

## Issues Regarding Mercury in Pacific Northwest Seafood

Dr. Michael T. Morrissey, Director and Professor  
Oregon State University Seafood Lab - Astoria

Mercury is a natural element that is found in minute quantities in air, water and all living things. Mercury can find its way into food sources through a number of ways including natural recycling, burning of fossil fuels and pollution. There has been an increased concern about mercury in seafoods since the Fall of 2002. Recently, the Attorney General of California has sued several supermarkets and restaurant chains for not having warning signs about mercury posted for their consumers. This has caused unwarranted alarm about all seafoods and general confusion about what is safe to eat or not - and what do I tell my customer when they ask. This one-pager will hopefully fill in some of the information gaps.

Mercury exists in nature in two forms, inorganic mercury and organic methyl mercury. Methyl mercury binds to tissue and is the most prevalent form found in fish. Some fish have more methyl mercury than others depending on their aquatic environment and where they stand in the food chain. Fish absorb mercury in their gills from their environment and from their food sources as they feed on other aquatic organisms. A general rule of thumb is the larger the fish, the higher the levels of methyl mercury in their flesh. A very large bluefin tuna or swordfish will tend to have larger levels as the compound accumulates.

Although all fish have trace amounts, methyl mercury levels vary widely and most fish have less than 0.1 ppm. Canada and the U.S. have established guidelines for allowable levels of mercury content in fish and seafood products. The U.S. limit is 1.0 ppm while Canada Health guidelines are 0.5 ppm. Studies have shown that the highest levels of mercury are found in sharks, swordfish, tilefish, king mackerel and large tuna. The tuna issue is a complicated one. There is research showing that some tunas such as bluefin can exceed the FDA limits. The problem is that FDA tables list all tunas together and there is no distinction among the species (albacore, skipjack, bluefin, yellowfin, etc.). One can see tables in general publications such as Newsweek showing fresh/frozen tuna having 0.32 ppm with no distinction among the different species. The range in the data is often very wide such as from 1.30 to 0.05 ppm but it is not possible to differentiate between the species the way the data is reported. Therefore, coastal albacore is unfairly associated with other tuna species which might have higher levels of mercury.

The good news is that several species in the Pacific Northwest have been shown to have low mercury levels. Preliminary work with troll-caught coastal albacore showed levels below FDA and Canadian guidelines which makes sense since coastal troll-caught albacore is small (12-17 lbs.). Salmon also is very low in mercury as well as sardines, flounders, sablefish, halibut, cod, pollock shrimp, oysters and other species. There has not been sufficient research to make strong scientific statements about many of the species off the Pacific Northwest and differences that may occur in size and locations. More research is needed in this area.

So, what do you tell your customers? Buying and selling local caught salmon, albacore, oysters and other species is an easy choice and there is no mercury concern. There is also good evidence that eating these species is very beneficial from a health standpoint. They are high in omega-3 fatty acids and a steady diet of fish high in omega-3s has been shown to reduce the incidence of heart attacks, improve mental health and as well as other health benefits. So eat and enjoy, cut down some on the bluefin tuna sushi and remember that fish is a nutritious food that confers numerous health benefits as well as tasting great.