

Restaurant Demand for Fresh, Cultured Grouper in East Timor

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Abstract

The objective of this study is to evaluate the domestic market potential for fresh, cultured grouper, with a focus on the restaurant sector in East Timor. A face-to-face survey was conducted in East Timor restaurants from July 14-24, 2005. The restaurants selected represent the wide range of customer demographics and food types that are found in the three largest cities of East Timor. The final list of restaurants surveyed was selected from the 2003 East Timor State Secretary of Tourism, Environment, and Investment Agency list of registered restaurants. Approximately 20% (16 restaurants) of the restaurants in the capital city, Dili, were surveyed, as well as, restaurants in Baucau (3 restaurants) and Lospalos (2 restaurants). To test whether the types of restaurants (fine dining versus casual); percent of foreign customers; and average dish price influence interest in purchasing grouper, correlation analyses were conducted. The Spearman Correlation tests were all significant at the 0.01, 0.01 and 0.10 levels, respectively. The results revealed that fine dining restaurants, those who served a large percentage of foreigners and restaurants with a higher dish price, are more likely to purchase grouper if it were to become available. In the future, if a grouper aquaculture enterprise were to be established in East Timor, there is a potential to develop the local market for fish sales to restaurants. This could have a great impact on the local economy and employment for the people of East Timor.



Figure 1. Map of East Timor

I. Background

East Timor occupies about 15,007 square km of Timor Island with an approximate population of 1,040,880. The two major cities are Dili and Baucau. Dili, the nation's capital, has a population of 167,877 while Baucau is the second largest city and has a population of 107,571. East Timor is considered part of Southeastern Asia and is located northwest of Australia. During an UN-popular referendum approximately 78% of the population voted for independence from Indonesia on August 30th 1999. It became a sovereign country on May 20, 2002.

Since approximately 75% of the population lives in the rural areas, agriculture is of vital importance to the nation in all respects. The biggest agro-industry in East Timor is coffee production and processing. The second biggest industry is vanilla production and processing.

As a new nation in the 21st century and being considered as one of the poorest countries in Southeast Asia, it is important for the nation to develop its economy in many sectors. East Timor is endowed with vast marine waters having a tremendous fishery potential. The country has 706 km of coastline and is one of the most abundant marine resources in the world. East Timor is rich in fish, shellfish and other aquatic resources. The vast majority of the marine waters are pristine with minimal human interference and untapped fishery resources. With proper management and policies, the marine resources can make a major contribution to the economic viability of the country.

East Timor economy is mainly agricultural and the country uses its fisheries for income and animal protein. Currently, there are around 5,000 fishers. Majority of the fishing fleet in East Timor is dugout canoes, some with small motors. East Timorese fishers main fishing gear are gillnets, beach seines, casting nets, fish traps and hook and line. Some fishers also utilize fish aggregation devices (FADs) to catch fish. Most of the fishers catch are sold through traders or middlemen who visit their landing sites to buy their catch. Most fishing communities have an organized fisher's group.

The prospects for an open-water grouper aquaculture enterprise would diversify the agricultural portfolio of East Timor and enhance income for fishers and workers in fishing related industries. In discussions with GRIM (Gondol Research Institute of Mariculture), a leading research institute in grouper in Bali, Indonesia, East Timor has ideal conditions to culture humpback and orange-spotted groupers. The initial step however, is to find out if there is a market for cultured grouper in East Timor. Currently, there are potentially two lucrative markets for grouper: restaurants and export market. This study focused on the restaurant markets as the infrastructure for export is too great a barrier to overcome at this time. A case in point, there are only two daily flights to East Timor: one from Bali, Indonesia and another from Darwin, Australia and the major markets are in Hong Kong and Singapore.

Figure 2. Humpback Grouper



Figure 3. Aquaculture Pens



II. Objectives:

The objective of this study is to evaluate the domestic market potential for fresh, cultured grouper in East Timor. The survey focused on fresh grouper in the three major areas of East Timor: Dili, Baucau, and the greater Lospalos area. As far as was observed, there are three formal market outlets in East Timor for the sale of fresh grouper. These markets are open marketplaces, grocery stores and restaurants. Another less formal market outlet is the door-to-door sales. The survey focuses on gathering information from the restaurants. The open marketplaces as we observed do not generally sell the very high value fresh fish such as grouper. The grocery stores generally sell frozen and imported fish, which were not the objective the study. It was impossible to gather information on the door-to-door sales as resources were limited at the time. However, some of the door-to-door sales are reflected in the restaurant sector.

Specific Objectives:

- To determine whether there is a domestic restaurant demand for local cultured grouper
- To determine the potential target market for cultured grouper

III. Methods

Primary data was collected using a survey that was conducted during July, 2005 in East Timor. The questionnaire developed for this study consisted of questions on the profile of the restaurants such as seating capacity, types of cuisine, year opened, types of patrons (local vs. foreign), prices of their fish dish, restaurant location; what fish they are currently selling; whether they are interested in buying fresh, cultured grouper; and factors that are critical to purchasing decisions by the restaurants and patrons. The information was gathered using a face-to-face technique. To get a representative sample from East Timor restaurants the following was executed:

Data Collection Methods:

- Consulted the 2003 (State Secretary of Tourism, Environment, and Investment Agency) SSTEI list of registered restaurants
- Every fifth restaurant on the list was selected to survey, however many were out of business.

- Counted the restaurants on the major roads in Dili (Comoro, Farol, Praia dos coqueiros, Metiant and Terminal Becora)
- Interviewed most of the restaurants in Baucau, Com and Lospalos
- The final list of restaurants surveyed was adjusted by further stratifying to take into account: different cuisines, customer profiles, seating capacities, and locations
- The survey period was July 14-24, 2005
- Approximately 20% of the restaurants in Dili (16 restaurants), as well as restaurants in Baucau (3 restaurants) and Lospalos (2 restaurants) were surveyed. The total number of surveys conducted was 21.

The information gathering was aimed at specifically providing data on to the following topics:

- The restaurant demand for locally available finfish (grouper in particular)
- The buying and selling prices for these fish in restaurants
- Factors that are critical to the purchasing of the fish
- Factors that are important to restaurant patrons when deciding what to eat
- Explore the potential restaurant demand for fresh grouper

IV. Results

The study findings are divided into the following sections: restaurant profile, the types of finfish that the restaurants serve, the buying and selling prices of the most popular fish sold in restaurants, the factors that are critical when purchasing fish; the perceived factors that patrons find important in their choice of dish on the menu and restaurant profile factors that enhance their probability of purchasing fresh grouper using Spearman correlation statistics. Finally, some comments regarding the potential demand for fresh grouper from the restaurant sector are made.

Profile of Restaurant Respondents

In total, 21 restaurants were surveyed: 16 in Dili, 3 in Baucau and 2 in the greater Lospalos area (Com and downtown Lospalos). Of the surveyed restaurants, 81% were opened from 1999 to 2002 with the remaining 19% opening since 2003. The seating capacity of the restaurants ranged from 15 to 100, with 29% under 30 persons, 53% between 31 to 60 persons and 24% above 60 persons. Of the restaurants surveyed 24% are considered in the fine dining category and the remaining 76% in the casual dining category. With respect to the cuisine types, 33% served Indonesian, 19% Western (Australian, European, and/or American), 14% East Timorese and the remaining are Portuguese, Japanese, Chinese and other Asian countries. Ten percent of the restaurants predominantly served seafood dishes although all restaurants surveyed have fish on their menu. When asked how many customers they served per day, it had a wide range of 0 to 135. Forty-seven percent of the restaurants served on average 20-50 persons per day, 40% served fewer than 20 persons per day and 10% served over 50 persons per day. The respondent's general comments were that business has slowed with the

departure of some of the UN expatriates. Eighty-five percent of the respondents said that the number of customers had declined since the opening of the business. When asked the makeup of the customers of the restaurants, the response was that on average 64% are foreigners and 36% are local customers. The range is from 0% foreigner to 100% foreigners.

Fish Currently Being Served in Restaurants

- Spanish Mackerel (Serra, Tangiri), *Scomberomorus commerson*
- Giant Trevally (Coco), *Caranx ignobilis*
- Tuna (Kasareta Ikun Kinur and Kassareta), *Thurnus albigeres and Katsuwonis pelamis*
- Grouper (Garopa and Garopa Toke), *Plectropomus maculatus and Epinephelus malabaricus*
- Parrot Fish (Ikanmas)
- Snapper (Banyar, Kakap Merah and Sori Metan), *Lutjanus erythropterus, Lutjanus russelli*
- Barracuda (Bikuda and Alu-Alu), *Sphyrnaena barracuda*
- Salmon (imported)
- Barramundi (imported)

The Top Three Fish Being Served in Restaurants are:

- Spanish Mackerel, served in 43% of restaurants surveyed
- Tuna (including Yellowfin and Skipjack), served in 43% of restaurants surveyed
- Grouper, served in 43% of restaurants surveyed

When asked about the whether they know the sources of the fish they buy from, respondents said they generally come from Dili, Viqueque, Lospalos and Baucau. For the Dili restaurants, most respondents said the fish comes from Dili and Viqueque. The restaurants in Baucau and Lospalos stated that their fish come from their immediate vicinity. As to whether the restaurant can get the specific types of fish year round, the response varies according to the type of fish. 89% said they can get tuna year round. For seventy-five percent of the restaurants said they can get Spanish mackerel year round and 50% said they can get grouper year round.

Table 1. Average Buying and Selling Prices for the Top Three Fish

Fish Served	Purchase Price (US\$/kg) (Mode)	Menu Price (US\$/dish) (Mode)
Spanish Mackerel	\$2.34/kg (\$2.00)	\$6.20 (\$7.00)
Tuna	\$3.70/kg (\$2.50)	\$4.19 (\$.75, 1.00, 6.50)
Grouper	\$3.21/kg (\$2.50)	\$7.32 (\$8.00)

The average purchase price for the most popular fish served in restaurants ranged from \$2.34/kg to \$3.70/kg, depending on the type of fish. If one looks at the mode of the purchase prices of the three fish, the purchase price range is smaller (\$2.00 to \$2.50). The smaller price range of the different fish is attributed to the sellers' lack of knowledge of price differentiation among sizes and types of fish. On the other hand, the menu prices for each type of fish vary quite a bit. If one looks at the mode of the menu prices for Spanish mackerel and grouper, they are close to the average prices, however, for tuna there are three modes (\$.75, \$1.00 and \$6.50). For grouper, whereas the mean and the mode prices do not have a wide gap, this could be due to the fact that grouper is frequently prepared as whole grilled fish rather than mixed with vegetables. For tuna, depending on how it is cooked the menu price may be cheaper or dearer depending on how it is prepared (e.g. mixed with vegetables or starches). However, tuna is more expensive if sold in larger size fillets.

To get an idea of the amount of fish used by the restaurants, the respondents were asked about the serving size and the number of servings sold per day. About 50% of the respondents were able to respond to the above questions. When asked about the serving size of Spanish mackerel, tuna and grouper, the average responses were: 0.29 kg, 0.28 kg, and 0.38 kg respectively. With respect to the number of servings sold per day, they were 4, 6, and 6 for Spanish mackerel, tuna, and grouper, respectively.

Criteria Used by Restaurants When Purchasing Fish

The restaurants were asked to define/describe some of the most important criteria used in purchasing fish for their businesses. The most important criterion is freshness (68%) followed by the size of the fish (33%), as determined by the individual restaurant needs. For restaurants that serve buffet, they prefer to buy fish that weighs more than 10 kilograms. Both price and type of fish were not as important criteria. However, when asked what types of fish they wish to buy, they chose Spanish mackerel and grouper.

Factors that Limit Fish Sales in Restaurants

There were a number of factors mentioned to the respondents with respect to limiting their fish sales in restaurants. They were asked to rank the constraining factors. The most constraining factor mentioned was "not enough customers" (42%). The second most constraining factor was "not enough fish" for purchase (46%). The reason for "not enough customers" is that restaurants have seen a decline in customers since 2002, when UN personnel began leaving the country. The reason for "not enough fish" for purchase is that the respondents stated that consistent supplies of high quality fish are not available to restaurants.

Criteria Used by Customers When Ordering in the Restaurant

When asked what the most important factors are that help customers make up their mind in choosing a dish, the respondents overwhelmingly stated that the style of cooking (83%) was the first priority. The price factor comes in a distance second, at 11%. The average price of a dish in the restaurant is \$6.9 and the average expenditure per person is \$10.4.

Potential Domestic Market:

Restaurants showed a desire for a regular and consistent supply of high quality, fresh fish. In general, the restaurants are not able to list the type of fish on their menu except for imports due to the uncertain local supply. With consistent supply from the sellers, the restaurants might be willing to pay more for live fish, as price was not an issue for restaurant patrons. It has been observed that the fishers are selling the larger size, higher valued fish to the restaurants and the smaller size, lower valued fish to the open marketplaces. For the restaurant sector, the price differentials between the purchase price and the menu price are rather large; this possibly could allow the market to adjust toward a higher purchase price paid to the seller/farmer. This might mean less profits to the restaurant owners. However, restaurant owners might pass on the higher price paid to the fish traders and still increase their total revenues depending on the price and income elasticities for demand.

To find out what types of restaurants are more likely to be interested in purchasing fresh cultured grouper, Spearman correlation tests were conducted between restaurants interested in purchasing grouper and restaurant type, percent of foreign patrons and average dish price. They were significant at the 0.01, 0.01, and 0.10 levels, respectively (See Table 2).

Table 2. Spearman Correlation between Interest in Purchasing Grouper and Types of Restaurant, Percent of Foreign Patrons and Average Dish Price

Restaurants interested in purchasing grouper Yes = 1 No=2	Restaurant Type	0.555**
	Fine dining = 1	
	Casual dining = 2	
	Percent of Foreign Patrons	- 0.635**
	Average Dish Price	- 0.357*

*significant at the 0.1 level

**significant at the 0.01 level

Summary of the results are shown as follows:

- 80% of the restaurants surveyed were opened in 2003
- 71% have a seating capacity between 30-60
- Average price of dishes is \$6.42

- Freshness is extremely important for restaurant buyers
- Price is not the first consideration for patrons in ordering a dish
- Top three fish served in restaurants are Spanish mackerel, tuna, and grouper
- 47% of restaurants surveyed would be interested in purchasing cultured grouper
- Fine dining, higher foreign patrons and higher dish price restaurants are more likely to be interested in purchasing fresh grouper

V. Conclusions and Implications

Based on this study there is a potential to develop a local market for cultured grouper. The marketing strategy is to target restaurants categorized as fine dining and serves mostly foreigners. Success in the new industry will enhance more full-time employment of fishers and replace imports. More employment will be generated indirectly to those who supply inputs to the grouper industry. As household incomes grow, the market for grouper will grow. Furthermore, an increase in tourism would motivate the restaurant demand for fresh grouper species.

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Useful websites for information and grouper statistics:

- <http://www.fao.org>
- <http://www.afcd.gov.hk>
- <http://aarm.ait.ac.th/projects/arp/Singap.htm>
- http://en.wikipedia.org/wiki/Republic_of_China
- http://en.wikipedia.org/wiki/Hong_Kong
- <http://www.census.gov/ipc/www/worldpop.html>
- <http://www.census.gov/cgi-bin/ipc/idbrank.pl>
- <http://www.enaca.org/grouper/>
- <http://www.hk-fish.net>
- http://www.hk-fish.net/eng/market_price/common_e_2005_july.htm
- <http://www.reefcheck.org/datamanagement/>

VII. Appendix

Fish Restaurant Survey

District: _____ Date: _____
Name of Restaurant: _____ Address: _____
Job position of respondent: _____ Gender: (circle one) M F

1. What year was this restaurant established?
2. What is the maximum seating capacity of the restaurant?
3. How many customers do you serve, on average?
Per weekday: _____ Per weekend day: _____
4. Has there been an increase in customers since the restaurant was established?
5. How would you classify this type of restaurant? (Circle one)
Fine Dining Casual Dining Other (please specify): _____
6. What type of food do you serve?
7. Do you currently have fish on your menu? (Circle one) Yes No

-If no, skip to question 15-

Fish Item (menu item and type of fish used)	Purchase price (specify bundle or count amts.)	Where did you buy the fish? (M/W/R)*	Menu Price	How much fish is used per serving? (oz.)	Is this a seasonal fish? (Y/N)	If so, what season? (Sp/Su/F/W)	Servings sold (specify day or week)

8. Would you like to sell more fish dishes? (Circle one) Yes No

-If no, skip to question 11-

9. How many more fish dishes per day would you like to sell?

10. Which type of fish would you like to sell more often?

11. What are the constraining factors that limit fish sales in the restaurant? (Rank by order of most constraining, 1 being the most constraining)

Limited fish available at market

Customer preference

Limited customer availability

Other: _____

Other: _____

12. How do you cook your fish? (Check all that apply)

Fried

Baked

Broiled

With a sauce

Other (please specify): _____

13. What is the average price of your fish dishes?

14. What are your criteria when purchasing fish? (Rank in order of importance, 1 being most important)

Type of fish

Price

Size of fish

Availability of fish type

Freshness

Other (please specify): _____

-Skip to question 18-

15. Would you like to have fish on your menu? (Circle one) Yes No
16. What type of fish would you like to serve?
17. What factors affect the addition of fish to your menu? (Rank in order of importance, 1 being most important)
- Market price
 - Availability of fish
 - Customer demand
 - Type of fish available
 - Other (please specify): _____
18. What size and type of fish would be most ideal for purchase?
- Type: _____ Size: _____
19. Would you be interested in purchasing the following fish for your restaurant? (Circle responses)
- Grouper: Yes No
- Yellowfin Tuna: Yes No
20. What other menu items does this restaurant sell? (Check all that apply)
- Beef
 - Chicken
 - Pork
 - Seafood (other than fish)
 - Vegetarian
 - Other (please specify): _____
21. What is your most popular dish, and/or house specialty?
22. Rank in order of importance the customer's decision to pick a dish (1 being most important):
- Price
 - Type of Meat
 - Style of Cooking
23. What is the average price of your dishes?
24. What is the average expenditure per person?
25. Do you sell alcoholic drinks? (Circle one) Yes No

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