

**ANALYSIS OF CONTAINERS USED BY FISHERMEN  
AT LAKE ALAU COMMUNITY IN KONDUGA LOCAL GOVERNMENT  
AREA OF BORNO STATE, NIGERIA.**

BY

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Good handling of fish from the point of harvest to consumption is very essential and the quality of fish can only be maintained if only suitable containers are used in its processing, transportation, distribution, and marketing. This study analyzed the different containers used by fishermen at lake Alau community in Konduga Local Government Area of Borno State. The study was carried out in two prominent leading sites of lake Alau community which are kachalari and Abbari with the aid of questionnaires interview conducted with 50 randomly selected respondents fishermen. Both primary and secondary data were collected. The collected data were analyzed using the market cost of the various fish containers. The result shows that fish containers such as Metal basin, sacks, flat sacks and Metal trays have strong strength while Baskets, jerry cans and calabash have moderate strength the polythene bags, stationery and news print are very weak. Also baskets have the highest percentage of usage 20% while flat sacks, polythene bags and stationery have the highest percentage of 4%, which are the lowest. It can be concluded that, the different containers are afforded to fishermen but most of the containers are often kept dirty, which lead to poor hygiene, rough handling and invariably post-harvest losses and shortage in food supply. It can be recommended that, sheds should be provided at the landing sites to protect fresh fish the direct heat of the sun and enlightenment of fishermen and traders on the minimum standard of the quality and hygiene for fish and fishery products.

Keywords: Fish, Containers, Fishermen, Lake Alau, Community.

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## INTRODUCTION

Fish serves as an important source of protein in the diet of many people in the world, especially in Africa and Asia. In Nigeria fish is the cheapest and most widely consumed source of animal protein for a considerable proportion of the population. (Eyo, 2001).

A considerable number of people engaged in the fishing industries in Nigeria operate at the small-scale level. These artisanal fishermen, processors and traders are responsible for the harvesting processing, marketing, and distribution of more than 70% of the total volume of fish landed.

Women (usually with little formal education) dominate the processing and marketing of fish in Nigeria, using traditional methods and equipment in their trade. Many of these fish traders operate with very small capital and for some of them, a container of fish i.e. basket head pan or crate may be all the investment needed to commence business. Owing to their limited capital and lack of adequate storage facilities, these traders purchase only a small quantity of fresh fish (50-100kg) at a time for retail or processing. (Mabanwoku, 1980).

Roedel P. M. (1976) defined small-scale (artisanal) fishermen as those rural inland and coastal fishermen in the poorest of the developing countries whose catch goes largely for human consumption, who are themselves poor, and who fish with relatively unsophisticated gear and vessels in near-shore marine-water or in fresh water environment. He suggested a number of general ways in which the economic level of the small scale fishermen could be raised. These include: increasing the catch, reducing cost, distribution and marketing system improvements, development of improved parts and harbours infrastructure and the optimum use of fish over-time, that is conservation through sound management to ensure consistent maximum harvest a gain. This study was undertaken to determine the characteristics, cost, and types of

containers used in Lake Alau, Borno State, and how they influence fish quality and losses incurred.

### CHARACTERISTICS OF FISII CONTAINERS

The term container means food package for the product or the harvesting of fish. Containers are used to facilitate the handling and transport of commodities from the time of harvest through storage, processing to consumption. Fresh fish is particularly susceptible to rapid spoilage hence there is always the need for proper packaging and storage to protect the products against contamination, physical damage and deterioration. Fish containers thus help to keep fish products in the best condition until the products are consumed and thus help to make maximum utilization of fisheries resources. Some fish containers are also designed to help identify product, indicate quantity and persuade consumers to purchase the product. (Huss, 1988).

Clucas I.J. (1982) named these containers as to include crates, baskets cartons, metal containers and sacks. These metal containers are widely used for handling fresh frozen and cured fish products in bulk, either for transport distribution or storage.

### MATERIALS AND METHODS

The study was carried out at Lake Alau in two landing sites namely Kachalari and Abbari. The respondents are the fishermen and the fish traders, which were randomly selected. The instrument used was structured interviews with questionnaire. After collecting the data, they were classified in the form of tables, and analyzed as per the attached. All the 50 questionnaires distributed were collected.

### RESULT AND DISCUSSION

#### FISII CONTAINERS USED IN THE ARTISANAL FISHING AT LAKE ALAU

TABLE 1 SOURCE OF CONTAINERS AND THEIR USAGE

S/N	CONTAINERS	SOURCE	REMARKS
1	Baskets	Woven locally by villagers, from palm branches	Widely used for fresh fish
2	Metal Basin	Available in the markets in commercial quantity.	Widely used for fresh fish.
3	Plastic Rubbers	Available in the markets.	Widely used for fresh and cured fish.
4	Perforated plastic rubbers	Available in the markets.	Widely used for fresh and cured fish.
5	Jerry cans	&&&.do&&&.	Widely used for fresh fish only.
6	Sacks	&&&.do&&&.	Widely used for fresh and smoked fish only.
7	Flat sacks	&&&.do&&&.	Widely used for fresh fish only.
8	Calabash	Available from the villagers and the markets.	Widely used for fresh fish.
9	Metal trays	Available in the markets.	Widely used for fresh fish.
10	Polythene bags	Locally manufactured	Used in limited scale for fresh fish and dried fish.
11	Stationary	Used office sheets, exercise books, notebooks etc.	May be old and dirty
12	Newsprint	Publishing houses, used newspapers.	Widely used to wrap fried fish.

**TABLE 2:**

**CHARACTERISTICS OF VARIOUS TRADITIONAL FISH CONTAINERS**

S/n	Container	Strength	Initial cost	Weight	Durability	Repair ability	Hygiene
1	Basket	Moderate	Cheap	Heavy	Good	Yes	Poor
2	Metal Basins	Strong	Expensive	Medium	Good	Yes	Good
3	Plastic Rubbers	Moderate	Moderate	Medium	Good	No	Good
4	Perforated Plastics	Weak	Moderate	Medium	Good	No	Good
5	Jerry can	Moderate	Cheap	Light	Good	Yes	Poor
6	Sacks	Strong	Cheap	Light	Good	Yes	Poor
7	Flat sack	Strong	Cheap	Light	Good	Yes	Poor
8	Calabash	Moderate	Cheap	Light Light	Good	No	Poor
9	Metal trays	Strong	Cheap		Good	Yes	Poor
10	polythene Bags	Weak	Very cheap	Very light	Poor	No	Poor
11	Stationeries	Weak	Very cheap	Very light	Poor	No	Poor
12	Newsprint	Weak	Very cheap	Very light	Poor	No	Poor

**TABLE 3: COST OF VARIOUS FISH CONTAINERS**

S/N	Containers	Unit cost	Life span	Remarks
1	Basket	N200	6-9 month	Medium
2	Metal head Pan/basins	N600	3-4 yrs	Big/large
3	Plastic rubbers	N500	1 year	Large
4	Sacks	N60	2 weeks	Big
5	Metal trays	N150	2-3 years	Big
6	Calabash	N400	1 year	Nig
7	Jerry cans	N200	2-3 years	Medium
8	Flat sacks	N30	2 weeks	Big
9	Polythene bag	N5	1 week	Medium
10	Stationeries	N50	1 day	Large quantity

TABLE 4: PERCENTAGE USAGE OF FISHING CONTAINERS

S/N	Containers	Sampled quantities	Percentage
1	Basket	10	20%
2	Metal basins	8	16%
3	Plastic rubbers	6	12%
4	Jerry cans	4	8%
5	Sacks	4	8%
6	Flat sacks	2	4%
7	Calabash	6	12%
8	Metal trays	6	12%
9	Polythene bags	2	4%
10	Stationeries	2	4%
		50	100%

Fig: 3 Metal basin.

Fig: 4 Perforated Plastic Rubber.

Fig: 5 Sack.

## DISCUSSION

The result shows that there are flexible packaging materials, mainly used as wrappers for parceling small quantity of fish at the landing site. They are usually disposable and are used for only a brief period to hold the product prior to consumption. They include papers, polythene bags, stationeries, newsprint are used extensively by artisanal traders as wrappers for all kinds of fish products. They are light and very cheap. The hygienic quality of wrapping papers is generally poor.

From the table 1, the result shows that majority of or all of these fish containers are available in the market, while villagers or craft-men locally weave some. The fishing containers are widely used for fresh fish, smoked fish and cured fish.

Table 2 shows the characteristics of the various traditional fish containers used in Lake Alau. The results shows that fish containers such as metal basins, sacks, flat sacks and metal trays has strong strength, while containers such as baskets terry cans, calabash have moderate strength, and containers such as polythene bags, stationeries, newsprint are very weak. The strong containers are mostly durable while the weaker ones are very poor durability wise. Also strong and moderate containers are hygienically good and repairable. The survey reveals that moderate and strong containers are very expensive initially (initial cost).

Table 3 shows the cost of various fish containers used in Lake Alau. The unit cost range from N5 to N600. The high cost of metal head pan is probably due to its durability, while the polythene bags cost less than N5 due to their low cost and availability throughout Alau village.

Table 4 shows the various compositions of containers, sampled quantities and their percentages. The result shows that baskets are commonly used by about 20% of the fishermen followed by metal basins (16%) while plastic rubbers, metal trays and calabash, are (12%). Flat sacks, polythene bags and stationeries, are not commonly used, as they constitute 4% each. The levels of utilization of baskets, metal basins, and plastic rubbers, are very high. They must therefore be clean before use. Unfortunately, fishermen and traders often ignore this simple hygiene practice. These results were in line with a similar study by Essuman, (1990) on artisanal fish containers in Ghana.

## CONCLUSION:

From the result, it can be concluded that the fishermen prefer the baskets, metal basin and plastic rubbers due to their durability, reliability and hygienic nature, while polythene bags, stationeries, and flat sacks are not commonly used as the reverse is the case

It is actually the ultimate goal of fishermen and fish traders to offer fish of the best quality for sale to obtain better prices. Unfortunately deterioration may even start before the fish is landed. This occurs because of the relatively small capital with which most small scale fishermen and traders operate, they avoid any extra expenditure that tends to increase their operational costs, such as using detergents, cleaned water and others. A good fish container helps the product to withstand rough handling and stress during distribution to avoid physical damage and present spoilage. The different types of artisanal fish containers used in Konduga Local Government Area of Borno State meets some of these requirements and are suitable for handling fish products.

## RECOMMENDATIONS:

Provision of lids for artisanal fish containers e.g. (crates and baskets) when appropriate.

Provision of sheds at the landing and processing sites (fish markets) to protect fresh fish from the direct heat of the sun.

Provision of special incentives to encourage the importation of cold vans or insulated trucks to transport fresh fish to long distance markets.

Enlightenment of fishermen and traders on the minimum standard of the quality and hygiene for fish on and fishery products, laying more emphasis on better means of handling fish on board vessels, at landing sites and during processing, distribution and eventual marketing leaves for wrapping fish should be washed before use.

A well trained, motivation and dedicated extension staff will be needed to carry out this task effectively, therefore more training is not ruled out.

Provision of small ice plants at all the major fish landing sites (centers) and the introduction of simple but efficient insulated containers for ice, to chill fish on board, inshore boats and carves at sea. There is a need for the gradual introduction of systems that will ensure good standards in fish handling in general, and proper maintenance of fish containers in particular to achieve the millennium goal of increase fish production.

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