

Summary Fish Consumption Advice and Guidelines for Vulnerable Subgroups

Fish Consumption Guidelines re: Mercury Content

Vulnerable subgroups can eat up to two fish meals per week but should choose fish species carefully, with emphasis on low mercury species, while avoiding or eating only rarely, some high mercury species, such as fresh or frozen tuna, shark, marlin or swordfish among others. Pregnant or breastfeeding women, in particular, should choose from low mercury species alone and should eat no more than two fish meals per week.

Based on the findings in the attached report, Toronto Public Health advises that **women who may become pregnant** can eat two fish meals (170 gram serving size) per week and keep mercury intake below “tolerable” levels by:

- choosing only among species with low to medium mercury levels (i.e., ≤ 0.2 ppm Hg)
- avoiding (preferably) or eating only rarely (that is, less than once a month) fish species that are high or moderately high in mercury (i.e., > 0.2 ppm Hg)

To protect the fetus and nursing infant however, **pregnant women or women who are breastfeeding** should take care to eat *no more than* two fish meals (170 gram serving size) per week and:

- choose only fish from the low mercury category (i.e., < 0.05 ppm Hg)
- avoid medium and moderately high or high mercury fish (i.e., ≥ 0.05 ppm Hg)

Young children can safely eat two fish meals (half-portion sizes) per week by:

- choosing only species low in mercury (i.e., < 0.05 ppm Hg)
- avoiding or eating only rarely (that is, less than once a month) fish species with medium to high mercury (i.e., ≥ 0.05 ppm Hg)

Canned tuna requires separate advice because mercury content is different depending on the type of canned tuna and because it is an affordable, widely available and commonly consumed type of fish which appeals to most children.

Light canned tuna (skipjack species) is a **medium mercury content** fish, therefore:

- Women who may become pregnant can eat about three (3) cans per week
- Young children can eat about one can (or ~ 2 half-can portions) per week
- Pregnant (or breastfeeding) women can eat about one can per week (and should ensure they keep other fish meals in the low mercury category)

Canned **white** or **albacore** tuna, is **moderately high in mercury** therefore:

- Women who may become pregnant should eat no more than one can per month
- Young children should avoid or eat only rarely (that is, less than once per month)
- Pregnant (or breastfeeding) women should avoid or eat only rarely (that is, less than once per month)

Broader Considerations

Alongside summarizing information on methylmercury and omega-3 polyunsaturated fatty acid levels in various fish species, Table 1 below also identifies potential ecological concerns that should inform choice of fish. The table shows that it is possible to choose fish species that are low in mercury and have low ecological concerns, but still provide omega-3 polyunsaturated fatty acids (denoted by the bolded text in unshaded rows), as well as being cost effective, with species such as Atlantic mackerel, herring, sardines and smelt being the most advantageous.

Table 1 Summary of Omega-3 fatty acid (EPA and DHA) Content, Methylmercury Levels and Ecological Concerns for Selected Fish Species, in Rank Order Overall

Species (170 gm edible portions, raw weight)	Omega-3 fatty acid ^a (EPA + DHA) (grams)	Mean Mercury Concentration ^b (ppm)	Ecological Concerns ^c
Mackerel, Atlantic	3.90	0.05	LOW
Salmon, Chinook (wild)	3.32	0.01	LOW-MEDIUM - Fairly well managed; loss of habitat remains a concern
Salmon, pink, canned ^d (wild)	2.82	ND	LOW - best managed of all salmon species
Herring, Atlantic	2.68	0.04	LOW
Sardines, Atlantic	1.54	0.02 ^e	LOW
Trout, mixed species (freshwater)	1.26	0.07	LOW
Smelt	1.18	0.11	LOW
Oyster (wild)	0.95	0.01	LOW-MEDIUM
Shrimp (North American)	0.82	ND	LOW-MEDIUM - Some concerns about bycatch ^f and habitat damage
Pollock, Atlantic	0.72	0.04	LOW
Oyster (farmed)	0.67	ND	LOW
Catfish (farmed)	0.47	0.05	LOW
Scallops	0.34	0.05	LOW-MEDIUM - Sea scallops caught by dredging causes severe damage to seafloor habitat and significant bycatch. Farmed scallops or those caught by professional divers can be better alternatives.
Clams (farmed)	0.24	ND	LOW
Tilapia	0.15	0.01	LOW
Salmon, Atlantic ^g, farmed	3.16	0.01	HIGH - Farmed salmon raised in open net cages can pose a threat (through competition and disease) to wild salmon and the marine environment.

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Species (170 gm edible portions, raw weight)	Omega-3 fatty acid ^a (EPA + DHA) (grams)	Mean Mercury Concentration ^b (ppm)	Ecological Concerns ^c
			- Dependence on wild fish used in fish-feed
Shrimp (Tiger, imported)	0.82	ND	HIGH - Trawling for wild-caught tropical shrimp (also called prawns) accounts for about 25% of global bycatch. - Tiger shrimp is the most commonly farmed species in south-east Asia. Mangrove forests are routinely destroyed to create ponds for shrimp aquaculture.
Snapper, mixed species	0.52	0.19	MEDIUM-HIGH - Significant overfishing and bycatch with some species
Ocean Perch, Atlantic	0.50	ND	HIGH - Stocks have been subject to intensive fishing pressure over the last 10 years, vulnerable to overexploitation.
Tuna, light, canned	0.46	0.12	MEDIUM - Considerable concern about the amount and type of bycatch.
Haddock	0.32	0.03	MEDIUM-HIGH - Stocks slowly recovering from overfishing, also concerns about habitat damage due to use of bottom trawl gear. IUCN lists as vulnerable.
Halibut, Pacific	0.62	0.25	LOW
Tuna, white, canned (Albacore)	1.48	0.35	HIGH - Use of longlines to catch white (albacore) tuna from the Pacific results in high bycatch.
Shark	1.43	0.99	HIGH - With few exceptions, sharks are at historically low levels throughout the world.
Swordfish	1.10	0.98	HIGH - Bycatch is an ongoing concern for swordfish caught outside North America. - Vulnerable to overexploitation since they mature late and take a long time to replace their numbers. - IUCN ^h lists as vulnerable
Halibut, Atlantic	0.62	0.25	HIGH - IUCN lists as endangered
Mackerel, King	0.54	0.73	LOW
Grouper, mixed species	0.42	0.47	HIGH - Many species overfished. IUCN lists as threatened.

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Species (170 gm edible portions, raw weight)	Omega-3 fatty acid ^a (EPA + DHA) (grams)	Mean Mercury Concentration ^b (ppm)	Ecological Concerns ^c
Cod, Atlantic	0.32	0.10	HIGH - Heavily fished over the past 50 years resulting in massive population declines. IUCN lists as vulnerable.
Roughy, orange	ND	0.56	HIGH - Long-lived fish, vulnerable to exploitation

Notes:

^a Data source USDA National Nutrient Database for Standard References, Release 17-1. [electronic version] Retrieved April 12, 2005 from <http://www.nal.usda.gov/fnic/foodcomp>.

^b Data source US DHSS/EPA (2006).

^c Information from this section came from four sources:

- Monterey Bay Aquarium Seafood Watch Program (MBASWP), <http://www.mbayaq.org/cr/seafoodwatch.asp>
- UK Marine Conservation Society, <http://www.fishonline.org/>
- International Union for the Conservation of Nature and Natural Resources (IUCN) Red List of Threatened Species, <http://www.iucnredlist.org/>
- David Suzuki Foundation. 2006. State of the Catch. Author: Suzanne Tank. <http://www.davidsuzuki.org/files/Oceans/StateoftheCatch.pdf>

^d Canned salmon typically contains wild pacific salmon, usually either “pink” or “chum” species.

^e Institute for Agriculture and Trade Policy’s Food and Health Program, Smart Fish Calculator. <http://www.iatp.org/foodandhealth/fishcalculator/index.cfm>.

^f Bycatch refers to unwanted fishes and animals caught accidentally in fishing gear and discarded overboard, dead or dying.

^g “Atlantic” here refers to the species of salmon, rather than the geographic location of origin. Note that wild Atlantic salmon stocks are severely depleted and therefore not widely available in retail markets (See: Atlantic Salmon Federation. (2004). Status of North American Wild Salmon. http://www.asf.ca/reports/2004state/popn2004_8x11_e.pdf).

^h The International Union for the Conservation of Nature and Natural Resources is the world’s largest conservation network with 82 member States and numerous government agencies and non-governmental organizations including Canada’s Department of Fisheries and Oceans.

ND – below the level of detection