



Issue 40: September, 2022: This e-bulletin is aimed at personnel in fisheries and aquaculture, at fish packers, processors, distributors, retailers and finally, consumers.

Mercury levels in fish: - a watching brief

Mercury is a naturally occurring heavy metal found in air, water and soil. Mercury from industrial centres and other sources can travel many miles before raining into the ocean in the organic form i.e. methyl mercury, which is highly toxic to humans. Fish become contaminated leading to public health concerns about different fish species and their mercury levels. Methyl mercury accounts for about 90% of the mercury content of fish.

EU/EFSA perspective on risk from mercury in fish (2004 & 2022)

In 2004 the EU Commission requested the European Food Safety Authority (EFSA) to consider data collected by EU Member States on total mercury content in foods and to assess the data alongside the new lower PTWI (provisional tolerable weekly intake) of JECFA (Joint FAO/WHO Expert Committee on Food Additives) of 1.6 µg/kg body weight/week [European Commission (EC), 2004]. EFSA published its scientific opinion (18 March, 2004) with emphasis on mercury intake from fish by vulnerable groups such as women of child-bearing age, breast feeding women and young children. The EC Note of 2004 on methyl mercury in fish was used to raise awareness in all national authorities, institutions, associations etc with responsibility for public health and for providing safety information for consumers. Large predatory fish such as shark, tarpon, swordfish and tuna accumulate higher levels of mercury through intake over a long life-time. Large predatory species are often migratory and it is not possible, therefore, to exclude fish from particular waters where background levels of mercury contamination might be high. EU consumers who eat average amounts (300-350g/week) of fishery products are not likely to be exposed to unsafe levels of methyl mercury. Consumers who eat a lot of fish may be at higher risk, but at time of issue of the EC note (2004) there were insufficient data to specify the situation in all Member States.

Maximum levels of mercury in fish in the EU were amended in 2022 based on EFSA opinion. Levels were lowered for cephalopods (e.g., squid, octopus, cuttlefish, nautilus) and marine gastropods (e.g., abalone, conches, periwinkles and whelks) to 0.50 or 0.30 mg/kg. Maximum permitted mercury levels in shark, swordfish, pike and tuna were maintained at 1.0 mg/kg.

FDA & EPA mercury advice (2004 & 2019)

In March 2004, the US Food and Drug Administration (FDA) and the US Environmental Protection Agency (EPA) issued an advisory for women who are pregnant, nursing mothers and young children: (i) don't eat shark, swordfish, king mackerel or tilefish as they may contain high levels of mercury; (ii) eat up to 350g a week of other fish and shellfish that are lower in mercury, e.g. shrimp, canned light tuna, salmon, pollock and catfish. Albacore ("white") tuna has more mercury than canned light tuna so limit consumption of albacore tuna and tuna steaks to 180g per week. A revised version of the FDA/EPA advice on eating fish for potentially at risk groups posted in July, 2019 largely reiterated the 2004 advice.

FSAI opinion/advice (2017) on mercury in fish

The Food Safety Authority of Ireland (FSAI) opinion/advice (reviewed in May 2017) on mercury in fish and on fish consumption is similar to that of EFSA and the FDA/EPA. In Ireland, the consumption of shark, swordfish, marlin and fresh tuna is relatively low. However consumption of canned tuna is increasing and pregnant/breastfeeding women as well as young children are advised not to exceed the consumption of two 8oz cans of tuna per week. All other adults and young people should continue to eat tuna and fish products as vital components of a healthy diet. In Ireland, a mercury monitoring programme was put in place for fish landed at all major Irish fishing ports, following the introduction of maximum limits for mercury in fishery products in 1993. This programme is now carried out by the Irish Marine Institute under service contract to the FSAI. Mercury levels in the edible portion of commercial fish and shellfish catches landed at Irish ports are low and ranged 0.02 to 0.27 mg/kg wet weight which is well within the EU human consumption tolerance level of 1.6 µg per kg body weight. However, these catches do not normally include deep water species such as shark, swordfish, marlin and tuna.

Conclusions

Current opinion/advice on mercury levels in fish in Ireland is that levels are very low and fish is safe for consumption by the general population. However, caution is advised for pregnant/breastfeeding women and young children in relation to their canned tuna intake. The watching brief of EFSA and the FSAI on mercury levels in seafood is comforting for the Irish seafood industry and consumers alike.

Reference

EU Commission, 2004. Methyl mercury in fish & fishery products. (Information Note, Brussels, May).

The previous 39 issues of Seahealth-ucd can be viewed at:
<https://www.ucd.ie/foodandhealth/more/seahealthucd/>

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