

ARTISANAL FISH PROCESSING PROJECT,
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PRELIMINARY REPORT

SURVEY ON FISHING HABITS, HANDLING AND
DISTRIBUTION OF FRESHLY LANDED MARINE
FISH ALONG ACCRA COASTAL BELT

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SUMMARY

A survey was carried out using questionnaire on 60 respondents, all fishermen, involved in the harvest of fish from the ocean. These were randomly selected from nine fish landing centres on the Accra coast.

Five main types of fishing habits were observed. Except for one instance, the 'Lagice' method, no ice was carried on board the fishing canoes. Fishermen stayed at sea until sufficient catch was made before landing fish, depending however on the method of catch used.

Pricing of fish was done according to difficulties faced at sea, availability of fish, and season. It was observed that most catch was given to the wives of fishermen for sale immediately or for processing before sales were made to market women.

2. INTRODUCTION

Fish is a highly perishable commodity, spoilage beginning immediately after the fish is out of water. It is important therefore that fish harvested be properly stored immediately after it is harvested from the sea.

In Ghana, artisanal fishing accounts for about 60% of the total fish catch. The fishing is done by local fishermen using small to medium size canoes powered by outboard motors. The method of fishing by this group does not allow for the use ^{of} ice and fish boxes on board in most cases, thus proper handling and storage of catch is seriously abused leading to low quality fresh fish ending up at the landing sites and on fish markets.

The present survey seeks to collect information through questionnaires on fishing habits, handling, stowage and distribution of the fish catch at sea, at landing sites and finally on the markets. The information obtained will enable the research team to draw up proposals for the improvement of fish handling, storage and distribution among the artisanal fishing folk. The proposals are expected to bring about increase in quality of both fresh and preserved catch offered for sale.

3. FISHING HABITS

The survey involved visits and questionnaires to nine fish landing sites stretching about 60km. along the coastal belt of Ghana. The sites were as follows: Tema, Sakomono, James Town, Dogo, Chorkor, Lante Man, Bortianor, Oshieyie and Kokrobitey, in that order.

Five main types of fishing methods were identified.

The local names and description of the methods are given below:

3.1 "Ali" (Gill-netting fishing method)

This method lands fish within 24 hours. No ice is carried along in the canoe. The fishermen involved number between 6 to 8 and they use nets with the following mesh dimensions: net diagonally stretched (45mm), side length (23mm) and net thickness on the average small. This net type catches sardines and similar fish species.

The method of catch involves laying the net horizontally at sea in a straight line with floats (and lighted lamps at night) to indicate net positions. Fish passing through either side of the net may get stuck in it. The net is pulled after a while to collect catch which is thrown on the floor of the canoe.

3.2 "Lagice" (Hook and Line) fishing method

This method lands fish between 6 to 8 days at sea. This method of fishing thus involves going further and staying longer at sea than the other fishing methods discussed here. The method obviously warrants the use of ice on board to chill fish while at sea until the catch is landed. A typical ice box measures the following dimensions: length = 217mm, width = 112mm and depth = 78mm. The box is divided into three compartments, two of which may be filled with ice and lagged to prevent melting.

The method of fishing here involves only hook and line and there may be 10 to 15 of them at a time. The number of fishermen involved may number between 10 - 20, using medium to large canoes powered by outboard motors. Medium to large different fish species are often caught. Fish species caught may include the following: Grouper (Epinophelus fasciatus); cassava fish (Pseudotolithus spp.), Spanish

Mackerel (Scomber japonicus), Barracuda (Sphyraena spp.), Frigate Mackerel (Auxis spp.), Horse Mackerel (Trachurus trachurus), Sea Bream (Lethrinus atlanticus), Common Sea Bream (Pagrus spp.), Shark (Squalomorphii spp.), Skates and Rays, etc. The catch is iced at sea and maintained in the melting ice until the canoe lands.

3.3 "Poly" (Purse-seining) fishing method

This is the most common type of fishing method carried out along the coast. Fish is normally landed within 24 hours. Different mesh sizes of nets are used, therefore the method catches various species and sizes of fish including sardines, shrimps, lobsters, grouper, cassava fish, anchovies etc. Fishermen involved number between 10 to 15. The net is thrown in a semi-circular fashion out at sea and the net ends are pulled on board. The catch is removed from the net and placed on the floor of the canoe. No ice is applied.

3.4 "Chaani" (Beach-seining) fishing method

This fishing method is similar to the drag-net type. It involves between 4 to 5 fishermen who go out to sea and throw their net in a semi-circular fashion. The end ropes to the net are extended and can stretch up to 3000m. One end of the rope is kept ashore and after throwing the net at sea, the other end is brought ashore. The two ends of the net are then dragged ashore usually with a team of about 10 to 12 fishermen and volunteers each holding on the two ends of the net.

The net sweeps the sea bed as it is being dragged ashore. Usually small mesh size (about 5 to 10mm. side length) nets are used, thus small fish species are also caught among medium type species. The catch may include species such as Anchovy, Shrimps, Scad Mackerel, Burrito, Bumper, etc.

3.5 Small canoe fishing

This fishing method involves the use of hook and line similar to the "Lagice" fishing method except that the catch is landed within 24 hours. Fishermen involved number between 2 to 3 using paddles and a sail to move the boat. Fishing does not take them too far off from ashore and no ice is used on board, unlike the "Lagice" method. Different small to medium fish species may be caught, Other small canoes may also use small mesh size nets to catch species such as shrimps, anchovies, etc.

4. HANDLING AND DISTRIBUTION OF FISH ASHORE

At the landing sites, groups of women and fishermen can be seen awaiting the arrival of canoes at sea. When a canoe is brought ashore, the catch usually made up of a mixture of different fish species and sizes are loaded into fish boxes and baskets. The dimensions of a typical fish box are as follows: length = 68mm, width = 49.5mm and depth = 22mm, that of a fish basket is as follows: top diameter = 51mm, depth = 41mm and bottom diameter = 33mm. Other smaller fish basket sizes occur.

The fish boxes and baskets are the retail fish containers. The catch loaded in these containers are priced ashore, depending upon fish species, size and the season of catch. In early May, 1990 for instance, a small size fish basket loaded with fish species comprising of Anchovies, Long-fin herrings, Shrimps, etc. was priced at ₱1500.00 (about 4.7 US Dollars at the rate of ₱320.00 cedis to the Dollar). The weight of the basket with fish was not taken. The catch in most instances, is initially sold out to the wives of the fishermen who brought the catch. They in turn act as middlemen for other fish mongers either on wholesale or retail basis. The catch finally finds its way to the market centres through the middlemen.

The catch may also be hot smoked before selling to other middlemen.

Medium to large fish species usually obtained by the hook and line method also go through a similar process when the canoes arrive. No ice is normally applied to the catch from the time of landing until the catch gets to the market centres. This period may be considerable (up to 6 hours or more) depending upon the availability of transport. If the time the fish was caught at sea until the catch was landed ashore was also considerable (ie. up to 8 or more hours), then the catch would have warmed up for a period of about 14 hours before being offered for sale or hot smoked. At this point, the quality of the fresh fish would have deteriorated considerably assuming average ambient temperatures of about 28 to 30°C that occur in this part of the country.

5. HANDLING AND STORAGE OF FISH AT FISH MARKETS

Due to the poor handling and storage practices associated with the fresh catch, starting in the canoe at sea, through distribution at landing sites and transportation of catch to the market centres, the catch suffers considerable physical damage and spoilage sets in reducing the quality of fish offered for sale both fresh and even when hot smoked.

Fish boxes for instance, may be over loaded with fish and when the boxes are stacked together the fish get squashed, releasing digestive juices from the gut which start off autolytic breakdown of the fish tissues.

The fresh catch is displayed on open trays for sale, usually without ice. Frozen fresh fish may also be sold similarly. In this case the fish thaw out with time and the quality may be lowered depending upon how long the fish was frozen and any temperature abuse which occurred during storage.

The method of selling fresh catch on open trays is associated with exposure of the fish to dust, flies and heat from the sun, further adding on to contaminate and reduce fish quality. Unsold fish at the end of the day may be kept frozen or hot smoked to prolong shelf life.

6. CONCLUSION

The survey on handling, storage and distribution of freshly landed marine fish among artisanal fishermen along the Accra coastal belt revealed the following practices:

- (i) That fish is not normally iced at sea except for one fishing method (Hook and line)
- (ii) That the practise of maintaining a "cold chain" between harvesting of fish at sea to the time fish is offered for sale is generally non-existent
- (iii) That between landing of catch and its distribution to the market centres, the fish suffers considerable damage and spoilage leading to lowered quality
- (iv) That the fresh catch is sold on open trays without ice exposing it to dust, flies and heat that further lowers the quality of fish
- (v) That poor quality unsold fish at the end of the day may be hot smoked in an attempt to prolong shelf life, however the quality of the smoked material is generally also poor
- (vi) That during bumper catches, fish may be hot smoked until dry and the more stable smoked product may be sold over a longer period.

7. FURTHER WORK

As a follow-up to the above survey, fish samples will be collected at various landing sites and the market centres to determine their quality through physical, microbiological, chemical and biochemical evaluations. Results of the analysis will throw more light on the handling and storage practices that occur. Guidelines for the improvement of fresh fish quality sold on the market will then be proposed for implementation.