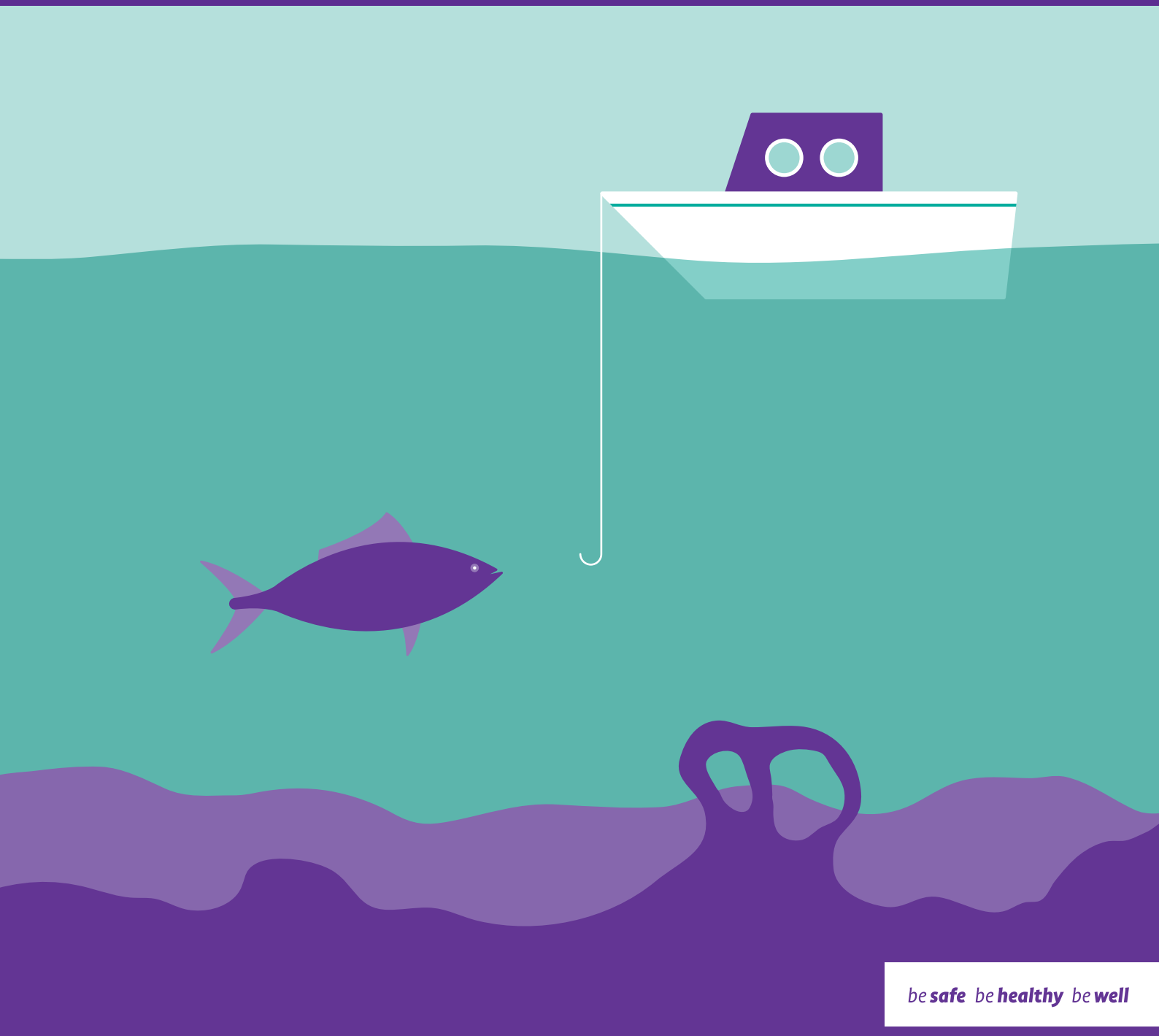
safefood

Consumer Focused Review

of the Finfish Food Chain

2012



be safe be healthy be well

Executive summary

In 2005 ***safe*food** initiated a programme which involved two comprehensive food chain screening exercises per year over a three year period. Each review profiled a specific food category, identifying and describing the relevant food safety issues pertaining to it at various points along the food chain, and identifying opportunities to communicate the human health benefits to various stakeholders. The primary focus of these reviews was directly pertaining to food safety and nutrition issues. However, other concerns identified by the consumer not directly related to food safety were discussed, e.g. animal welfare, the environmental impact of the industry, etc.

As a considerable period of time has passed since these Consumer Focused Reviews were published, ***safe*food** wishes to revisit each of these in order to update their content. This will ensure consumers on the island of Ireland (IOI) are informed of any changes that have come about since 2005.

As for the previous CFR, this review of the fish food chain focuses on caught and farmed finfish, and smoked salmon. There are several significant food safety risks inherent in the shellfish food chain; however, the advice of the External Group convened to oversee this review was that the regulatory framework in place to govern these risks is comprehensive, and that many of these risks have been well documented.

Consumer research

To explore consumer perceptions, attitudes and behaviour in relation to finfish, ***safe*food** conducted both quantitative and qualitative research on the IOI as part of this review.

Results of the quantitative research

Recent quantitative research involving 2,041 respondents found that there was an increase in the frequency of consumption of fish since 2005. In 2010 fifty nine per cent of consumers reported eating fish once a week or more, whereas in 2005 this figure was forty eight per cent. Reported frequency of consumption increased for all fish types including fresh white and fresh oily fish, tinned fish and fish in batter. The proportion of people who said that they never eat fish remained unchanged at one in five (18%).

Consumers were most concerned about the freshness of fish in 2010 and 2005. Nowadays, respondents are less concerned about how fish is cooked than five years ago. Furthermore, the level of concern associated with dyes and labelling have also reduced, whereas the issue of fish stocks and sustainability are on the increase.

Qualitative research results

Qualitative research was carried out among a variety of socioeconomic groups including both consumers and non consumers of fish to gain insight into consumer attitudes to fish. The focus groups found that consumers considered fresh white and oily fish, and cooked and flash frozen fish to be safe foods. However, tinned fish and frozen fish in batter/ breadcrumbs were considered less safe. Shellfish were considered to be the least safe fish, mainly due to their potential to trigger food poisoning and/ or allergic reactions. Consumers in both 2010 and 2005 were confused with regard to how long fish could be kept frozen, defrosting fish and the use of microwaves to defrost fish. Both the preparation and cooking of fresh fish were considered problematic for consumers. They felt that they didn't have the confidence to cook fresh fish whereas frozen fish was perceived as convenient i.e. cooking instructions were readily available on the packaging.

Health benefits were regarded as the leading motivation for eating fish. Fish was also regarded as an excellent protein source, and a good source of vitamins, minerals and other nutrients. Non-fish eaters admitted that although they don't eat fish themselves, they would be willing to give fish to their children. Barriers to fish consumption were the smell and appearance of whole fish, the presence of bones, childhood memories of eating fish, taste, freshness and display of fish, price and processing. On a positive note, for 2005 and 2010, consumers were found to have a high overall confidence in the safety of fish and deemed it safer than fresh meat.

Finfish supply chain

The caught finfish industry has been historically, and remains, very important to the economy of the IOI. However, in recent years the industry has come under increasing pressures as worldwide stocks of traditionally caught fish, such as cod and haddock, have been drastically reduced, and restrictions have been imposed on the industry. In contrast, the aquaculture industry has seen great success with rapid growth in the numbers of farms on the island. However, it would appear that in the past couple of years this industry has plateaued. As a result, novel innovations are now being explored such as the farming of new species e.g. cod and turbot. In the ROI, the national finfish harvest volume decreased between 2006 and 2007, which also reduced in value by 4.8 per cent. The aquaculture sector in NI

produced in excess of 1,097 tonnes of finfish in 2009, valued at £2.5 million (2.97 million) compared to 523 tonnes of finfish in 2005, valued at £1.16 million (1.36 million)(1).

There has been a substantial increase in the amount of finfish imported into the ROI between 2005 and 2009. Canned tuna is the largest single product component of the ROI seafood imports and continues to rise. However in contrast, there has been a significant decline in the total amount of finfish exported from the ROI into the EU market. A decline in the gross sales turnover of the fish processing sector for NI was observed between 2004 and 2008. In 2008, the value recorded was £69.7 (81.3) million compared to £75 (87) million in 2004.

Food microbiology and fish

From a microbiological perspective, a number of risks in the finfish food chain exist. However, these are not as significant as in other foods because, in many cases, the pathogenic bacteria that may be found on fish do not have an opportunity to multiply to numbers that can cause food poisoning. This is because putrefying organisms grow more rapidly and it is therefore likely that such fish products would be rejected for quality reasons, such as the development of off-odours and other taste defects, before consumption. Freshness of fish and fish products was the primary concern of consumers in both quantitative and qualitative research.

Smoked salmon can be a source of infection from *Listeria* and hence care should be taken in the handling and storage of this product, particularly for those groups considered to be at high risk. ***safe*food** recommends that pregnant women should eat smoked fish only if they are home cooked or reheated fully – in the case of smoked salmon this would be as an ingredient in a food that will be cooked before consumption (2).Further information is available at http://www.safefood.eu.

To address concerns with respect to the nutritional and safety aspects of farmed versus caught fish; in 2005 the European Food Safety Authority (EFSA) produced an assessment on the safety of wild and farmed fish. In its summary the report stated that from a food safety perspective, there are no differences between farmed and wild (caught) fish. While this report is somewhat reassuring to the consumer it must be noted that only six countries (excluding NI or ROI) were chosen for the assessment and thus the results may not be a representative sample of the EU situation as a whole.

Toxicology

Contamination of finfish with chemical contaminants has been highlighted as a concern in the media and elsewhere. The issues that have received greatest attention are dioxin in farmed salmon and mercury in certain species of tuna. The level of dioxins and dioxin-like polychlorinated biphenyls

(PCBs) reported in fish sampled from waters around the IOI have been well below European Community Maximum levels to date.

The presence of histamine is a cause of concern in the fish food chain, particularly in relation to tuna. It is generally accepted that the bacteria responsible for mediating histamine production do not grow at the temperatures used during proper cold-storage, thus the presence of this biogenic amine is indicative of mishandling and poor temperature control of the product at some point. Once formed in fish, biogenic amines are capable of withstanding temperatures in excess of normal cooking processes.

Legislation

Numerous changes in legislation have occurred between 2005 and 2010. There has been a change in legislation in relation to food safety, fish feed, third country imports, residue surveillance, electronic recording and reporting, traceability and labelling. The introduction of and amendments to legislation are highlighted and discussed throughout this report. In July 2010, the Sea Fisheries Protection Agency (SFPA) released their 'Guide to Compliance for the Irish Inshore Fleet'. In essence, this guide provides a method for the SFPA to trace the boats that fish came from and also where the fish subsequently went to.

Nutrition and fish

Fish is a nutrient dense food. Both the Food Standards Agency (FSA) and the Food Safety Authority of Ireland (FSAI) recommend a minimum weekly consumption of two portions of fish, one of which is to be oily. The recent National Adult Nutrition Survey (NANS) indicates some changes in fish consumption. The authors found that 53 per cent of adults now consume fish, with a larger proportion of the population consuming white fish than oily fish. For fish consumers only, this translates into a mean daily intake of all fish of 48 grams per day. When compared to the results of the North South Food Consumption Survey (NSFCS) from 2001 these studies indicate that there has been a substantial decrease in the proportion of the population who consume fish. However, the results must be interpreted with caution. The NSFCS measured food intake over seven days while the NANS used 4-day records. Given that fish is often eaten by consumers less than once a week, these methodological differences may explain some of the apparent reduction in consumption. In contrast the amount of fish eaten by consumers of fish has increased.

The National Children's Food Survey indicates that about one third of children consume fish. The mean intake was 9 g/day. Similar intakes were found in the National Diet and Nutrition Survey where children and young people aged 4-18years were consuming approximately half the amount of fish to UK adults at 11g/day.

Fish provides a rich source of many nutrients particularly protein, n-3 polyunsaturated fatty acids (PUFA), iodine and vitamin D. There are many health benefits associated with fish. Stronger evidence exists in relation to reduced risk of cardiovascular disease, and an essential role in the early development of the central nervous system, with weaker evidence relating to issues such as immune function, cognition, depression and cancers.

The nutritional composition of fish however is affected by the preservation (the exception being freezing) and processing techniques used. The addition of ingredients to fish plays a major role in determining the energy, fat, carbohydrate and salt content of the product. This has implications for consumers in choosing fish products and in preparing and cooking fish in the home.

Food labelling

The importance of correct labelling on products applies across the food chain, from primary processors to retailers and caterers. The wording of any origin information should be clear and unambiguous, as country of origin of fish was a concern of consumers.

In 2010, new legislation regarding labelling of fish adds new commercial designations for species of fish that have come onto the market in recent years. The fish must be labelled whether it was captured at sea, or from inland waters, or farmed. In addition, if the fish was captured at sea the label must specify from which sea area. The pursuit of sustainable development of fish stocks as an objective has become increasingly important globally in recent years. Seafish have developed the Responsible Fishing Scheme, in an attempt to raise standards in the catching sector. In July 2010, new EU rules on organic food labelling, including the requirement to display a new EU logo, came into force. The 'Euro leaf' is obligatory on pre-packaged organic food products that have been produced in any of the EU member states and meet the necessary standards. Finally Eco-labelling and certification of capture fisheries and aquaculture is a rapidly developing sector.

Quality assurance schemes

In NI there are two relevant quality schemes run by the Sea Fish Industry Authority – the British Retail Consortium (BRC) Global Standard for Food Safety or Storage and Distribution and the Safe and Local Supplier Approval (SALSA). The corresponding authority in the ROI is Bord Iascaigh Mhara (BIM).

Key findings

Consumers

- There has been an increase in the frequency of consumption of fish since 2005. In 2010 fifty nine per cent of consumers reported eating fish once a week or more, whereas in 2005 this figure was forty eight per cent.

- Market research showed that the reported frequency of consumption increased for all fish types including fresh white and fresh oily fish, tinned fish and fish in batter. The proportion of people who said that they never eat fish remained unchanged at one in five (18%).

- Key consumer concerns for 2005 and 2010 were freshness of fish, pollutants, contaminants, food poisoning and correct defrosting procedures for fish.There was a reduction in concern about how fish is cooked, the use of dyes and labelling over the past few years, while the issue of fish stocks and mercury awareness was a greater concern in 2010 than it was in 2005.

- In 2005 and 2010, consumers were found to have a high overall confidence in the safety of fish and deemed it safer than fresh meat.

- In 2005, 49 per cent and 42 per cent of consumers considered fish to either a 'very healthy food' or a 'healthy food', respectively. This increased to 62 per cent and 31 per cent respectively in 2010.

- Barriers to fish consumption were the smell and appearance of whole fish, the presence of bones, childhood memories of eating fish, taste, freshness and display of fish, price and processing.

- For the general population, health professionals recommend that consumers should eat two portions of fish per week, one being an oily fish. Where possible fresh fish should be chosen over processed.

- The health benefits of fish are well documented particularly in relation to heart health. Much recent media focus has been on the cognitive benefits of fish and fish oils, although this remains to be scientifically substantiated.

- Due to potential contamination with mercury, women of childbearing age should be advised that consumption of a single portion of predatory fish such as shark, swordfish and marlin per week should be avoided during, or prior to, pregnancy. This level of consumption is not considered to pose a health risk to adults in general. For children younger than 14, occasional consumption of these species is not considered to pose a health risk. For women of childbearing age, pregnant women or nursing mothers, consumption of two tuna steaks (weighing about 140g cooked or 170g raw), or four cans of tuna, per week, will not pose a health risks to the foetus or neonate. There is no reason for adults or children, in general, to restrict their tuna intake.

- Women of child-bearing age and women who are pregnant or breastfeeding can have up to two portions of oily fish per week. Adults and children in general can have up to four portions of oily fish per week. Consumers should be advised that canned tuna does not contribute to a portion of oily fish as the essential n-3 PUFA in tuna are destroyed during the canning process.

Primary producers, transporters and processors

- On the IOI, there are controls, systems and legislation in place which aim to control both microbiological and chemical hazards in the supply chain, and thereby, minimise the risk to consumers.
- The safety of the food supply chain is regulated by legislation primarily enforced by the Food Standards Agency in NI and the Food Safety Authority in the ROI.

- There are monitoring programmes on the IOI that frequently test for dioxins, heavy metals, malachite green/leucomalachite green, organotin compounds and many other substances.

- Good hygiene practices are vital in the production of superior quality, safe seafood. The quality of fish is directly related to the time of capture and how the fish are handled, in particular during gutting, washing, boxing and icing.

- The risk to human health resulting from contamination of fish with pathogens from aquatic environments and pathogens that are naturally present on fish is low whereas, the risks from contamination of fish with pathogens from the animal/human reservoir is high and appear to be higher in coastal and inland aquatic environments than open waters.

- In July 2010, the Sea Fisheries Protection Agency (SFPA) released their 'Guide to Compliance for the Irish Inshore Fleet'. In essence, this guide provides a method for the SFPA to trace the boats that fish came from and also where the fish subsequently went to.

- The Electronic Recording and Reporting System (ERS) in Ireland is currently being introduced on a phased basis to fishing vessels.

Retailers and Caterers

- In 2010, new legislation regarding labelling of fish adds new commercial designations for species of fish that have come onto the market in recent years. The fish must be labelled whether it was captured at sea or from inland waters or farmed. In addition, if the fish was captured at sea the label must specify from which sea area.
- In July 2010, new EU rules on organic food labelling, including the requirement to display a new EU logo, came into force. The 'Euro leaf' is obligatory on pre-packaged organic food products that have been produced in any of the EU member states and meet the necessary standards.

- In NI there are two relevant quality schemes run by the Sea Fish Industry Authority – the British Retail Consortium (BRC) Global Standard for Food Safety or Storage and Distribution and the Safe and Local Supplier Approval (SALSA). The corresponding authority in the ROI is Bord Iascaigh Mhara (BIM).

- Hazard Analysis and Critical Control Points (HACCP) and training are at the core of good food safety practices and should be implemented.

- The pursuit of sustainable development of fish stocks as an objective has become increasingly important globally in recent years. Seafish have developed the Responsible Fishing Scheme (RFS), in an attempt to raise standards in the catching sector.

- Eco-labelling and certification of capture fisheries and aquaculture is a rapidly developing sector.

Policy makers and legislators

- In spite of the known health benefits of fish, consumption on IOI remains very low. Organisations, including those involved in the marketing of fish and in public health promotion, should advocate and encourage the consumption of fish and also address the issues that exist as barriers to purchase/consumption.

- A large proportion of consumers were unclear as to the correct defrosting procedure for fish and were worried that this could lead to food poisoning. Therefore information on this issue should be highlighted for consumers.

- Consumers are becoming more aware of mercury levels in fish.

Further information with regard to food safety can be obtained from previous consumer focused reviews carried out by ***safe*food**. These reviews covered the areas of the beef, poultry, fruit and vegetable, dairy, pork supply chain and food origin. These reviews can be found at www.safefood.eu.

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