

Effect of Trading Time on the Quality of Fish Traded at Navotas Fishing Port Complex

JOSE M. CELIS
Philippine Fisheries Development Authority
Navotas Fishing Port Complex
Metro Manila
Philippines

Background Information About Navotas Fishing Port Complex

The Navotas Fishing Port Complex (NFPC) is the first fishing port and fish market complex placed under the exclusive jurisdiction, control and supervision of the Philippine Fisheries Development Authority (PFDA). Located in the North-eastern section of Manila Bay, it is the largest in the Philippines and in Southeast Asia and is the traditional landing place of commercial fishing boats operating in various fishing grounds.

The project required the reclamation of 67 hectares of land and the installation of essential facilities. It needed more than ₱88 million to become operational through negotiated-loan agreement with the Asian Development Bank (ADB). Its construction spanned three years from August, 1973 to August, 1976 under the direction of the Bureau of Public Works (Ministry of Public Works and Highways).

Harbour operations officially commenced on 15 January 1977 while the market operations started on 3 April 1977.

Before the construction of the fishing port complex, fishing boats had to anchor some 1½ kilometers from the shore and wait for three days or more for the amphibian trucks to take the last tubs from the boat and bring them to the fish market. With the opening of the port, fish are now directly unloaded at the quayside alongside the new market halls.

The improved systems and procedures for harbour and market operations being implemented by the PFDA help in reducing the time required for fish and other aquatic products to reach consumers. Handling has also been considerably improved, resulting in better quality fish reaching the market everyday.

Port and Market Situation

Approximately 1050 fishing vessels use the NFPC. As in the past, Navotas still accounts for some 40% of total commercial fish landings in the country. It also supplies 80% of the total fish needs of Metro Manila.

An average of 20 vessels call port daily while the number of vessels inside the port is 200. The average volume traded is 600 mt of fish nightly.

There are at present 4 market halls used as sites of brisk market activities in the port. Market Halls One and Two have been in use since 13 April 1977, catering mostly to wholesale buyers. The former has an area of 20 x 200 m while the latter measures 20 x 100 m.

Market Hall Three measures 20 x 88 m while Market Hall Four is much smaller, covering an area of 10 x 56 m. Both were established to accommodate retail buyers.

Fish trading begins at 1800 hrs. It is done through whisper auction (*bulungan*) and is participated in by fish brokers and buyers. The brokers act as middlemen between the producers and the wholesale buyers. Each broker has an allocated area where he displays and sells fish on behalf of the fishing boat operators. During this process, the buyers whisper their bids to the broker who after evaluating several bids settles the sale of fish in favour of a particular buyer. The winning bidder in turn, sells it to the smaller buyers or retailers. For this effort and investments (the broker sometimes finance the operation of producers), they (the brokers) receive a commission ranging from 5 to 7% of the gross sales (Fig. 1).

At the harbour, fishing boats and fish carriers calling at the port day and night do the following in sequence:

- a) Communicate to the harbour master their intention to berth,
- b) Berth at the area specified by the harbour master, and
- c) Unload their catch from the vessel to the trading floor.

Assessment of Fish Quality in the Trading Halls

The present study was conducted at the NFPC during trading hours. The first part of the study was conducted during daytime trading and the second part was done in the evening. Round scad (*Decapterus macrosoma*) was chosen for the study since it is most dominant species in terms of volume auctioned at the NFPC. The tubs of round scad was taken from the auction and the samples were evaluated using the sense of sight, smell and feel.

The quality control staff of NFPC assessed

the quality of fish according to the scheme shown in Table 1.

Quality Standard Scheme

According to the scheme, fish are classified into four grades. Grade I, which consists of live fish, is not included in the list as live round scad are not available for the study.

Grade II (Commercial) — fresh fish, consists of iced or chilled fish used for commercial purposes; usually distributed to local markets for consumption; or processed into smoked, dried products, etc.

Grade III (Marginal) — slightly spoiled fish; marginal limit for consumption; processed into *patis* (fish sauce) and *bagoong* products.

Grade IV (off-grade) — spoiled fish; unfit for human consumption; distributed to fish meal processors.

Fig. 1. Fish distribution channel at the Navotas Fishing Port Complex (NFPC).

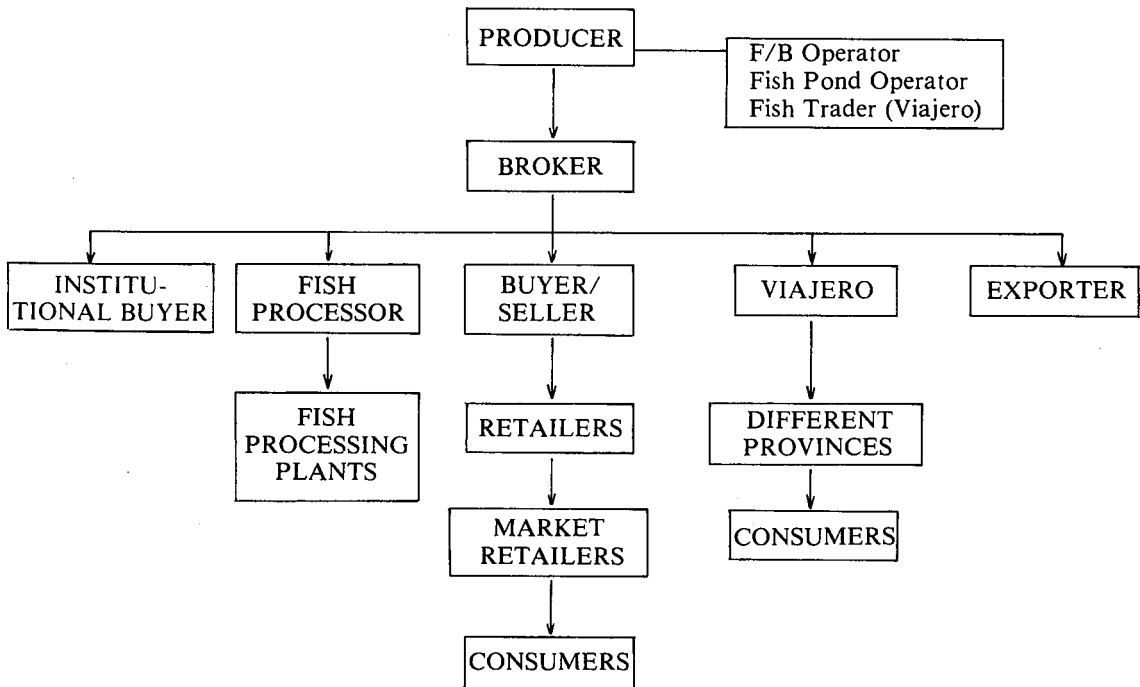


Table 1. Quality Standard Scheme

Characteristics	Grade I (Prime)	Grade II (Commercial)	Grade III (Marginal)	Grade IV (Off Grade)
1. ODOUR	fresh, seaweedy odour	flat to slightly fishy odor	slightly stale but odour not rancid	sour; putrid or stale definite off or foreign odour
2. GILLS	bright red	pale red to brown red	dark brown to yellow brown	yellow pale
3. EYES	clear bright bulging eyes	slightly sunken and cloudy white	sunken dull white	completely sunken, blood shot
4. DEGREE OF FIRMNESS	intact and firm belly wall; firm flesh and elastic	intact and firm belly wall, flesh not firm	soft belly wall	very soft, ruptured belly wall viscera protruding; depression made by finger remains
5. COLOUR	normal; clear, bright and shiny	colour slightly dull or faded	colour discolouration	colour discolouration; skin is abnormal; advanced stage of decomposition
6. PHYSICAL DAMAGE	free from mutilation, deformation and mechanical damage (such as loose scales, bruises and abrasions, cuts and punctures)	slight deformation, mutilation and/or mechanical damage	slight deformation and/or mechanical damage	badly mutilated and deformed due to bruises and other mechanical damage

Results of the Study

The study as shown in Table 2 reveals that there is a marked increase in the percentage for fresh fish Grade II and a corresponding decrease in Grades III and IV. Grade II increased by 57% while Grades II and IV decreased by 23% and 34% respectively.

The results indicated a reversal of the finding in the two studies. In the first study 29% are Grade II, 34% are Grade III and 37% are Grade IV. In the second study 86% are Grade II, 11% are Grade III and 3% are Grade IV.

The marked increase in the percentage of high quality fish indicates a marked improvement in the fish auctioned at the market. Thus, early trading truly proved to be a positive factor in slowing down the deterioration of fish. However, another factor that may have influenced the results of the study is the decrease in the quantity of fish catch due to a lean fishing season and the inclement weather.

The valuable results of the latest quality assessment has therefore provided the Authority with several insights. In its continuing endeavour to determine what factors affect fish quality, the PFDA considers studying the methods, techniques and practices of initial fish handling at the sea.

In intensifying quality control measures, the PFDA, aside from maintaining new trading hours, will enforce the following measures to improve fish quality:

(a) proper stacking of fish tubs (*baneras*) to avoid excessive pressure on the fish, (b) sufficient ice topping, (c) correct packing of fish to the brim, (d) use of non-rusty clean tubs (*baneras*), (e) and strict grouping of *baneras* according to the degree of freshness of the fish to allow minimum contact between fresh and spoiled fish.

With a better quality of fish at hand, it is hoped that people would get better return for their money. Table 2 shows the results of the study.

With the valuable result of the study, the PFDA management consulted the private sector on the proposed changes in trading hours viz from daytime to nighttime. The association agreed to the proposal, after which bill boards were posted in the market halls informing the market participants of the change of schedule of trading time.

Conclusion

The PFDA shall maintain the present

Table 2. Shows the result of the study in terms of percentage (%)

Days	Daytime		
	Grade II	Grade III	Grade IV
1	26%	32%	42%
2	23%	40%	37%
3	38%	30%	32%
Average	29%	34%	37%

Days	Nighttime		
	Grade II	Grade III	Grade IV
1	88%	8%	4%
2	86%	11%	3%
3	84%	14%	2%
Average	86%	11%	3%

trading time in view of the following reasons:

1. Minimise spoilage brought about by lower temperature,
2. The delivery of fish to their different distribution channel is faster at night time due to the smooth flow of traffic thus reaching the consumers in fresh condition,
3. Buying habit of Filipino housewives favours the early part of the day,
4. Investment in different fish processing in-

dustry has been accelerated, and

5. Delivery cost of fish is much cheaper due to the lesser volume of ice needed during night transport.

Base, Antonette. 1977. Fish Market News Bulletin. Volume 1, No. 2 and 3. April to September.

Orejana, Florian Magno. 1980. Philippine Handbook on Fish Processing Technology, 11.