

Fisheries

Both aquaculture (fish farming) and wild-catch fisheries can offer healthy and sustainable fish products.

Many fish farmers are learning to raise fish in more sustainable ways by using water filtration systems and natural fish-feeds that won't pollute the surrounding ecosystems. As populations of wild fish continue to decline, sustainable fish farming will play an important and necessary role for meeting the demands of our food supply.

Wild-catch fishers are learning to fish "sustainably" as well. Nets are treated with antifouling chemicals to prevent water birds from being snared, and "drag nets" are avoided, which can cause long-term damage to the ocean floor.

The U.S. requires all fish and seafood be labeled with its country of origin and method of production (i.e., wild vs. farmed). However, currently there are no USDA organic standards in place for regulating and labeling fish and seafood. These standards are in progress, but could be slow to evolve due to disagreement and unanswered questions within the industry. There are industry-created guidelines for labeling fish and shellfish "organic." However, these standards have not received the scrutiny of experts and there is no governing agency to enforce them.



FRESHNESS & QUALITY

Make sure fish or seafood smells clean (no strong fishy odor) and feels firm to the touch. Buy a whole fish when possible and look for a clear, glistening surface.

Brown spots or blemishes can indicate the beginnings of decay. Watch for missing scales, which can indicate the fish was handled improperly before arriving at the store. Exposed flesh or fillets should be translucent.

Resources

U.S. Food and Drug Administration

"What You Need to Know About Mercury in Fish and Shellfish." Available at: www.epa.gov/waterscience/fishadvice/advice.html.

The Environmental Working Group

Available at: www.ewg.org.

Monterey Bay Aquarium Seafood Watch

Available at: www.mbayaq.org/cr/seafoodwatch.asp.

Seafood Choices Alliance

Available at: www.seafoodchoices.org.



ALL ABOUT *Fish and Seafood*



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EATING FISH *and seafood can provide good nutrition with potential health benefits.*

At the same time, fisheries are surrounded with environmental issues, and high contaminants in some fish may raise concerns about health. How does a person make the right choice? The following can help choose wisely, to minimize the negatives and maximize the positives of eating fish.

Health Benefits

All fish and seafood is an excellent source of high-quality protein, vitamins, and minerals, without the saturated fat found in some meats. White-fleshed fish like cod, halibut, pollack, and bass are very low in fat, and therefore an ideal source of lean protein. Fattier fish found in cold waters such as mackerel, lake trout, herring, sardines, albacore tuna, and salmon are better sources of nutritionally essential omega-3 fats—eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA).

Research shows these fatty acids perform functional roles in the body to maintain cardiovascular health, warding off heart disease and stroke. Populations who regularly eat fatty fish have less death attributed to coronary heart disease. The American Heart Association (AHA) recommends eating a variety of fish (preferably fatty) at least twice

a week, in addition to plant sources of omega-3 fats, as a preventive measure against cardiovascular disease. Omega-3 fats also have potential roles in Alzheimer's prevention and treatment of mild depression.

Food Safety

Some types of fish may contain undesirable levels of environmental contaminants like mercury, polychlorinated biphenyls (PCBs), and dioxins. Incidentally, the fish that are typically high in contaminants are often the best sources of omega-3s. For many of us this raises the question of whether the benefits of fish consumption outweigh the risks.

PCBs and other dioxins are formed as a result of combustion processes such as burning waste and fuels (like wood, coal or oil); chlorine bleaching of pulp and paper; certain types of chemical manufacturing and processing; and other industrial processes. Dioxins can also be formed as a result of natural processes such as forest fires.

According to the Environmental Protection Agency (EPA), dioxin levels in the United States have been declining for the last 30 years due to reductions in manmade sources.

However, these compounds break down so slowly that some will still be in the environment many years from now.



The most common health effect seen in people exposed to large amounts of dioxin is a severe skin disease with acne-like lesions. This has typically been the result of

exposure from accidents or contamination events. Additional effects from large exposures include skin rashes, skin discoloration, excessive body hair, and possibly mild liver damage. Other health effects in question are the risk of cancer in adults and developmental impacts during pregnancy and childhood.

Since dioxins and PCBs are stored in the fatty tissue of fish, you can reduce your risk of exposure by removing the skin and fat before cooking.

Mercury or methyl mercury can harm brain and nervous-system development. Most fish contain trace amounts of mercury since it occurs naturally in soil, rocks, streams, lakes, and oceans. However, the prevalence of mercury as an industrial byproduct has caused some fish to contain undesirable levels. Mercury is highest in older, larger, predatory fish such as shark, swordfish, king mackerel, and tilefish. Eating a variety of fish, and eating fish lower on the food chain, can help you minimize exposure. Since mercury is distributed throughout the muscle, skinning and trimming the fish will not reduce exposure.

The EPA and FDA Mercury Guidelines

The risk from mercury in fish depends on the amount of fish eaten and level of mercury it may contain. According to the Environmental Protection Agency (EPA) and U.S. Food and Drug Administration (FDA), for most people the risk from mercury by consuming fish and seafood is not a health concern. The American Heart Association's view is that the benefits and risks of eating fish vary depending on a person's stage of life. For example, in middle-aged and older men, and postmenopausal women, the cardiovascular benefits of eating fish far outweigh the risks within the established guidelines of the FDA and EPA.

However, because mercury can cause harm to developing nervous systems, pregnant/nursing woman and young children should monitor fish intake more closely.

The EPA and FDA recommend the following for pregnant/ nursing women, and women who may become pregnant:

- 1) Eliminate predator fish from the diet such as shark, swordfish, king mackerel, and tilefish.
- 2) Limit consumption of other fish lower in mercury to an average of 12 ounces (two average meals) per week. Fish and seafood that are lower in mercury and commonly eaten include shrimp, canned light tuna, salmon, pollack, and catfish. Albacore ("white") tuna has more mercury than canned light tuna so limit albacore to six ounces (one average meal) per week.
- 3) Check local advisories about fish caught in local lakes, rivers, and coastal areas. If no advice is available, eat up to six ounces per week of the local fish, and don't consume any other fish during the week.

For young children, follow the same recommendations above, but serve smaller portions.

