

A Conceptual Framework for Investigating Fish Consumption in Australia

*Dawn Birch, University of the Sunshine Coast, dbirch@usc.edu.au
Meredith Lawley, University of the Sunshine Coast, mlawley1@usc.edu.au*

Abstract

While the health benefits of eating fish are well established, Australian seafood consumption remains below the average for industrialised nations. While considerable research has been conducted in European countries, no research is evident about how and why Australians consume seafood. This paper presents a conceptual framework for investigating fish consumption in Australia. The framework is based on the theory of planned behaviour (TPB) to measure the influence of attitudes towards fish, subjective norms (social norms, moral obligations, health involvement, food involvement/food-related lifestyle, commercial and non-commercial influences), and perceived behavioural control (habits, past experiences/familiarity, knowledge and confidence, and availability/price) on consumption frequency and purchase intention. Moderating variables include usage status, convenience orientation, consumption occasion, personal characteristics, and information/education content.

Keywords: seafood consumption, theory of planned behaviour

A conceptual framework for investigating fish consumption in Australia

Introduction and background

Seafood is an important part of a healthy diet (Trondsen, Scholderer, Lund and Eggen, 2003) with fish consumption related to significant health benefits (Sidhu, 2003; Verbeke and Vackier, 2005). While annual per capita fish consumption in Australia is increasing, at approximately 25 kg per year it remains well below recommended levels of two serves per week and average consumption for other countries such as Korea (54 kg), Netherlands (52 kg), Spain (41 kg) and France (35 kg) (FAO, 2007). While there has been a substantial amount of research concerning consumers' motives and barriers to fish consumption in European countries where per capita fish consumption is traditionally higher, there is a lack of research about fish consumption in Australia and other non-European countries. The purpose of this paper is to synthesise the existing research about fish consumption to the Australian context, and by then integrating the latest research about issues such as sustainable production, food-related lifestyles, and convenience orientation develop a framework for investigating fish consumption in Australia.

Development of the framework

Ajzen's (1991) theory of planned behaviour (TPB) proposes that behaviour is influenced by intentions, which in turn, are influenced by attitudes, subjective norms, and perceived behavioural control. TPB has been used widely to investigate food attitudes and behaviour (Mahon, Cowan and McCarthy, 2006; Olsen, Heide, Dopico and Toften, 2008; Povey, Wellens and Conner, 2001). Likewise, our model (Fig. 1) is based on TPB and is an adaptation and extension of Verbeke and Vackier's (2005) framework for investigating fish consumption in Belgium by including measures relevant to Australian consumers for investigating the influence of country of origin effects, production methods, convenience orientation, food related lifestyles, and the role of extrinsic cues such as branding, packaging, labelling and point of sale information. A discussion of each component of the model follows.

The influence of attitudes on fish consumption

Attitude towards fish refers to how favourably the consumer perceives fish consumption (Eagly and Chaiken, 1993). Affective and evaluative attitudes are influenced by behavioural beliefs; that is, the subjective probability that the behaviour will result in fish consumption (Ajzen, 1991). Much research has been conducted on the relationship between fish and attitudes in Europe (Brunso, 2003; Leek, Maddock and Foxall, 2000; Olsen, 2003). Affective attitudes toward eating fish concern the extent to which people like/dislike eating fish, gain pleasure/ displeasure from eating fish, and feel satisfied/dissatisfied after eating fish (Eagly and Chaiken, 1993; Rortveit and Olsen, 2009). Evaluative attitudes towards eating fish are concerned with an evaluation of intrinsic and extrinsic cues, perceived benefits, risks and costs, and perceived inconvenience of fish consumption.

Health benefits (Brunso, 2003; Olsen, 2003; Verbeke and Vackier, 2005) and a desire for a varied diet (Rortveit and Olsen, 2009) have been found to be key drivers of fish consumption. Verbeke, Vermeir and Brunso (2007) investigated perceived health benefits of fish consumption including reducing risk of heart disease and cancer, improving bone density,

making people stronger and smarter, stimulating cerebral development and prolonging life. However, perceived health benefits may not explain variations in fish consumption, because almost everyone considers fish to be a healthy meal option (Brunso, 2003; Olsen, 2003). Studies have revealed that fish consumption is also associated with a desire for a varied diet (Rortveit and Olsen, 2009).

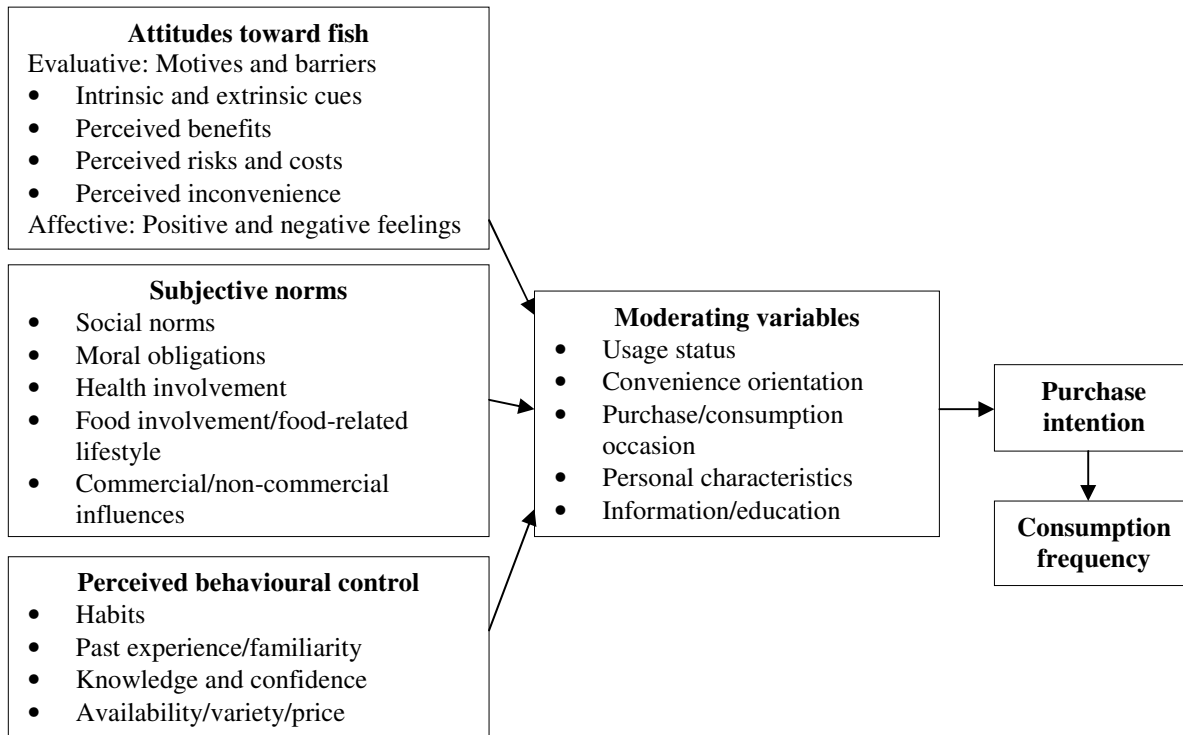


Fig. 1. A conceptual framework for investigating fish consumption in Australia

Perceptions of high prices have been found to be key barriers to fish consumption in some European studies (Brunso, 2003; Myrland et al., 2000; Olsen, 2004; Trondsen et al., 2003; Verbeke and Vackier, 2005). Conversely, studies conducted in the UK (Leek et al., 2000) and Finland (Honkanen et al., 1998) did not find a relationship between price and fish consumption. Perceived risks associated with fish consumption also pertain to issues of safety, with some consumers being concerned about possible contaminants, treatment with hormones or antibiotics, mercury levels, and whether the fish has been hygienically handled. Many consumers consider that frozen seafood is not fresh, with freshness being a key determinant of quality evaluations (Olsen, 2004). Perceived inconvenience is associated with perceptions of how convenient a consumer considers a product is to plan, purchase, prepare and serve (Rortveit and Olsen, 2009). Perceived inconvenience has been found to be a barrier to fish consumption for some market segments, with elderly consumers being more likely to find fish to be a convenient food (Olsen, 2007; Rortveit and Olsen, 2009). Trondsen et al. (2003) argue that a deeper understanding of product-related consumption barriers from a consumer perspective is essential for both marketers and health educators.

Consumers base their perceptions of fish quality on intrinsic cues or product attributes such as appearance, smell and taste (Grunert, 1997; Myrland et al., 2000; Olsen, 2004; Trondsen et al., 2003). Taste, texture and perceived freshness have been found to be key determinants of fish consumption (Leek et al., 2000; Olsen, 2004; Verbeke and Vackier, 2005). Unpleasant

physical attributes such as bones and unpleasant smells are major barriers to fish consumption (Leek et al., 2000; Myrland, et al., 2000; Olsen, 2004; Verbeke and Vackier, 2005). Consumers' perceptions of fish quality are also influenced by extrinsic cues such as prices, packaging, labelling, and branding and nutritional information (Trondsen et al., 2003).

The influence of subjective norms on fish consumption

In this context, subjective norms are the extent to which the consumer perceives social pressure to consume fish (Ajzen and Fishbein, 1980). Subjective norms include social norms, moral obligations, health and product involvement, and commercial and non-commercial influences. Social norms in the form of pressure from household members have been found to influence purchase intentions for fish (Olsen, 2001; Olsen, 2004; Scholderer and Grunert, 2001; Trondsen et al., 2003). Social pressure may come to play if one or more household members do not like fish (Verbeke and Vackier, 2005). In particular, research has revealed that children and teenagers influence household fish consumption (Honkanen, Olsen and Myrland, 2003; Olsen and Ruiz, 2008). Several studies have revealed that family expectations are as important as attitudinal factors such as taste in explaining seafood consumption (Bredahl and Grunert, 1997; Olsen, 2001; Verbeke and Vackier, 2005).

Moral obligations concern a sense of personal responsibility to perform a behaviour, such as consuming fish (Olsen, 2001). Due to the health benefits of fish consumption, many people feel a moral obligation to eat and serve fish (Leek et al., 2000; Verbeke and Vackier, 2005). Perceptions of a personal responsibility to provide healthy and varied meals have been found to be positively correlated to purchase intention (Olsen, 2001; Verbeke and Vackier, 2005). A moral obligation to eat fish can result in internal conflict if some household members do not like fish. Verbeke and Vackier (2005, p. 70) explain that "even though housewives feel responsible for giving their family a healthy and nutritious meal, social pressure from the family makes it difficult to do so." However, in their study of Belgian fish consumption, Verbeke and Vackier (2005) found that social norms and moral obligations were positively correlated. Many Australian consumers also hold strong country of origin beliefs and feel a moral obligation to serve Australian fish to support the local fishing industry.

Health consciousness and the importance of eating healthy food (health involvement) have also been found to be positively related to fish consumption (Olsen, 2003; Ragaert, Verbeke, de Vlieghere and Debevere, 2004; Trondsen et al., 2003). Increased seafood consumption is associated with perceptions that diet is important for health (Trondsen, Braaten, Lund and Eggen, 2004). Moreover, health involvement appears to influence satisfaction and pleasure associated with eating fish. Older people report a higher level of health involvement and this may explain their higher levels of fish consumption (Olsen, 2003). However, Verbeke and Vackier (2005) failed to find a correlation between food-health awareness and fish consumption frequency. Food involvement or enduring product involvement in a food category, in terms of expressed "importance, caring, concern or interests" associated with the food (Olsen, 2001, p. 177), influences the extent to which people consume a particular food and the extent of cognitive processing during the decision making process (Bell and Marshall, 2003). A food-related lifestyle has been found to influence fish consumption and willingness to try new products (Brunso and Grunert, 1995; Cullen and Kingston, 2009; Myrland et al., 2000). Unlike many foods which are associated with routine or habitual decision making, fresh foods, such as fish, are not necessarily low involvement products. A positive correlation has been found between food involvement and fish consumption frequency and intention (Juhl and Poulsen, 2000; Olsen, 2003; Verbeke and Vackier, 2005).

Commercial and non commercial groups such as governments, industry, doctors and nutritionists have also sought to influence fish consumption. Verbeke et al. (2007) investigated the information sources people use to gain knowledge about fish as well as consumers' use of information on packages and interest in a fish quality label. Advertising was found to be positively correlated with purchase intention for fish (Verbeke and Vackier, 2005). However, Verbeke and Vackier (2005, p. 79) argue that "promoting fish consumption could possibly fail because of the reluctance of consumers to comply with an opinion expressed in industry advertising or public health campaigns. Experts like doctors and nutritionists could possibly contribute to fish promotion effectiveness, since consumers have a stronger intention to comply with these referents".

The impact of perceived behavioural control on fish consumption

Perceived behavioural control is influenced by control beliefs and, in this context, relates to the extent to which people perceive they have some level of control over fish consumption behaviour. Behaviour is more likely to occur when people perceive they have both the ability and motivation to perform the behaviour (Eagly and Chaiken, 1993). Habit has been found to be a strong predictor of purchase intention for fish (Honkannen, Olsen and Verplanken, 2005; Juhl and Poulsen, 2000; Price and Gislason, 2001; Saba, Vassallo and Turrini, 2000). Childhood fish consumption appears to influence fish consumption in later life (Nestle et al., 1998; Trondsen, et al., 2003). Past experience and familiarity with a product category also influences the extent to which people search for, recall and use information when evaluating product quality and making purchasing decisions (Howard and Sheth, 1969). Familiarity with a product category influences self-confidence in making decisions with respect to that product category (Verbeke. et al., 2007). Past experience in buying and preparing fish has been found to be a strong predictor of fish purchase intentions (Sorensen, Grunert and Nielsen, 1996).

Many consumers perceive difficulty in evaluating, selecting, preparing and cooking fish (Juhl and Poulsen, 2000; Olsen, 2004; Verbeke, et al., 2007). Consumers need adequate cooking skills to prepare fish (Scholderer and Grunert, 2001; Trondsen, et al., 2003). People who hold strong beliefs in their ability to select and prepare fish report higher intentions to purchase fish (Verbeke and Vackier, 2005). Fish consumption has also been found to be positively related to the availability of fresh fish (Scholderer and Grunert, 2001; Shepherd and Sparks, 1994). Lack of availability of fish of consistent quality, lack of product choice and high prices have been found to be barriers to fish consumption (Olsen, 2004; Trondsen et al., 2003). Conversely, Leek et al. (2000) found that convenience, in terms of fish being readily available, did not present a barrier to fish consumption. In addition to the availability of fresh fish, Rortveit and Olsen (2009, p. 316) found that consideration set or the "number of considered dinner alternatives have a significant positive effect on consumption frequency." Variety and price also influence fish consumption in terms of whether fish is available at the right price and in the species, form (e.g., pre-prepared or whole) and portion size people want.

Moderating variables

Other factors found to influence fish consumption include usage status, convenience orientation, purchase/consumption occasion, personal characteristics, and information content. Consumers with a strong convenience orientation (CONVOR) prefer meals that are quick and easy to plan, purchase, prepare and serve (Candel, 2001; Rortveit and Olsen, 2009).

Fish consumption varies across purchase occasion; with some consumers eating fish for special occasions (dining out, entertaining), while others eat fish more regularly. Turning to personal characteristics, fish consumption has been consistently found to vary across age groups with older consumers eating more fish (Myrland et al., 2000). The presence of children and teenagers within the household has a negative impact on fish consumption due to negative perceptions of taste and smell (Honkanen et al., 2003; Olsen and Ruiz, 2008; Berg, Jonsson and Conner, 2000). Fish consumption has been found to be positively correlated with household size in some studies (Myrland et al., 2000; Trondsen et al., 2004) but not in others (Verbeke and Vackier, 2005). Women have been found to be more health-conscious than males and more likely to change their intake of fish in line with dietary guidelines (Fagerli and Wandel, 1999). Higher education levels have been found to lead to higher purchase intention but did not translate into higher fish consumption (Verbeke and Vackier, 2005). More educated people are less satisfied with their current level of fish consumption and less likely to consider price or taste as barriers to eating fish (Trondsen et al., 2003). In some studies, income has been found to be positively related to fish consumption (Verbeke and Vackier, 2005), while in other studies, no relationship was found (Myrland et al., 2000; Trondsen et al., 2003). Lower income levels have been associated with negative perceptions of smell during preparation, and positively related to a perceived lack of pre-prepared fish dishes (Myrland et al. 2000).

Regional differences in fish consumption have also been identified (Myrland et al., 2000; Verbeke and Vackier, 2005), with people residing in coastal areas eating more fish (Trondsen et al., 2004). In addition to the demographic differences discussed to date, we also propose that in a multicultural society, such as Australia, fish consumption would be related to ethnicity or ancestry, with people from high fish consuming backgrounds being likely to consume more fish than people with lower fish consuming backgrounds. Finally, providing information about the benefits of fish consumption, as well as, providing information on packaging and labelling related to species, price, freshness and advantages of fish farming has been found to influence fish consumption and the way consumers evaluate fish (Brunso, 2003; Kole, Altintzoglou, Schelvis-Smit and Luten, 2009).

Conclusion

Increasing Australians' consumption of fish will result in health benefits and stimulate the Australian seafood industry. Knowing the 'why' of fish consumption decisions will allow relevant stakeholders, including the seafood industry, governments, doctors and nutritionists to develop strategies to increase fish consumption. While this paper has synthesised and extended the existing research on fish consumption, testing and refinement of the framework developed here is the next stage in understanding how and why Australian consumers purchase and consume fish.

References

- Ajzen, I., 1991. The theory of planned behaviour. *Organizational Behavior and Human Decision Process* 50(2), 179-211.
- Ajzen, I., Fishbein, M., 1980. *Understanding attitudes and predicting social behaviour*, Prentice Hall, Eaglewood Cliffs, NJ.
- Bell, R., Marshall, D.W., 2003. The construct of food involvement in behavioral research: scale development and validation. *Appetite* 40(3), 235-244.
- Berg, C., Jonsson, I., Conner, M., 2000. Understanding choice of milk and bread for breakfast among Swedish children aged 11-15 years: An application of the theory of planned behaviour. *Appetite* 34(1), 5-19.
- Bredahl, L., Grunert, K.G., 1997. Determinants of the consumption of fish and shellfish in Denmark: An application of the theory of planned behavior. In: Luten, J.B., Borrensen, T., Oehlenschläger, J. (Eds.), *Seafood from producer to consumer, integrated approach to quality*. Elsevier, Amsterdam, 21-30.
- Brunso, K., 2003. Consumer research on fish in Europe. In: Luten, J., Oehlenschläger, J., Ólafsdóttir, G. (Eds.), *Quality of Fish from Catch to Consumer: Labelling, Monitoring and Traceability*. Wageningen Academic Publishers, Wageningen, 335-344.
- Brunso, K., Grunert, K.G., 1995. Development and testing of a cross-culturally valid instrument: food-related lifestyle. *Advances in Consumer Research* 22(1), 475-480.
- Candel, M.J.J.M., 2001. Consumers' convenience orientation towards meal preparation: Conceptualization and measurement. *Appetite* 36(1), 15-28.
- Cullen, F., Kingston, H., 2009. Analysis of rural and urban consumer behaviour toward new food products using a food-related lifestyle instrument. *Foodservice Business Research* 12(1), 18-41.
- Eagly, H., Chaiken, S., 1993. *The psychology of attitudes*. Harcourt Brace Javanovich, Fort Worth, TX.
- Fagerli, R.A., Wandel, W., 1999. Gender differences in opinions and practices with regard to a 'Healthy Diet'. *Appetite* 32(2), 171-190.
- FAO, 2007. *FAO yearbook. Fishery and Aquaculture Statistics. 2007* FAO Fisheries and Aquaculture Department [online]. Rome. Available from <ftp://ftp.fao.org/docrep/fao/012/i1013t/i1013t.pdf>, accessed June 15th 2010.
- Grunert, K.G., 1997. What's in a steak? A cross-cultural study on the quality perception of beef. *Food Quality and Preference* 8(3), 157-174.
- Honkanen, P., Setälä, J., Eerola, E., 1998. Behavioural patterns related to Finnish fish consumption: An analysis of demographic characteristics. In: Eide, A., Vassal, T., (Eds.).

Proceedings of the 9th International Conference of the International Institute of Fisheries, Economics and Trade. Tromso, Norway, 53.

Honkanen, P., Olsen, S.O., Myrland, O., 2003. Preference-based segmentation: A study of meal preferences among Norwegian teenagers. *Journal of Consumer Behaviour* 3(3), 235-250.

Honkanen, P., Olsen, S.O., Verplanken, B., 2005. Intention to consume seafood--the importance of habit. *Appetite* 45(2), 161-168.

Howard, J.A., Sheth, J.N., 1969. *The theory of buyer behaviour*. John Wiley & Sons, New York.

Juhl, H. J., Poulsen, C.S., 2000. Antecedents and effects of consumer involvement in fish as a product group. *Appetite* 34(3), 261-267.

Kole, A.P.W., Altintzoglou, T., Schelvis-Smit, R.A.A.M., Luten, J.B., 2009. The effects of different types of product information on the consumer product evaluation for fresh cod in real life settings. *Food Quality and Preference* 20(3), 187-194.

Leek, S., Maddock, S., Foxall, G., 2000. Situational determinants of fish consumption. *British Food Journal* 102(1), 18-39.

Mahon, D., Cowan, C., McCarthy, M., 2006. The role of attitudes, subjective norms, perceived control and habit in the consumption of ready meals and takeaway in Great Britain. *Food Quality and Preference* 17(6), 474-481.

Myrland, Ø., Trondsen, T., Johnston, R.S., Lund, E., 2000. Determinants of seafood consumption in Norway: Lifestyle, revealed preferences, and barriers to consumption. *Food Quality and Preference* 11(3), 169-188.

Nestle, M., Wing, R., Birch, L., DiSorga, L., Drewnowski, A., Middleton, S., Sigmam-Grant, M., Sobal, J., Winston, M., Economos, C., 1998. Behavioral and social influences on food choice. *Nutrition Reviews* 56(5), 50-64.

Olsen, S.O., 2001. Consumer involvement in seafood as family meals in Norway: An application of the expectancy-value approach. *Appetite* 36(2), 173-186.

Olsen, S.O., 2003. Understanding the relationship between age and seafood consumption: the mediating role of attitude, health involvement and convenience. *Food Quality and Preference* 14(3), 199-209.

Olsen, S.O., 2004. Antecedents of Seafood Consumption Behavior -- An Overview. *Journal of Aquatic Food Product Technology* 13(3), 79-91.

Olsen, S.O., 2007. Repurchase loyalty: The role of involvement and satisfaction. *Psychology and Marketing* 24(4), 315-341.

- Olsen, S.O., Heide, M., Dopico, D.C., Toften, K., 2008. Explaining intention to consume a new fish product: A cross-generational and cross-cultural comparison. *Food Quality and Preference* 19(7), 618-627.
- Olsen, S.O., Ruiz, S., 2008. Adolescents' influence in family meal decisions. *Appetite* 51(3), 646-653.
- Olsen, S.O., Scholderer, J., Brunsø, K., Verbeke, W., 2007. Exploring the relationship between convenience and fish consumption: A cross-cultural study. *Appetite* 49(1), 84-91.
- Povey, R., Wellens, B., Conner, M., 2001. Attitudes toward following meat, vegetarian and vegan diets: An examination of the role of ambivalence. *Appetite* 37(1), 15-26.
- Price, D. W., Gislason, C., 2001. Identification of habit in Japanese food consumption. *Agricultural Economics* 24(3), 289-295.
- Ragaert, P., Verbeke, W., de Vlieghere, F., Debevere, J., 2004. Consumer perception and choice for minimally processed vegetables and packaged fruits. *Food Quality and Preference* 15(3), 259-270.
- Rortveit, A.W., Olsen, S.O., 2007. The role of consideration set size in explaining fish consumption. *Appetite* 49(1), 214-222.
- Rortveit, A.W., Olsen, S.O., 2009. Combining the role of convenience and consideration set size in explaining fish consumption in Norway. *Appetite* 52(2), 313-317.
- Saba, A., Vassallo, M., Turrini, A., 2000. The role of attitudes, intentions and habits in predicting actual consumption of fat containing foods in Italy. *European Journal of Clinical Nutrition* 54(7), 540-545.
- Scholderer, J., Grunert, K.G., 2001. Does generic advertising work? A systematic evaluation of the Danish campaign for fresh fish. *Aquaculture Economics & Management* 5(5), 253-271.
- Shepherd, R., Sparks, P., 1994. Modelling food choice. In: MacFie, H.J.H., Thomson, D.M.H., (Eds.), *Measurement of food preference*. Blackie Academic and Professional, London, 202-226.
- Sidhu, K.S., 2003. Health benefits and potential risks related to consumption of fish or fish oil. *Regulatory Toxicology and Pharmacology* 38(3), 336-344.
- Sorensen, E., Grunert, K.G., Nielsen, N.A., 1996. The impact of product experience, product involvement and verbal processing style on consumers' cognitive structures with regards to fresh fish. MAPP working paper no. 42, The Aarhus School of Business.
- Trondsen, T., Braaten, T., Lund, E., Eggen, A.E., 2004. Health and seafood consumption patterns among women aged 45-69 years. A Norwegian seafood consumption study. *Food Quality and Preference* 15(2), 117-128.
- Trondsen, T., Scholderer, J., Lund, E., Eggen, A.E., 2003. Perceived barriers to consumption of fish among Norwegian women. *Appetite* 41(3), 301-314.

Verbeke, W., Vermeir, T., Brunso, K., 2007. Consumer evaluation of fish quality as basis for fish market segmentation. *Food Quality and Preference* 18(4), 651-661.

Verbeke, W., Vackier, I., 2005. Individual determinants of fish consumption: application of the theory of planned behavior. *Appetite* 44(1), 67-82.