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## Consumer Behavior Towards Freshwater Fish Consumption: A Case Study in *Tangalle*, Sri Lanka

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### Abstract

The primary purpose of this study was to examine consumer behavior towards freshwater fish consumption in *Tangalle*. Then, it investigated the existing freshwater fish production and marketing system in *Tangalle*. Third objective was to suggest the ways and means of enhancing freshwater fish production and marketing. A questionnaire survey was conducted using a convenience sample of 50 consumers in *Tangalle* city in Sri Lanka. Wilcoxon signed rank test was employed to analysis the data. Small scale capture fishery occurs in *Kudupiriwila* and *Kattakaduwa* reservoirs which are located close proximity to *Tangalle*. Majority of fishermen catch fish daily from the reservoirs and sell it by themselves. Usually, one kilo gramme of freshwater fish is sold around 200-300 rupees. *Thilapia*, snakehead murrel, catfishes, barbs and eels are the most demanded freshwater fish varieties in *Tangalle*. Consumers have favorable attitudes towards freshwater fish consumption except for its smell. In *Tangalle*, freshwater fish are available at affordable prices. Consumption of freshwater fish is suitable for consumer's budgets. Findings revealed that consumers are thorough in both product and process knowledge of freshwater fish. This research concludes that consumers from *Tangalle* city have a preference to consume freshwater fish. Therefore, development of freshwater fishery production and marketing around *Tangalle* city is proposed. Establishment of freshwater fish breeding and rearing center by NAQDA regional center in *Ranna* is suggested to cater the demand arising from fish farmers. CFC retail outlets, supermarkets and private fish marketing shops in *Tangalle* are suggested as formal and potential retail outlets for freshwater fish marketing.

**Key words:** Consumer behavior, Consumption, Freshwater fish, Price

### Introduction

Sri Lankans have a remarkable appetite for fish (Dushani, 2011). Findings of the Medical Research Institute of Sri Lanka have indicated that an average per capita consumption of 60 grams of fish per day would be a satisfactory level to ensure adequate nutritional status. This nutrient requirement can be provided using both marine fish and inland and aquaculture fish consumption. In terms of food availability, in Sri Lanka current net fish production does not meet the demand. According to fish balance sheet in 2009, per capita fish availability is 31 grams per day which is approximately half of the recommended nutritional status. This shortage can be filled by increasing both marine fish production and inland and aquaculture fish production.

The freshwater fishery is composed of inland fishery and aquaculture. In Sri Lanka, freshwater habitats consist of rivers, numerous streams, and extensive marshes, many small permanent and seasonal ponds. There are also numerous man-made freshwater

habitats. The most popular freshwater fishes are *Thilapia*, Snakehead murrel, Eel, Slender rasbora, Stinging catfish, Walking catfish, Barb, Tank goby, Longwhiskers catfish, Climbing perch, Chinese carps; namely grass carp, silver carp and bighead carp and three major Indian carps, catla, rohu and mrigal are of particular importance to freshwater aquaculture. In addition, there are freshwater shrimps (*Macrobrachium* spp.) (FAO, 2012).

Marine fish are readily available in *Tangalle*. However, aquaculture and inland fishery production and trading are still not evident in *Tangalle*. There are some inland water bodies such as *Kudupirivila* reservoir and *Kattakaduwa* reservoir near by *Tangalle*. Although, these inland water bodies have a potential to develop freshwater fishery, first it is essential to find out whether consumers have a preference for consumption of freshwater fish. Therefore, main objectives of this study were:

To investigate the consumer behavior towards freshwater fish consumption To examine the existing freshwater fishery production and marketing system in Tangalle

To find out ways and means of enhancing freshwater fishery production and marketing

### Materials and methods

To achieve the objectives of this study, the relevant data and information were collected through primary and secondary data sources. Secondary data were collected from research articles, from the statistics reports of Ministry of Fisheries and Aquatic Resources Development and through internet. Primary data were collected using a field survey. *Tangalle* city was selected as the study area. Fifty consumers who usually consume fish were taken for the sample. Convenience sampling was used considering the ease of access to the respondents. A questionnaire was formulated to collect primary data related to consumer behavior. It was pre-

tested and modified according to the given comments of the respondents. The questionnaire was used as the major tool of primary data collection in addition to informal discussions held with the participants. Data were analyzed by using Wilcoxon signed rank test.

### Results and discussion

Small scale capture fishery occurs in *Kudupiriwila* and *Kattakaduwa* reservoirs which are located close proximity to *Tangalle* city. *Udawalawa* National Aquaculture Development Authority (NAQDA) provides juvenile freshwater fish of *Thilapia*, Carp, Catla and Rohu to the fish farmers. Then, farmers release fingerlings into the reservoirs. *Ranna* and *Kattakaduwa* also have the NAQDA freshwater prawn breeding centers. *Thilapia* and some carnivorous varieties such as snakehead murrel, catfishes, barbs and eels are the most common freshwater fish varieties in *Tangalle*. Majority of fishermen catch fish daily from the reservoirs and sell the catch by

**Table 1 : Result of the Wilcoxon signed rank for consumer behavior variables**

Variables	Mean	Remarks	Z value
<b>Attitudes towards freshwater fish</b>			
Taste	1.50	SA	5.06*
Texture	0.52	A	2.91*
Smell	0.54	A	1.74
Appearance	1.30	A	4.68*
Nutritious	1.68	SA	5.44*
Healthy	1.64	SA	5.86*
Safe	0.58	A	2.29*
Accepted by the religion	1.08	A	3.57*
<b>Convenience and availability of freshwater fish</b>			
Retail outlets for fresh water fish are available	0.90	A	3.65*
Different fresh water fish species are easily available	1.26	A	4.69*
Easy to prepare the freshwater fish for cooking purpose	1.52	SA	5.21*
Easy to cook in many different ways	1.62	SA	5.80*
Suitable to cook delicious fish dishes	1.76	SA	5.65*
<b>Price and value of freshwater fish</b>			
Freshwater fish is very expensive	-1.02	DA	-3.88*
Eating freshwater fish is suitable for my budget	1.64	SA	5.50*
Eating freshwater fish is good value for money	1.66	SA	5.75*
I would like to eat fresh water fish because it is economical	1.06	A	3.86*
<b>Knowledge regarding freshwater fish</b>			
I have a knowledge about how to evaluate the quality of fresh water fish	1.56	SA	5.54*
I have a knowledge on preparation of freshwater fish for consumption	1.70	SA	5.86*
I know different methods of preparing various fish dishes	1.70	SA	5.86*
I have a knowledge on the nutritional value and healthiness of eating freshwater fish	1.70	SA	5.86*

SA, Strongly agree; A, Agree; DA, Disagree \*Significant at 0.05

themselves. Usually, one kilo of freshwater fish was sold around 200-300 rupees.

Consumer behavior towards freshwater fish consumption was measured using attitudes, convenience and availability, price and value, knowledge regarding freshwater fish and fish consumption frequency. Consumers had significantly favorable attitudes towards freshwater fish consumption except for smell of the freshwater fish (Table 1).

Respondents preferred taste of the freshwater fish because of their specific taste. They believe that freshwater fish are blood rich food hence highly nutritious and healthy. Most of pregnant mothers and breast feeding mothers are given freshwater fish to enhance nutritive value of their body. Muslim people in *Tangalle* make "roti" using the eel slime and believe that eel slime act as a good medicine for reducing rheum of human body.

Findings of this research revealed that freshwater fish are available in the fish market of *Tangalle* but in a small quantity. As majority of the respondents consume freshwater fish once a month, this availability is sufficient for them. According to the findings, freshwater fish are easy to prepare for cooking purpose in many different ways such as "*Ambulthiyal*", fry and curry.

All the items taken under price and value of freshwater fish were significant. It emphasized that consumers can afford prices of freshwater fish. Further, consumption of freshwater fish is suitable for their budgets as it is economical and provides a good value for money. Respondents were thorough in product knowledge as well as process knowledge which were related to freshwater fish.

Consumers have a preference to consume freshwater fish. Therefore, development of freshwater fishery production and marketing around *Tangalle* city is proposed. However, if fish farmers need to commence a

freshwater fishery, they should go to *Udawalawa* NAQDA to buy freshwater fish juveniles. It requires travelling a long distance from *Tangalle* to *Udawalawa*. In order to promote freshwater fishery production, establishment of freshwater fish breeding and rearing center nearby *Tangalle* is essential. NAQDA regional center in *Ranna* can initiate this project and should cater the demand arising from freshwater fish farmers. Further, fisheries extension officers should disseminate knowledge and skills about freshwater fish production using the best suited freshwater fish species to this region. Ceylon Fisheries Corporation retail outlet in *Tangalle*, supermarkets and private fish marketing shops in *Tangalle* are suggested as formal potential retail outlets for freshwater fish marketing.

### Conclusion

The findings of this study indicate that consumers from *Tangalle* city have a preference to consume freshwater fish. However, there is a problem of freshwater fish production as fish farmers should go to *Udawalawa* NAQDA to buy juvenile freshwater fish for farming. "Fish market" in *Tangalle* city is the only place where freshwater fish are available sometimes but in small quantities. Therefore, there is a necessity of establishing formal markets for freshwater fish marketing.

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