



# Artisans Fish Production Landing Statistics Collation Challenges In Nigeria

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## Abstract

Following the significant of documentation, this study examined artisans fish production landing statistics collation challenges in Nigeria. The study employed multistage random and deliberate sampling. Starting with Lagos State was intentional. Ikorodu and Epe, two notable fishing locations in this state, were chosen. After that, 50 fishermen from each location were randomly picked to create 100 research participants. Questionnaire was adopted for data collection and the analysis of the data so collected was carried out descriptively using frequencies, tables and chart. The result of this study identified the following as challenges confronting fish farming; huge dispersion of catching operations, illegal and purposely unreported fishing, waste and discard during fishing, diversity of species, poor measuring and counting methodologies, and low literacy. The second objective to identify the importance of artisan fish production landing statistics showed that it helps understand poverty reduction and employment, improves investment in fisheries, improves understanding of fishing's social and economic importance, facilitates fishing sector reforms, and helps develop smaller-scale fisheries governance systems. Finally, this study advises improving fish production landing statistics. Teaching and retraining artisan fisherman, cold storage, landing jetties, fish processing structures, and landing processing and preservation facilities are proposed. Effective fishing policy management. Overall, keeping artisan fish farming production landing statistics is important for sector planning and decision-making. Following all report recommendations is suggested.

**Key words:** Artisans, fish production landing, statistics, collations, challenges

## I. Introduction

Across the world, fisheries provide millions of people with food, money, and a vital source of nourishment. The potential for oceans and inland waterways to significantly improve food security,

nutrition, and economic well-being for the world's growing population—which is projected to reach 9.7 billion people by 2050—is immense (FAO, 2018). Fish is a rich source of long-chain omega-3 fatty acids, vitamins, calcium, zinc, iron, and 6.7% of the protein that people eat worldwide. Two thirds (38 million) of the approximately 57 million workers in the main fish producing sectors work in capture fisheries (Boyd, McNevin & Davis, 2022). One percent of all agricultural exports are made up of items related to fishing. In 1976, global exports totaled \$8 billion; by 2014, they had risen to \$148 billion, with \$80 billion of fisheries exports coming from developing nations. This represents much bigger net trade income than the combined value of beef, tobacco, rice, and sugar (FAO 2016). Over the last fifty years, the amount of fish produced worldwide for human consumption has increased faster than population growth. However, there is a dearth of scientific data on Nigeria's difficulties in gathering statistics on artisans' fish output landings. A traditional fishery is also referred to as an artisanal fishery. The term "artisanal" refers to a straightforward, family-run or solo (self-employed) business that is typically run by the proprietor. Additionally, rather than characterising the scope of the activity, it suggests the usage of modest levels of technology (Chilaka, Nwabeze & Odilli, 2013). Small-scale and artisanal fishing are sometimes used synonymously, however. In general, small-scale fisheries may be defined as a dynamic and developing industry that uses labor-intensive technology for collecting, processing, and distribution in order to maximise the resources of both marine and inland waterways. This subsector's operations, whether full-time, part-time, or perhaps seasonal, are often focused on delivering fish and fisheries products to domestic and local markets as well as for subsistence use. For sustainable fisheries management, understanding the composition and quantity of fish stocks is essential (World Bank, 2012). Thus, baseline documentation and up-to-date information on fish variety and composition, as well as landing data on fish production, are essential. To



protect priceless resources, one must be aware of the state and trend of the fishery. But gathering the information needed for fish production landing seems to be a problem. There are several reasons for this data shortage. Because catching activities are so widely scattered, it might be difficult to compile thorough capture information, especially in developing nations. Significant technological challenges are presented by the diversity of species and the methods used to count or measure yield at the moment of harvest. There is widespread illegal and purposefully unreported fishing. More than half of a catch may be wasted or discarded. Catch rates and economic returns have intricate, nonlinear interactions (Chilaka, Nwabeze & Odilli, 2013). A deeper comprehension of the many functions and social and economic significance of large-, small-, artisanal, recreational, marine, and inland fisheries production landing will result from statistical data and analysis (Olaoye & Ojebiyi, 2018). The study may help determine how to balance competing goals, such as reducing poverty and increasing employment or foreign currency earnings while maintaining food supplies, and it can help shape the laws that support efficient fisheries management. It may also support investments in reforms and the ability to create and execute governance frameworks that are tailored to the particulars of small-scale fisheries (OECD, 2023). Additionally, it may support the development of political will for changes based on a deeper comprehension of the significance of these many sector segments on the social, economic, nutritional, and cultural fronts.

### **Statement of research problem**

Evaluating economic viability is crucial to assessing if a manufacturing system is economical in any given situation. The features of the different capture fisheries subsectors, however, are often inadequate, as shown by a search of the literature and statistics that are now available. Due to a paucity of data, policy and management have not been adequately informed on the relative contributions of the various fisheries subsectors, either during harvest or after. (Rousseau, et al, 2019). These fundamental needs for production and economic data are challenging to provide, but they are crucial for planning and policy. The shortcomings play a significant role in the underfunding of policy assistance and management, particularly for small-scale and subsistence fisheries. This research aims to fill up these important information gaps by concentrating on Nigeria's small-scale fisheries.

### **Research objectives**

1. Identify the collation challenges confronting artisans' fish production.
2. Ascertain the importance of collating fish production landing statistics.
3. Recommend measures to improve the collation of fish production landing statistics.

### **Research questions**

1. What is the collation challenges confronting artisans' fish production?
2. What is the importance of collating fish production landing statistics?
3. What are the measures to improve the collation of fish production landing statistics?

## **II. Literature review**

### **Overview of fish landing**

Fish landings are defined as marine fish captures that are brought ashore at foreign or local ports (OECD, 2023). In addition to the need to rebuild populations to maximum sustainable yield levels in order to ensure long-term sustainable use of marine resources, changes in market demand and pricing also affect landings from marine capture fisheries. The amount of fish caught and the revenue it generates, minus the cost of production, determine how profitable fish farming is in any given body of water. The industrial and artisanal fishing industries account for the majority of fish landings on Nigerian beaches. Nigeria's economy, food security, and poverty reduction are all benefited by the very profitable fishing and fish and fish product marketing industries. More than 70% of the nation's interior and coastal waters' total pelagic catch is eaten domestically (OECD, 2023). This demonstrates how fish landings of high quality have an economic impact on agriculture, help those who are undernourished in protein, and ensure the food security of the world's population. For the artisanal, coastal, and inland fisheries sectors, fishing is a primary source of income. Huge catch landings demonstrate that fishing requires a significant investment of both human and material resources in order to provide returns that are largely measured in terms of catch. According to Grantham et al. (2022), these landings support domestic output at home. Nigeria's inland river catch landings are gathered by the Federal and State Departments of Fisheries and sent to the Federal Department of Fisheries, Abuja, for the purpose of compiling the country's annual total domestic fish output. Similar to FAO data, fisheries landing data is a restricted proxy for population status because of the unpredictability of discards, gaps in non-commercial reporting,



adjustments to fishing effort, and/or the application of management (Blasco et al., 2020). By integrating catch data with markers of stock state, such as independent surveys, fishery-dependent catch per unit effort, and age structures, assessment of fish facilitates the development of biomass estimates and management reference points for exploited aquatic populations. While various data-limited approaches to stock assessment methods have been developed, they tend to produce imprecise and biased estimates of stock status relative to data-intensive methods (Free et al., 2020). This is because acquiring such high resolution data is intrinsically expensive and thus limited to stocks harvested by industrial or commercial fisheries. Because artisanal, recreational, and subsistence fisheries account for almost half of all fishing activity worldwide (Rousseau et al., 2019), stock assessments do not consider the population status of these species. The economic effects of fish landings on the country's economy are determined by Essien and Effiong (2010). Two principle sample units (PSU) representing the two fishing communities—Ayadehe and Oku Iboku in the Itu Local Government region—were created by using a frame survey to stratify the research region. For seven months, 28–31 days were allotted to each PSU for assessment. A random sample of the landings made by the 36 fishermen who worked in the two fishing villages was taken. Complete enumeration and in-person interviews served as data collecting tools. Chi-squared was used to statistically analyse the data at a significance level of 5%. The results showed that the fisherman had a lot of issues to deal with. Nonetheless, it was suggested that having cold storage facilities, ice plants, landing jetties, fish processing buildings, more fishing vessels, etc. would increase fishing activity and landings in the research region.

### Theoretical review

#### Conventional Theory of Common Pool Resources

Resources that provide limited beneficial flows and from which it is costly or impossible to exclude prospective users are referred to as common pool resources (CPR). Common pool resources include things like ground water basins, grazing grounds, forests, irrigation systems, government and corporate financing, and the ocean. From the aforementioned, resources like water, pasture, wood, and budgetary allocations are produced (FAO, 2004). The research of two eminent academics, Gordon (1954) and Scott (1955), which suggested that the resource create a highly predictable limited supply of one sort of resource unit in each relevant time period, is the basis of the CTCPR. The appropriators (users)

are supposed to be homogeneous with respect to their cultural perspectives, discount rates, abilities, and assets. This is the second assumption. Actors with comprehensive knowledge maximise short-term gains. According to this idea, everybody may make use of the resource and the right resource units. Only the property rights to what they collect and subsequently sell in a free-market are acquired by the appropriators, who operate independently, don't communicate, and don't coordinate their actions in any manner.

Fish stocks, forests, rangelands, and water resources are examples of Common Pool Resources (CPR) that are essential to society's health because they provide food, jobs, and income, are essential components of agricultural systems, and are used in commerce (Cunningham & Neiland, 2005). Millions of people throughout the globe rely on them for their livelihood, and the impoverished who have few other options for employment often find them to be especially crucial. A common target for government policy and development programmes that aim to reduce poverty is those that rely on certain CPR, such as livestock herders, forest dwellers, and fishing groups. The links between individuals and CPR, however, are often little understood and known. The creation and execution of suitable policies for CPR management are severely hampered by this. This makes a large number of people more susceptible to the poverty brought on by the overexploitation, degradation, and commercialization of the CPR.

Policymakers may benefit from having access to global fisheries data, but there is a lack of knowledge in many important areas and a lack of information on the unique linkages that exist between people and fisheries in developing nations. If CPR (fisheries) are to support sustainable growth in the future, a number of issues need to be resolved. More effective fisheries management systems must be developed and put into place, especially in light of weaker States and heightened competition among resource consumers. The variety of connections that exist between individuals and CPR must also be taken by account by policy, which should also take use of the many growth possibilities they provide (Neiland & Bennett, 2003). Resources found in common pools are crucial sources of natural wealth for all nations. They may significantly contribute to economic growth and development if they are appropriately used and managed. The commercial production of fisheries, or CPR, may be used to provide both direct and indirect economic advantages, such as employment and resource rent that is generated, extracted as taxes, and reinvested in the economy.



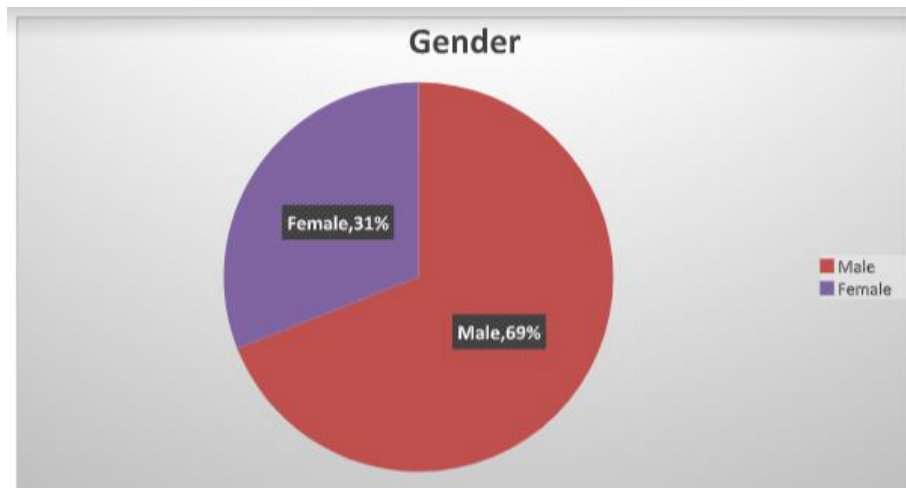
### III. Methodology

This study used a multistage sampling approach that included both random sampling and deliberate sampling techniques. The first phase was a deliberate selection of Lagos State. Two fishing regions, namely Ikorodu and Epe, were purposefully picked from the given state. Subsequently, a random sampling technique was used to pick a cohort of 50

fishermen from each of the two designated regions, resulting in a combined sample size of 100 participants for the research. Data was collected using structured questionnaires, which were given by two research assistants. These assistants were responsible for interpreting the questions to the fishermen, since their reading skills were poor. The questionnaire data was analysed using percentages and tables and charts.

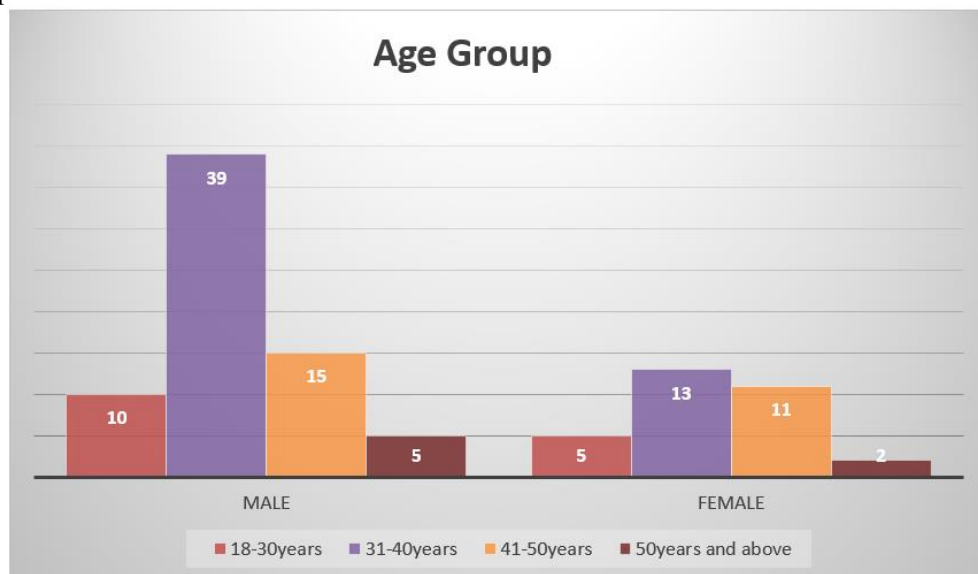
#### Data Presentation, and analysis

**Demographic information of the participants in the study: Gender, age group and number of years in fish farming**



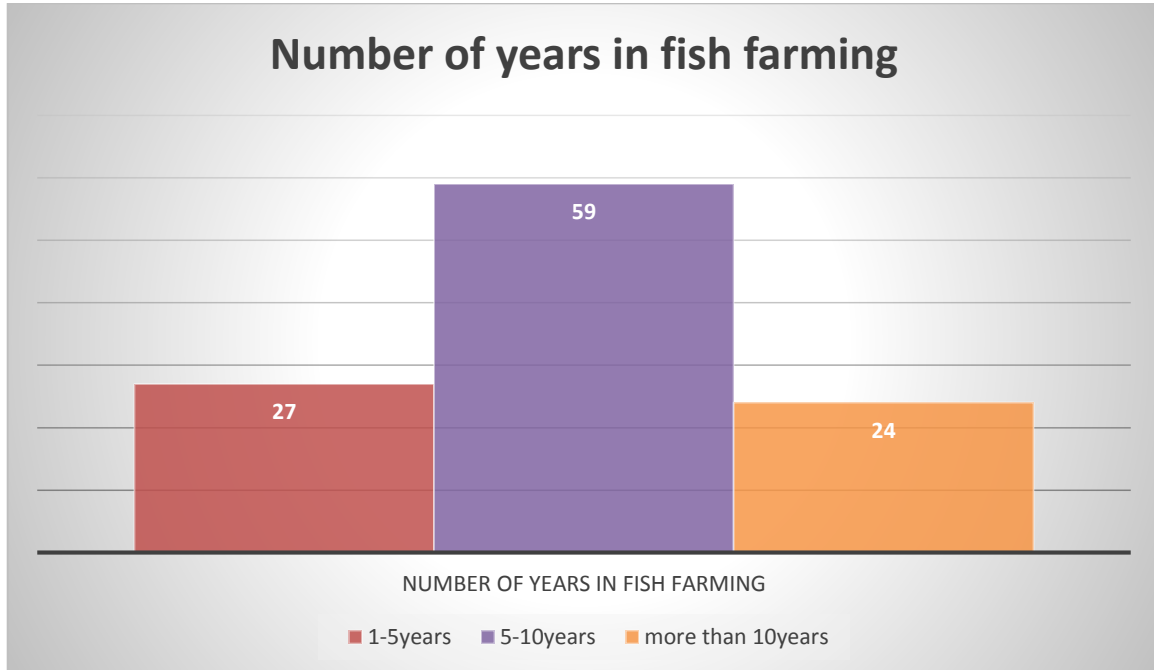
The participants in this study constitutes 100 people. Among these sample, 69% were male whereas the remaining 31% were female. Both genders work as artisan fishermen.

Age group:





The chart shows that 10% of the respondents were within the age range 18-30years; 39% were between 31-40years; 15% were within the age range of 41-50years whereas 5 % are made 50 and above for the male participants. The female participant made up of 5% 18-30years; 13% for 31-40years; 11% 41-50years; and 2% 59years and above.



In terms of the number of years in fish farming, 27% has been into fish farming between 1-5years; 59% has been into fish farming between 5-10; whereas 24% of the participants have worked for more than 10years.

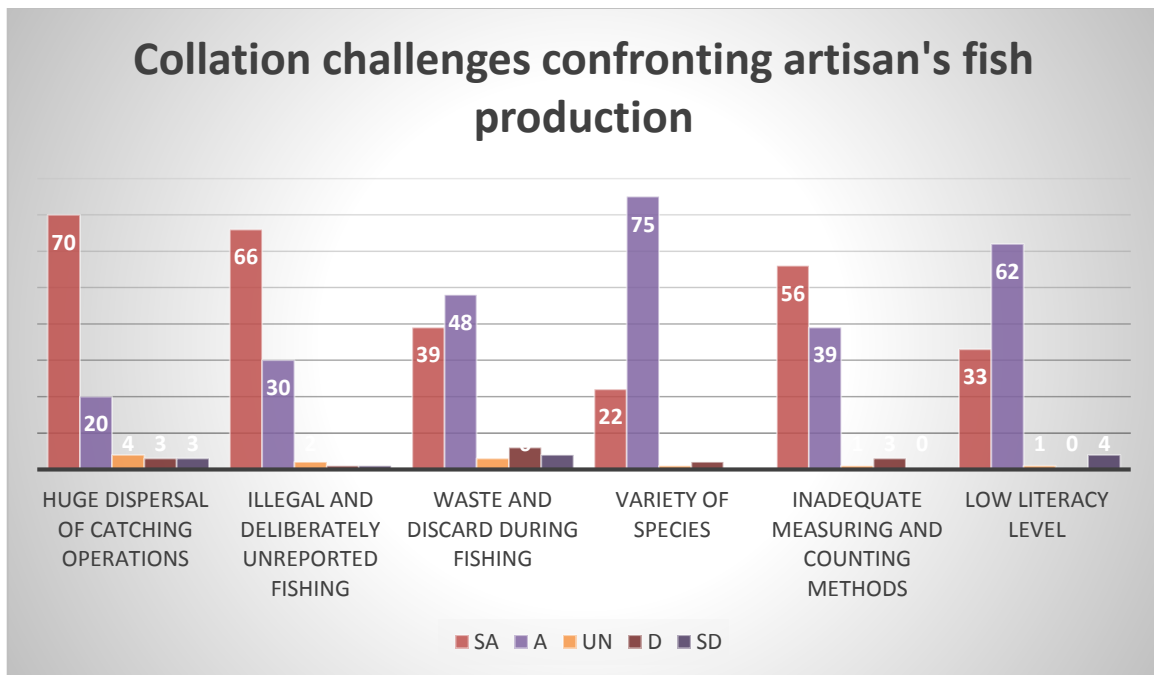
1. What is the collation challenges confronting artisans' fish production landing statistics?

**Table 1 collation challenges confronting artisans' fish production landing statistic**

ITEM	SA	A	UN	D	SD
Huge dispersal of catching operations	70	20	4	3	3
Illegal and deliberately unreported fishing	66	30	2	1	1
Waste and discard during fishing	39	48	3	6	4
Variety of species	22	75	1	2	0
Inadequate measuring and counting methods	56	39	1	3	0
Low literacy level	33	62	1	0	4

**Field survey 2023**





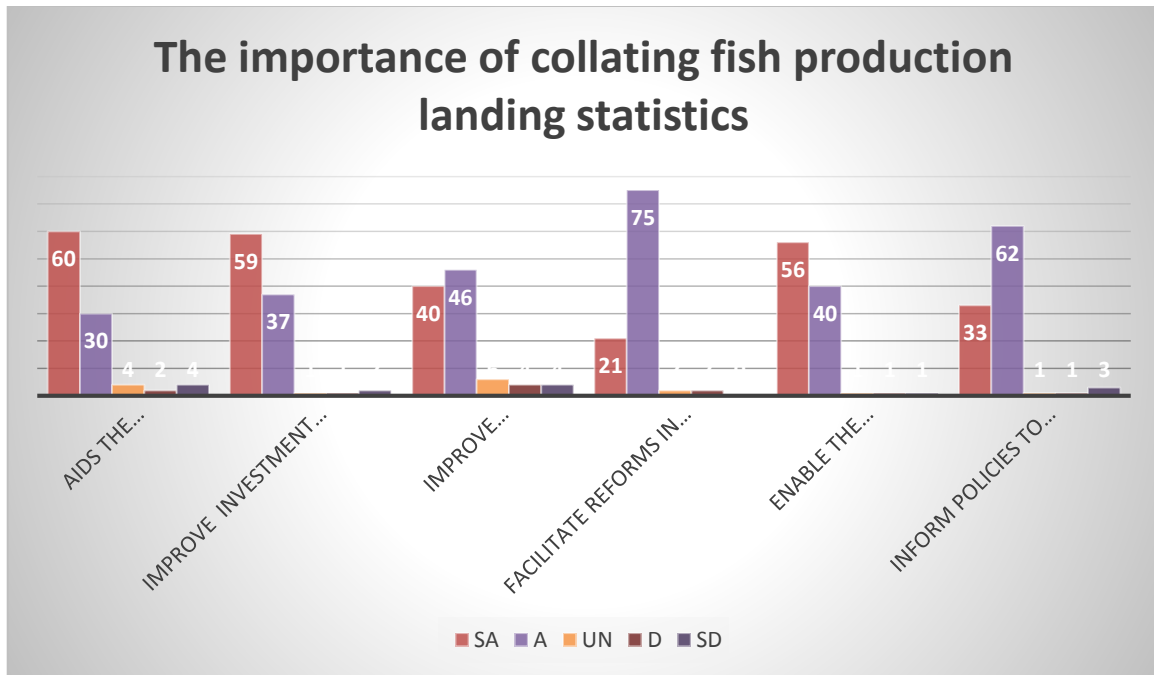
Both the table and bar chart above shows that there are challenges confronting artisan fish production landing statistics. Among these challenges are: Huge dispersal of catching operations, Illegal and deliberately unreported fishing, Waste and discard during fishing, Variety of species, Inadequate measuring and counting methods, and Low literacy level with more than 90% of the respondents supporting these items.

## 2. What is the importance of collating fish production landing statistics?

**Table 2: The importance of collating fish production landing statistics**

ITEM	SA	A	UN	D	SD
Aids the understanding between poverty reduction and employment	60	30	4	2	4
Improve investment in fisheries	59	37	1	1	2
Improve understanding of the social and economic importance of fishing	40	46	6	4	4
Facilitate reforms in the fishing sector	21	75	2	2	0
Enable the development and implementation of governance systems in small-scale fisheries	56	40	1	1	1
Inform policies to improve fisheries management	33	62	1	1	3

Fieldsurvey2023



The result presented above shows that it is artisan fish production landing statistics is extremely important. This is so because: it aids the understanding between poverty reduction and employment; it improves investment in fisheries; it improves understanding of the social and economic importance of fishing; it facilitates reforms in the fishing sector; it enables the development and implementation of governance systems in small-scale fisheries; as well as informs policies to improve fisheries management it is important to note that.

### 3. What are the measures to improve the collation of fish production landing statistics?

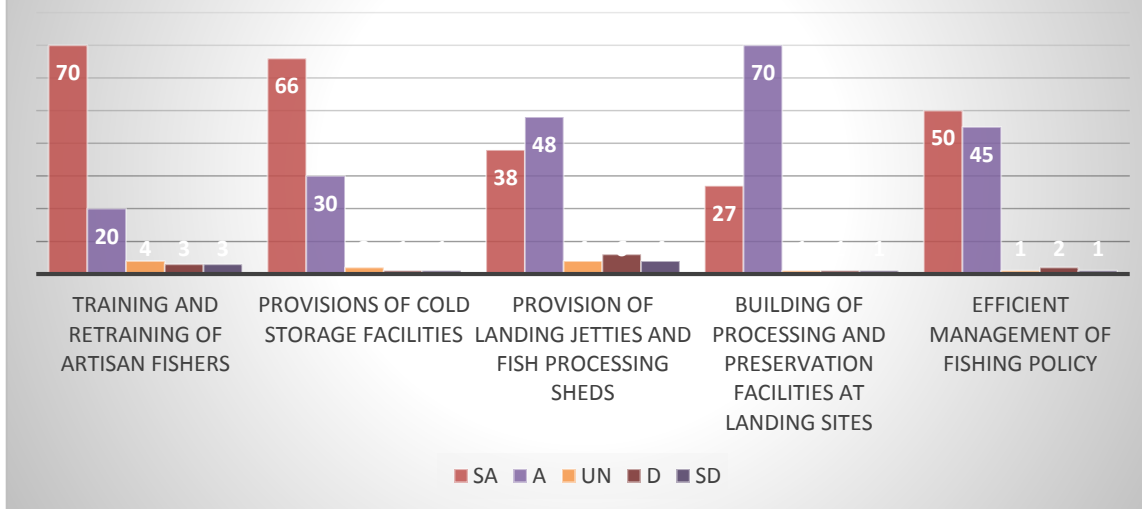
**Table 3: The measure to improve the collation of fish production landing statistics**

ITEM	SA	A	UN	D	SD
Training and retraining of artisan fishers	70	20	4	3	3
Provisions of cold storage facilities	66	30	2	1	1
Provision of landing jetties and fish processing sheds	38	48	4	6	4
Building of processing and preservation facilities at Landing sites	27	70	1	1	1
Efficient management of fishing policy	50	45	1	2	1

Fieldsurvey2023



## The measure to improve the collation of fish production landing statistics



Finally, the result from this study provide suggestions on how to enhance fish production landing statistics. Among these suggestions are: Training and retraining of artisan fishers; Provisions of cold storage facilities, Provision of landing jetties and fish processing sheds, Building of processing and preservation facilities at Landing sites; and Efficient management of fishing policy

#### IV. Discussion, conclusions and recommendations

Maintaining comprehensive documentation for future reference is vital across all domains, including the realm of pisciculture. Nevertheless, the sustainability of artisan fish farming faces many obstacles, one of which is the absence of adequate documentation. This significantly hampers the ability to effectively monitor the operations of artisanal fish farmers. The primary aim of this research was to ascertain the difficulties encountered in obtaining accurate landing data for artisanal fish production. The findings revealed the following difficulties: The study reveals many significant findings related to fishing practises. Firstly, there is a widespread occurrence of extensive dispersion of capturing operations. Additionally, illegal and intentionally unreported fishing activities are prevalent. Furthermore, there is a notable issue of waste and discard during fishing activities. The study also highlights the presence of a diverse range of species

affected by these practises. Moreover, inadequate measurement and counting techniques are seen in the fishing industry. Lastly, it is worth noting that a majority of the respondents, exceeding 90%, expressed support for the aforementioned issues. Despite the limited availability of literature supporting these conclusions, the results align with the findings of Chilaka, Nwabeze, and Odilli (2013). The secondary objectives aimed to ascertain the significance of artisanal fish production landing statistics have yielded the following findings: it enhances comprehension of the relationship between poverty alleviation and employment; it promotes increased investments in the fisheries sector; it enhances understanding of the social and economic significance of fishing activities; it facilitates the implementation of reforms in the fishing industry; it enables the establishment and execution of governance systems in small-scale fisheries; and it provides valuable insights for policy formulation to enhance fisheries management. It is crucial to acknowledge these points. This finding is consistent with the findings of Olaoye and Ojebiyi (2018) and OECD (2023) in their separate studies. The findings of this research provide recommendations for improving the accuracy of fish production landing data. Several recommendations have been proposed, including the training and retraining of artisan fishermen, the establishment of cold storage facilities, the provision of landing jetties and fish processing buildings, and the





construction of processing and preservation facilities at landing locations. The effective administration of fisheries policy Therefore, it can be inferred that maintaining comprehensive statistical records of artisanal fish farming production landings is both beneficial and imperative for the purpose of strategic planning and informed decision-making pertaining to the artisanal fish farming sector. Therefore, it is recommended that all the suggested actions given in this research be adopted.

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### 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 in fish farming: 1-5 ( ) , 5-10 ( ) , more than 10 years ( )

### SECTION B

Kindly tick the option that is most suitable for you

SA=Strongly Agree

A=Agree

Un=Undecided

D= Disagree

SD= strongly disagree



S/N	ITEM	SA	A	UN	D	SD
<b>RQ1</b>	<b>What is the collation challenges confronting artisans' fish production?</b>					
1	Huge dispersal of catching operations					
2	Illegal and deliberately unreported fishing					
3	Waste and discard during fishing					
4	Variety of species					
5	Inadequate measuring and counting methods					
6	Low literacy level					
<b>RQ2</b>	<b>What is the importance of collating fish production landing statistics?</b>					
7	Aids the understanding between poverty reduction and employment					
8	Improve investment in fisheries					
9	Improve understanding of the social and economic importance of fishing					
10	Facilitate reforms in the fishing sector					
11	Enable the development and implementation of governance systems in small-scale fisheries					
12	Inform policies to improve fisheries management					
<b>RQ3</b>	<b>What are the measures to improve the collation of fish production landing statistics?</b>					
13	Training and retraining of artisan fishers					
14	Provisions of cold storage facilities					
15	Provision of landing jetties and fish processing sheds					
16	Building of processing and preservation facilities at Landing sites					
17	Efficient management of fishing policy					