

Seafood Labelling: Awareness and Perception Among Consumers of Organized Fish Retail Outlets in India

* Pankajkumar Hanmantrao Mugaonkar

**Nalini Ranjan Kumar

***M. Krishnan

Abstract

The study investigates the awareness and perception about seafood labelling among seafood consumers in India, and also provides insights into 'what exactly do consumers seek from seafood labels?' This indirectly revealed the consumers' knowledge about seafood labelling. In total, 120 consumers were interviewed in organized retail stores in Pune during July - October 2012. Importance of seafood labelling leads to better buying, better and balanced nutrition, ensuring only good-quality products are purchased by the consumers, and consumers are not deceived into purchasing sub-standard products. It was found that 92.5% of the consumers were aware of seafood labelling. Likert scale was used to rank the importance accorded to the details given on the labels of seafood products by consumers. The true nature of the product was ranked as the most important detail on the label by 100% of the respondents followed by the name of the fish/product by 97.5% of the respondents, and nutritional information was rated as the most important detail by 96.67% of the respondents. Origin of the fish/ seafood products was given the lowest ratings by 38.33% of the consumers. Furthermore, it was found that 69% of the consumers always read the seafood labels, whereas 7.5% of the consumers never read the same. Maximum likelihood estimates revealed that though the educational level of the respondents was the most important determinant of frequency of reading seafood labels, it showed a negative effect. Marginal effects of increase in income indicated an increase in likelihood of reading seafood labels more frequently; that is, always. The marginal effects in case of family size and awareness were the same. 95% of the respondents never came across any 'mislabelled seafood,' and 75% of the respondents demanded common seafood certification labels. To conclude, there is a dearth of awareness regarding seafood labelling in our country, and consumers need to be better informed about seafood labelling, its importance, and certifications. This will ensure that only good quality products are purchased by the customers.

Keywords : seafood labelling, organized fish retail, certifications, food quality

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Label is any information that is supplied with a product and works as its identity. The contents of a label depend upon on the applicable legislation in the country. It can range from the label attached to the product, or to advertising through radio or digital media (Seafish - The Authority on Seafood, 2011). Rational consumers always seek quality products at reasonable prices. The label provides information about a particular product, its external features, and nutritional contents of the products. Labelling not only reflects the products' identity, but also the manufacturers' or producers' approach towards social or consumer responsibility. Traditionally, labelling of a product was done only for two purposes - to show the price and weight of the product. However, modern views and standard practices involved in protecting public health have added a different set of dimensions to labelling.

The problems of distorted information between producers and consumers got reduced by the label. It has its importance in reducing the search cost for consumers. It acts as a tool in promoting and protecting public health, and also has special importance in marketing and product promotion. Report of WHO-FAO on diet, nutrition, and the prevention of chronic diseases suggested that nutritional labels are an important means of making choices and have

*Ph.D. Research Scholar, Room No. 218, New Boys Hostel, Central Institute of Fisheries Education, Off Yari Road, Andheri (West), Mumbai - 400 061. E-mail : pankajmugaonkar@gmail.com

** Principal Scientist, Central Institute of Fisheries Education, Fisheries Economics, Extension and Statistics Division, Fisheries University Road, Seven Bungalows, Andheri (W), Mumbai - 400 061. E-mail : nrkumar@cife.edu.in

*** Head & Principal Scientist, Central Institute of Fisheries Education, Fisheries Economics, Extension and Statistics Division, Fisheries University Road, Seven Bungalows, Andheri (W), Mumbai - 400 061. E-mail : mkrishnan@cife.edu.in

access to nutrient-dense foods. Accurate, standardized, and comprehensive information about the content of food items is conducive in making healthy choices (Food Safety in India, 2011). Food processors disclose nutritional information on their food labels to help the consumers in making choices (Kumar & Ali, 2011a). All legal and informal matters regarding disclosure of information on food labels in India are governed by Prevention of Food Adulteration Act, 1954 under Packing and Labelling of Food Parts VII of Prevention and Food Adulteration Rules, 1955. It has been made mandatory to disclose health and nutritional claims on food labelling (Food Safety in India, 2011). Globally, consciousness of consumers towards their health and environment is increasing, which is changing the fundamentals from a product-specific approach to a consumer specific approach, and hence, highly innovative and developed markets are concentrating on consumer's interests in today's world.

Labeling has been the most important issue while serving seafood to consumers. Countries like Australia and New Zealand are focusing on the issue more seriously. The Food Standards of Australia and New Zealand (FSANZ) put forward few reasons why fish labeling is an important issue :

- 1) Consumers have a right to make informed choices when purchasing and must have confidence in correct labelling.
- 2) Create greater consumer confidence in purchasing a healthy and nutritious food product.
- 3) Some species of seafood may cause problems to susceptible populations, ranging from allergies to serious illness.
- 4) Misleading or deceptive conduct when selling any product must be avoided.
- 5) It is essential for product traceability for seafood quality and safety.
- 6) It improves outcomes and return on investments from fisheries' research and stock assessments.
- 7) It improves effectiveness of seafood marketing and promotion (FSANZ, "Fish Mislabelling Survey Commonly Asked Questions", n.d.).

The above mentioned efforts taken by developed countries reveal that consumers are demanding transparency with respect to quality and nutritional aspects of food products, thereby securing their health. Recently, few reports like, "1 out of every 3 fish sold in the United States is mislabelled" appeared in newspapers that shows the need of stringent seafood labelling and seafood certification (Hall, 2013). Seafood fraud can happen at every step of the supply chain – the restaurant, the distributor, or the processing and packaging phase (Oceana, 2013). Developing countries like India are also updating their standards to raise the bar to the next level in order to secure the health of their consumers.

Objectives of the Study

Growing consumer base in India for fish consumption equally deserves protection and health safety. In the Indian context, there is hardly any study which explores awareness about seafood labelling and its importance among consumers. Therefore, it was imperative to undertake such a study that estimates the consumers' awareness about seafood labelling and its importance. In traditional markets of India, seafood is sold without any label. However, modern retail outlets sell labelled seafood in major cities. Pune being one of the large and growing cities was chosen for the study with the following specific objectives:

- (a) To assess the awareness of consumers about seafood labelling and its importance.
- (b) To study consumers' behaviour about reading seafood labels and their perception regarding different components of labels.
- (c) To understand the factors affecting consumers' behaviour of reading seafood labels.
- (d) To suggest suitable measures to improve the habit of reading labels before buying seafood.

Review of Literature

In the Indian context, Food Safety and Standards Act (FSSA), 2006, has played a vital role in implementing food safety and standard benchmarks across the country. Several studies reflected the importance of the food labelling. Kumar and Ali (2011b) claimed that the intention of food processors behind food labelling is to facilitate the consumers in making informed choices. Online consumer opinion surveys claimed that most Indians check the nutritional label when

purchasing a product for the first time. According to A. C. Nielson (2005), intentionally, 'seafood labelling' is the same as 'food labelling,' with the only difference that it specifies aquatic food products. In the Indian context, there is a dearth of studies with respect to 'seafood labelling' and its importance to consumers. Pieniak and Verbeke (2008) said that seafood labels are a good and effective source of information. Also, seafood labels provide opportunity for effective and efficient communication. Aprile and Annunziata (2005) confirmed the interest of the consumers in information conveyed through labels. This confirmation was reflected by the consumers' frequency for reading labels, and degree of importance given by the consumers to labels. Labelling or certification schemes influence consumer seafood choices, and a higher preference was given to labelled aquaculture products (Fernandez-Polanco, Mueller – Loose, & Luna, 2013).

Murali (2006) and Baisya (2007) found that 41% of the consumers checked nutritional labels while purchasing a product, and consumers are more concerned about nutritional information on labels when buying food products for children. Intodia (2011) said that the government's intervention for nutritional labelling is aimed at achieving social goals related to improved health status of the people. Furthermore, the author also said that it is equally important to educate consumers about the use of labels through different awareness programmes. Giri and Sharma (2012) reported that the factor 'Product Labelling and Message' had the second most highest impact on buying behaviour of consumers. Also, information labels on food packs have a great impact on the consumers' buying behaviour. The abovementioned studies have shown the need and importance of studying consumers' perception about 'seafood labelling'.

Methodology

↳ **Location of the Study and Sampling Design :** The survey was carried out in the organized retail outlet in Pune, Maharashtra. Pune district in Maharashtra has shown a considerable increase in the consumption of fish. Major traditional markets in the city - 'Shivaji market' and 'Ganeshpeth' market fulfil the local demand for fish. Before selecting Pune district for the present study, wholesalers and retailers were interviewed to get information about Pune's fish market as part of the pilot study. These markets daily record a turnover of 50 to 60 tonnes of fish. This shows that there is a huge demand for fish in Pune markets. The study was planned keeping in view the developing interest of consumers' in buying fish from organized retail. Being one of the major organized retail chains in meat and fish category, Reliance's 'Delight' in Pune City was selected for the study. A pre-tested interview schedule was used to conduct the survey. 120 respondents, who were randomly selected, agreed to participate in the study. Likert's psychometric scale was used to scale the responses of the consumers in order to ascertain the importance they assigned to details given on the seafood label. The chosen details were - name of fish/fish product, nutritional information, true nature of the product, origin of fish, expiry date, and percent labelling. A five point scale was used with the '*most important*' to '*not at all important*' rating (1 for *most important*, 2 for *important*, 3 for *moderately important*, 4 for *least important*, and 5 for *not at all important*).

In order to identify the factors affecting reading frequency of seafood labels, ordered probit model was used, and marginal effects and coefficients were estimated. The ordered probit model (OPM) was estimated by maximum likelihood. The model is described as follows:

$$y^* = \beta'X + \varepsilon, \varepsilon \sim N(0,1) \quad (1)$$

y^* = latent index of reported frequency of reading seafood labels,
 x = vector of independent variable,
 β = vector of regression coefficients,
 ε = vector of stochastic error term.

Once y_i^* crosses a certain value, we have to report *never*, then *rarely*, then *sometimes*, then *always*. The observed y_i is related to unobserved y_i^* . The threshold value was determined by the statistical software used, that is, STATA.

Where $y_i = (0, 1, 2, 3)$ for (*never, rarely, sometimes, always*)

The simple explanation of analysis is given below:

$$\begin{aligned}
 0 &= \text{Never} & \text{if } y_i^* < u_1 \\
 1 &= \text{rarely} & \text{if } u_1 < y_i^* < \text{equal to } u_2 \\
 Y_i = 2 &= \text{Sometimes} & \text{if } u_2 < y_i^* < \text{equal to } u_3
 \end{aligned}$$

3 = Always if $u_3 < y_i^* < \text{equal to } u_4$

Where, (u_1, u_2, u_3, u_4) are unknown threshold values. In OPM, the error term (ε) is distributed normally with mean 0 and variance 1. The probability of any observed outcome $y = m$, given that x can be calculated by using this equation, β_0 or t is constrained to 0 to identify the model.

$$Pr(y_i = m | x_i, \beta, t) = F(t_m - x_i \beta) - (t_{m-1} - x_i \beta) \quad (2)$$

Maximum likelihood estimation was used to regress y_i^* on x . In OPM, the sign of estimated coefficients and the statistical significance indicates the direction of response associated with presence or category of a particular variable. Probability of the respondent making each of the four choices was computed from estimated coefficients by using the following expression (Greene, 1998):

$$\frac{\partial P(y=j)}{\partial x_k} = \{\varphi(\mu_{j-1} - \sum_{k=1}^k \beta_k x_k) - \varphi(\mu_j - \sum_{k=1}^k \beta_k x_k)\} \beta_k \quad (3)$$

Where, $\frac{\partial P(y=j)}{\partial x_k}$ is the derivative of probability with respect to x_k , and β is the ordered probit x_k 's parameters. The ordered probit model was used to estimate the coefficients and marginal effects. These estimates were obtained by using statistical software STATA 11.

Results and Discussion

The socioeconomic background of individuals affects their buying and consumption behaviour. Therefore, the socioeconomic information of the sample consumers was obtained and is presented in the Table 1. Perusal of the table indicates that the average age of the respondents was 41 years, and they had attained 16.34 years of schooling. The average family size of the consumers was 4.45, and the respondents were earning ₹ 39,067 per month per family. This shows that people having higher educational levels and belonging to the high income group were buying fish from organized retail outlets. This finding is consistent with the findings obtained by Sheela (2010), who also found that the consumers belonging to the higher income group with higher education shopped in organized retail stores.

Table 1. Socioeconomic Profile of the Sample Consumers

Variable	Mean
Age (yrs)	40.85
Education (yrs of schooling)	16.34
Family size (No.)	4.45
Income (₹ in lakh/annum)	4.57

Source: Primary Data

Table 2. Respondents' Awareness and Perception About Seafood Labels

	Frequency	Per cent
Are you aware about seafood labels?		
Yes	111	92.5
No	9	7.5
Importance accorded to reading seafood labels in purchase decision of seafoods		
Most important	98	81.6
Important	17	14
Moderately Important	5	4.2
Least important	0	0
Not at all important	0	0

Source : Primary Data

Furthermore, 95.83% of the respondents were male and 4.16% of the respondents were female. Majority of the respondents were employed in the private sector followed by government employees and respondents who were self-employed.

✎ **Awareness and Importance of Seafood Labelling** : It was found that the knowledge of Indian consumers regarding awareness and proper use of seafood labels was limited. The awareness of consumers about seafood labelling was ascertained and their perceptions regarding the same are presented in the Table 2. We were happy to observe that 92.5% of the respondents were aware about seafood labelling. This shows that sizable portion of the respondents were aware about seafood labelling. Kumar and Ali (2011b) also found satisfactory levels of awareness regarding food labels among consumers. Pieniak and Verbeke (2008) found that labels are a good and market effective source of information. The studies discussed in this section indicate the importance of awareness regarding seafood labelling. Majority of the consumers (81.6 %) perceived seafood labelling as the most important criteria for buying seafood. For 14% of the respondents, seafood labelling was important, while 4% of the respondents perceived it be of moderate importance. This reflects that the consumers gave sufficient importance to seafood labelling. It also indicates their interest in seafood labelling while deciding to buy fish and fish products.

Table 3. Importance of Specification on Seafood Labels

Attributes	(1)	(2)	(3)	(4)	(5)
Name of fish/fish product	97.50	2.50	0	0	0
True nature of the product	100	0	0	0	0
Nutritional Information	96.67	3.33	0	0	0
Origin of fish product	11.67	10.83	20.00	19.17	38.33
Percentage labelling*	4.17	8.33	36.67	10.83	40.00
Expiration dates	50.83	40.83	7.50	0.83	0.00

1- most important to 5 - not at all important

*The labelling of the proportion of characterizing ingredients and components is often referred to as 'percentage labelling' (FSANZ, n.d.. Percentage labelling of food)

Source: Primary Data

Table 4. Consumers' Frequency of Reading Seafood Labels

	Frequency	Per cent
Never	9	7.5
Rarely	12	10
Sometimes	17	14.17
Always	83	69.17

Source: Primary Data

✎ **Importance Assigned by Consumers for Specifications of Seafood Labels** : Food processors disclose nutritional information on their food labels to assist the consumers in making informed choices as per their corporate strategy (Baltas, 2001; Kumar & Ali 2011a). Also, in five European countries - Belgium, Denmark, The Netherlands, Poland, and Spain, consumers were found to be familiar with information or specifications like expiry date, price, species name, and weight (Pieniak & Verbeke, 2008). Labels assist consumers in determining the nutritional value (Higginson, Rayner, Draper, & Kirk, 2002 ; Wandel, 1997). Though nutritional information is considered to be an important criterion in food purchases (Kiesel, McCluskey, & Villas-Boas, 2011), consumers assigned the 3rd position to seafood nutrition among 6 selected attributes on seafood labelling (Table 3). However, Murali (2006) and Baisya (2007) found that 41% of the consumers checked nutritional labels while purchasing a product and consumers were more concerned about nutritional information on labels while purchasing food items for children. Furthermore, 97.50% of the respondents mentioned that the name of the fish/fish product was the most important specification given on the seafood label. 100% of the respondents claimed that the true nature of the product was the most important specification on the

label. This may be due to lack of confidence in the nutritional information provided on the package. For consumers, the nutritional value of the food item was more important than its taste. This indicates the need to build trust among the consumers about the effective and efficient nutritional labelling of seafood items. Since the respondents were highly educated, one could expect that they would lay emphasis on knowing the 'origin' of the seafood items they were purchasing. However, it was surprising to observe that only 11.67% of the respondents quoted origin of the fish product as the most important attribute and 38.33% of the respondents denoted it to be not at all important. This particular specification helps in buying quality fish products, and hence, there is a need to spread more awareness among the consumers about the importance of 'origin of fish products'. Percentage labelling was perceived to be moderately important by 36.7% of the respondents, and 40% of the respondents considered it to be not at all important. 50% of the respondents accorded the highest importance to expiry dates, and 40.8% of the respondents quoted it to be important.

Frequency of reading labels and degree of importance attached to it indicates consumers' interest in the information they got through labels (Aprile & Annunziata, 2005). This makes sense in understanding the consumer's knowledge about processed food products. To understand the consumers' awareness about seafood labelling, its importance, and how often the consumers read labels, respondents' responses were tabulated and are presented in the Table 4. Frequency of reading seafood labels regularly or always was 69.17%. 7.5% of the respondents never read the seafood label, and 23% of the respondents did not read the labels regularly. In developing countries like India, the processed food market accounts for 32% of the total food market, and is growing with urbanization (Mahajan, 2012).

Table 5. Maximum Likelihood Estimates of Socioeconomic Characteristics of Consumers

Variable	Coefficient	t -statistic	p-values
Age	-0.0015399	-0.07	0.942
Income	0.7465217	0.52	0.606
Years of Schooling	-0.1607486***	-2.41	0.016
Family Size	0.171512	0.12	0.903
Occupation	-0.1233259	-0.83	0.406
Awareness	1.108176***	2.66	0.008
Gender	-0.7390418	-1.03	0.301
Chi-square 13.13, d.f. 7,			

Source: Primary Data *** statistically significant at the 0.01 level, ** at the 0.05 level, and * at 0.10 level

➤ **Factors Influencing Respondents' Behaviour with Reference to Reading Seafood Labels :** Ordered probit model (OPM) was used to understand the factors influencing respondents' frequency of reading seafood labels. Statistical software STAT 11 was used to estimate the ordered probit model. The maximum likelihood estimates of the OPM results are depicted in the Table 5. This model communicates the joint significance of all the coefficient estimates. Coefficients with negative signs for age, years of schooling, gender, and occupation revealed that with an increase in age of the consumers, the likelihood of reading seafood labels declined, and also, an increase in educational levels of the consumers lead to a decline in frequency of reading seafood labels. A positive sign on the estimated coefficients of income, family size, and awareness showed maximum likelihood of falling in the category of reading seafood labels always/regularly. It means that with an increase in income, the consumers' likelihood of reading seafood labels regularly also increased. Similar results were obtained for family size and awareness. Labelling or certification schemes influence the consumers' seafood choices and customers show higher preference towards labelled aquaculture products (Fernandez-Polanco et al., 2013).

It was found that awareness about seafood labelling significantly influenced maximum likelihood of consumers falling into the higher response category. Though the educational level of the respondents (years of schooling) was found to be the most important determinant of frequency of reading seafood labels, it showed a negative effect, indicating that an increase in the educational level decreased the frequency of reading seafood labels. Logically, this was not expected as being more educated, the consumers were expected to be more health conscious, and it was believed that they would check the label to know about the nutritional content of the seafood item they were planning to purchase, and most importantly, educated consumers would certainly check the expiry date of the food item. One

Table 6. Predicted Probabilities and Marginal Effects of Socioeconomic Characteristics of Consumers

	Y= 0	Y=1	Y=2	Y=3
	Never	Rarely	Sometimes	Always
Predicted Probabilities	0.067547	0.093426	0.148304	0.690723
Marginal Effects				
Age	0.0001633	0.0001827	0.0001868	-0.0005329
Years of Schooling	0.0170473	0.0190741	0.0195933	-0.0556248
Family size	-0.0018189	-0.0020351	-0.0020809	0.0059349
Income	-0.0791683	-0.0885808	-0.090574	0.2583231
Occupation	-0.0130787	0.0146336	0.0149629	-0.0426752
Awareness	-0.2297869	-0.1275768	-0.0623788	0.4197425
Gender	0.0453855	0.0660674	0.0889791	-0.2004319

Source: Primary Data

Table 7. Issues in Seafood Labelling

		Frequency	Per cent
Have you come across any mislabelled seafood?	Yes	6	5
	No	114	95
Do you want to have common seafood certification for your seafood?	Yes	30	25
	No	90	75

Source: Primary Data

reason that can be attributed to not reading the seafood labels by the consumers is that maybe, the consumers did not have confidence that the information provided on the label by the retail outlets (from where they bought the seafood items) was accurate. Hence, they did not bother to read the seafood labels. Highly educated individuals are less likely to agree that choosing foods becomes easier by reading labels. Possibility of this may be due to their previous experiences in buying seafood (Katona & Mueller, 1955; Schaninger & Sciglimpaglia, 1981). Increase in income reflects the increased consciousness in consumers' buying decisions. It was found that an increase in income levels of the respondents increased their frequency to read seafood labels. The consciousness of the consumers with respect to health safety and intelligent buying can be also positively determined by income. This indicates that the Indian consumers are not mature or learned enough to buy processed/ packed seafood.

Marginal effects of factors on the probability of relative frequencies of reading seafood labels are displayed in the Table 6. Perusal of the Table reveals that marginal effects of an increase in income decreased the likelihood of 'never' reading seafood labels, and also decreased the likelihood of reading seafood labels 'rarely' and 'sometimes'. The marginal effects of an increase in income increased the likelihood of reading seafood labels more frequently or always. The marginal effects of family size and awareness showed the same effects. Next, the respondents were questioned about the status of mislabelling seafood, and about their views on having common certification for seafood labels. The responses of the consumers are presented in the Table 7. It was found that 95% of the consumers did not come across any mislabelled seafood items, and 75% of the consumers demanded to have common seafood certification for all seafood items.

Managerial Implications and Suggestions

- 1) The results of the study revealed that there is scope to formulate strategies to serve the consumers through seafood labelling, and thereby, providing environmentally safe and healthy seafood products to customers.
- 2) It is suggested that there is a need to spread awareness regarding seafood labelling through proper promotional programmes. Also, there is a need to promote the importance of reading seafood labels and thereby, promoting responsible buying.

- 3) To keep pace with the consumers' understanding and their standard of living, retailers and companies have to keep themselves updated regarding consumer preferences and demands.
- 4) Majority of the higher income group consumers shop at organized retail stores ; this reflects increased managerial responsibility for retailers . To increase their sales, retailers need to keep a track of the interests of this income group and provide offers and schemes to sustain the interest of this class of consumers.
- 5) Corporates should launch organized seafood retail chains to ensure that consumers have access to quality seafood products with proper seafood labels.
- 6) Companies should emphasize on innovating new methods and techniques of making labelling more informative and easy to comprehend.

Conclusion

It was found that awareness about seafood labelling among consumers was high and importance was given to specifications on the label, reflecting the consciousness of consumers regarding reading seafood labels. More than 50% of the respondents read the seafood labels regularly/always. Though the percentage of respondents who did not read the seafood labels at all was less (7.5 %), it is important to educate the consumers and keep them informed about the value of seafood labels. Estimates of the ordered probit model suggested that an increase in the income levels of the respondents will reduce their chances of falling in the category of lower response level, that is, 'Never' reading seafood labels, and increase their likelihood of falling in the category of higher response level, that is, 'Always' reading seafood labels.

Maximum likelihood estimates suggested that an increased awareness results in the likelihood that the respondents will fall into the higher response category (reading seafood labels always/regularly). It was also found that income levels, family size, and awareness about seafood labelling had a positive effect on reading seafood labels. To conclude, retailers and companies need to spread awareness regarding seafood labels and emphasis should be placed on the importance of specifications on the label . Concerns related to common seafood certifications need to be addressed properly. This will indeed ensure that only quality seafood products fall into the consumers' basket.

References

- A.C. Nielsen (2005). The label-conscious global shopper-only partly understanding the food labels, but selective nonetheless. Retrieved from <http://sg.nilsen.com/news/20050803.shtml>
- Aprile, M. C., & Annunziata, A. (2005). Labelling as a tool for food safety. An analysis on consumers use of food labels. In *International Food and Agribusiness Management Association World Food and Agribusiness Symposium 'Re-inventing the food chain: New markets, customers, and market*, June 25-26, 2005, Chicago, USA.
- Baisya, R. K. (2007). Nutrition labeling of foods. Retrieved from www.pfionline.com
- Baltas, G. (2001). Nutrition labelling: Issues and policies. *European Journal of Marketing*, 35(5/6), 708-721. DOI:10.1108/03090560110388178.
- Fernandez-Polanco, J., Mueller Loose, S., & Luna, L. (2013). Are retailers' preferences for seafood attributes predictive for consumer wants? Results from a choice experiments for Seabream (*Sparus aurata*). *Aquaculture Economics & Management*, 17 (2), 103 - 122. DOI:10.1080/13657305.2013.772262.
- Food Safety in India (2011, December 28). Nutrition information labelling. Retrieved from <http://foodsafetyauthorityindia.blogspot.in/2011/12/nutrition-information-and-labelling.html>
- Food Standards Australia New Zealand (FSANZ) (n.d.). Percentage labelling of food. Retrieved from http://archive.foodstandards.gov.au/_srcfiles/Percentage%20Labelling%20

- Food Standards Australia New Zealand (FSANZ) (n.d.). Fish mislabelling survey commonly asked questions. Retrieved from <http://archive.foodstandards.gov.au/scienceandeducation/publications/pilotsurveyontheidentityoffish/fishmislabellingsurv2430.cfm>
- Giri, S., & Sharma, V. (2012). Food products packaging: A study of its effect on consumer behaviour. *Indian Journal of Marketing*, 42(5), 39-46.
- Hall, M. (2013, March 7). Seafood fraud: Oh, what a tangled web. Retrieved from <http://www.mindthesciencegap.org/2013/03/07/seafood-fraud-oh-what-a-tangled-web/>
- Higginson, C.S., Rayner, M.J., Draper S., & Kirk, T.R. (2002). The nutrition label: Which information is looked at? *Nutrition and Food Science*, 32(3), 92-99. DOI:10.1108/00346650210423392
- Intodia, V. (2011). Mandatory nutritional labelling and implications for Indian food companies. *Indian Journal of Marketing*, 41(8), 20-23.
- Katona, G. C., & Mueller, E. (1955). A study of purchase decisions. In L. H. Clark, (Eds.). *Consumer behaviour: The dynamics of consumer reactions* (pp. 3087). New York: New York University Press.
- Kiesel, K., McCluskey, J. J., & Villas-Boas, S. B. (2011). Nutritional labeling and consumer choices. *Annual Review of Resource Economics*, 3(1), 141-158. DOI: 10.1146/annurev.resource.012809.103957
- Kumar, S., & Ali, J. (2011a). *Regulatory arrangements for disclosure of nutritional information on food labels in India*. Paper presented at 21st Annual IFAMA World Forum and Symposium on the Road to 2050: Sustainability as a business opportunity, June 20-23, 2011, Frankfurt, Germany. Retrieved from https://www.ifama.org/events/conferences/2011/cmsdocs/2011SymposiumDocs/275_Symposium%20Paper.pdf
- Kumar, S., & Ali, J. (2011b). *Assessing consumer awareness and usage of food labels and influences on food buying behavior*. Paper presented at 21st Annual IFAMA World Forum and Symposium on the Road to 2050: Sustainability as a Business Opportunity, June 20-23, 2011, Frankfurt, Germany. Retrieved from https://www.ifama.org/events/conferences/2011/cmsdocs/2011SymposiumDocs/285_Symposium%20Paper.pdf
- Mahajan, E. (2012, May 9). What food labels don't say. *The Times of India*. Retrieved from http://articles.timesofindia.indiatimes.com/2012-05-09/science/31640521_1_food-labels-package-labels-healthy-diet
- Murali, D. (2006, February 5). 'Always' check nutritional labels. *The Hindu Business Line*. Retrieved from <http://www.thehindubusinessline.com/todays-paper/tp-others/tp-variety/always-check-nutritional-labels/article1723996.ece>
- Oceana (n.d.). Seafood fraud: Overview. Retrieved from <http://oceana.org/en/our-work/promote-responsible-fishing/seafood-fraud/overview>
- Pieniak, Z., & Verbeke, W. (2008) Consumer interest and marketing potential of information on fish labels (pp. 1-3). Paper presented at 12th Congress of the European Association of Agricultural Economists EAAE "People, Food and Environments: Global Trends and European Strategies", August 26- 29, 2008, Ghent, Belgium.
- Schaninger, C. M., & Sciglimpaglia, D. (1981). The influence of cognitive personality traits and demographics on consumer information acquisition. *Journal of Consumer Research*, 8(2), 208 - 216.
- Seafish The Authority on Seafood (2011). Seafood labelling guidance. Retrieved from http://www.seafish.org/media/Publications/Seafood_Labeling_Guidance_Jan2011.pdf
- Sheela, A.M. (2010). Impact of growth of organised food retailing on the traditional retailers in Bangalore city, Retrieved from http://www.planningcommission.gov.in/reports/sereport/ser/ser_reta1708.pdf
- Wandel, M. (1997). Food labelling from a consumer perspective. *British Food Journal*, 99(6), 212-219. DOI:10.1108/00070709710181559