheries development in Nigeria?</b>				
<b>1</b>	Access to credit facilities				
<b>2</b>	Poor record keeping of all activities				
<b>3</b>	Poor water quality management				
<b>4</b>	Poor quality fish seed				
<b>5</b>	Pollution-free sites for freshwater and marine aquaculture				
<b>6</b>	Political instability				
<b>7</b>	Governmental support				
<b>RQ2</b>	<b>To what extent will the creation of fisheries cooperative societies improve aquaculture in Nigeria?</b>				
<b>8</b>	Creation of fisheries cooperative societies will increase financial returns				
<b>9</b>	Creation of fisheries cooperative societies will subsidize farm inputs				
<b>10</b>	Creation of fisheries cooperative societies will expand fish farms				
<b>11</b>	Creation of fisheries cooperative societies will improve culture techniques				
<b>12</b>	Creation of fisheries cooperative societies will boost business growth				
<b>13</b>	Creation of fisheries cooperative societies will increase the bargaining power of aquafarmers				
<b>14</b>	Creation of fisheries cooperative societies will create economic opportunities				
<b>RQ3</b>	<b>To what extent will the membership of fishery cooperatives enhance the income of fishermen in Nigeria?</b>				
<b>15</b>	Membership of fishery cooperatives will improve access to fishing permits and fishing gear				
<b>16</b>	Membership of fishery cooperatives will purchase the catches of its members at a certain predetermined price, process it and market it				
<b>17</b>	Membership of fishery cooperatives will prevent the exploitation of the weaker members of society				
<b>18</b>	Membership of fishery cooperatives will protect the rights of people both as producers and consumers.				
<b>19</b>	Membership of fishery cooperatives will enable farmers to obtain higher returns				
<b>20</b>	Membership of fishery cooperatives will increase the financial returns to their members through business transactions				