Eating seafood -
the benefits versus the risk

Fish and fish products have known health benefits. The UK Food Standards Agency (FSA) advice is that adults should consume at least two portions of fish a week, one of which should be oily. Research shows that the known benefits of eating fish and fish products hugely outweigh any possible risks, however there are concerns that fish and fish products also contain persistent environmental chemicals or contaminants which pose risks to human health.

The issue

Contaminants are defined as any substance not intentionally added to food but that are present as a result of the production, manufacture, processing, preparation, treatment, packing, packaging, or transport, or as a result of environmental contamination.

These chemicals are further defined by their potential to cause toxicological harm to consumers. There are at least 100 or so of these substances on lists of 'chemicals causing concern'. The main legislation is European Commission Regulation 1881/2006, enforced in the UK by The Contaminants in Food (England) Regulations 2007 and similar Regulations in Northern Ireland and Scotland. These regulations contain the maximum allowable levels of certain named contaminants (some heavy metals, dioxins etc.) in food. In addition, Regulation 853/2004 deals with marine biotoxins and histamine.

The UN Food and Agriculture Organisation and the World Health Organisation Expert Consultation on the Risks and Benefits of Fish Consumption in January 2010 looked that the health benefits of fish consumption (particularly focusing on neurodevelopment and the prevention of cardiovascular disease) comparing those to the health risks associated with the contaminants methylmercury, dioxins and dioxin-like (dl) polychlorinated biphenyls (PCBs) that may be present in fish.

The consultation concluded that fish is as an important food source of energy, protein, and a range of essential nutrients and part of the cultural traditions of many peoples. Among the known benefits identified from fish consumption were the reduction of deaths in the general adult population from coronary heart disease (CHD), and neurodevelopment benefits to offspring of women that consume fish, particularly pregnant women and nursing mothers. This contrasts with higher CHD mortality risks associated with not eating fish, and neurodevelopment risks to offspring of women not consuming fish.

http://www.who.int/foodsafety/chem/meetings/RBfish_exec_summary.pdf

Dioxins and mercury

The two known contaminants that are most often cited are dioxins and mercury.
**Dioxins - It is important to note:**

- Estimated average intakes of dioxins and dl-PCBs from fish and fish oils are small in relation to total recommended consumption levels, and are unlikely to pose a risk to breast-fed infants, toddlers, school children or adults.
- The seafood industry stresses that fish is not a main source of dioxins, dioxin-like PCBs or other contaminants.
- Overall exposure to dioxin globally is being reduced dramatically by measures to reduce pollution at source and through the introduction of maximum levels in fish and fish feed.
- The European Union has introduced both maximum permitted levels and action levels to control the amount of dioxins and dl-like PCBs in fish and fish feed. Seafood complies with these EU maximum permitted levels.

**FSA surveys support food consumption advice:**

- **FSA February 2006** – The UK dietary intake of dioxins and PCBs from fish was estimated from composite samples of 47 species of farmed and wild fish and shellfish. Dioxins and PCBs were detected at low concentrations in all samples, with slightly higher concentrations generally found in oily than non-oily fish. FSA Food Information Sheet 0306.
- **FSA May 2006** – 165 samples of processed fish and fish products were analysed for dioxins and dl-PCBs. Concentrations were below relevant EU regulatory limits in all samples. Highest concentrations were in oily fish and crab-based products. FSA Food Safety Information Sheet 0706. Following the results of the survey, the FSA’s advice on the consumption of fish remained unchanged.

**Mercury - It is important to note:**

- EU legislation has been put in place to limit the use and emissions of total mercury, thus reducing pollution at source. European emissions of mercury have been cut considerably in recent decades, falling by about 60% between 1990 and 2000.
- The seafood industry stresses that fish is not a main source of methylmercury and overall contaminant levels are falling due to controlling emission at source and applying limits.
- The European Union (EU) introduced maximum permitted levels to control the amount of mercury in fish and fish feed in 2005. Fish and fish feed supplies comply with these.

**FSA surveys support food consumption advice:**

- **FSA May 2006** - 165 samples of processed fish and fish products were analysed for mercury. With the exception of swordfish the levels of mercury in all samples were low and, in most cases, below the level where a measurement can be accurately quantified.

There are a number of other contaminants that Seafish can provide further information on.