

# Got Mercury?

A Project of Turtle Island Restoration Network



## **Toxic Tuna: An Undercover Investigation of Mercury-Laden Tuna in New York City's Premiere Sushi Restaurants**

**Dangerous levels of mercury in sushi confirm the need for more strict  
seafood testing and consumer awareness policies  
to protect public health.**

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## Executive Summary

Mercury deposits have been increasingly released into the air by industrial pollution only to make their way up the seafood chain to our sushi plates. In its most toxic form, mercury is found in seafood that is served every day in our restaurants and markets.

Methylmercury, the form found in seafood, is a potent neurotoxin most dangerous to children and fetuses. Although the federal government has issued a health advisory recommending women and children limit their consumption of mercury-laden seafood, the government has yet to implement an enforcement mechanism to stop potentially toxic fish from reaching public markets.

In response to sushi's growing popularity and the increasing levels of mercury found in tuna, GotMercury.Org investigated mercury levels of tuna sushi found in eight of New York City's premiere sushi restaurants. More often than not, sushi-lovers were served tuna with unsafe concentrations of mercury. In fact, over 20 percent of the tuna sushi cuts should never have reached serving plates because they exceeded FDA action levels for safe consumption. As a result, consumers substituting tuna for a variety of other fish or proteins have blood mercury levels exceeding healthy thresholds by all health standards.

Key findings include:

- The mean or average mercury concentration found in the 13 samples was 0.7275 parts per million ("ppm" hereinafter). Rounding to the nearest thousandth of a ppm, the mean mercury level in samples was equal to that of king mackerel (0.730 ppm), which the FDA warns as unsafe for consumption by women and children.
- At these levels, an average New Yorker weighing 150 pounds and eating 8 oz. of tuna sushi weekly, would reach blood mercury levels at 300 percent the FDA recommended level of 5.8 micrograms per liter.
- The median mercury concentration found in New York City tuna sushi samples was 0.715 ppm. This means that nearly half of the sampled tuna contained mercury levels in excess of the FDA safe levels for women and children.
- Over 20 percent of samples taken were considered unsafe for all consumers because they exceeded the FDA action level of 1.0 ppm. Although no enforcement mechanism has been implemented, the FDA theoretically has the power to remove any fish with mercury levels higher than the action level from the retail market.
- Got Mercury.Org samples contained considerably denser concentrations of mercury in tuna than government reported levels. Over 75 percent of the NYC sushi-grade tuna samples had mercury concentrations over the 0.357 ppm level found on average in the FDA fresh albacore tuna tests.

To better protect sushi-lovers, Got Mercury.Org recommends the following policy changes enforceable at consumer, local, state and federal government levels.

- Restaurants and markets where tuna sushi is sold should post clear consumer advisory signs informing customers of the best seafood diet choices and identifying those fish with the highest mercury levels.

- States legislators should propose Right-to-Know laws that require Consumer Advisories about all harmful toxins present in consumer goods at point-of-sales.
- States and counties should widely release Guides for Safe and Healthy Seafood Diets to inform and protect consumers against mercury poisoning.
- The National Marine Fisheries Service should update research on average mercury levels in all seafood to reflect the higher levels found in the country's biggest cities.
- The FDA should update its consumer advisory to target all seafood consumers. The FDA advisory should also reflect the dangerous mercury levels found in tuna.
- The FDA should conduct random testing of all seafood imports, rejecting catches with fish at the 1ppm mercury action level. The FDA should similarly conduct random testing at supermarkets, fish markets and restaurants to secure that all retail seafood has mercury levels below the action level.

## **Introduction**

With the advent of health consciousness, Americans' seafood consumption rose 27 percent over the 1980s.<sup>1</sup> Coupled with the booming popularity of sushi through the 1990s, seafood consumption doubled by the century's end.<sup>2</sup> Though tuna was ranked second to shrimp in a 2006 consumer poll, sushi experts now call tuna "the diamond of the sea" gracing the plates of many of the 30 million, regular sushi consumers in the U.S.<sup>3</sup> Given tuna's elevated mercury levels, Got Mercury.Org was compelled to focus on just how much mercury sushi-lovers are digesting with each flick of the chopstick.

Two-thirds of the mercury circulating in the environment originates with human activities, principally coal-fired power plants.<sup>4</sup> Because the metal never degrades, it persists in the environment and is carried by air deposits and later by precipitation, through which mercury cycles over the world's water bodies. Settling on the surface of water bodies, mercury is then converted by bacteria into methylmercury, a potent neurotoxin. Fish build up methylmercury deposits as the bacteria glides over their gills



and as they consume plant material and smaller fish. Through a process of bioaccumulation those fish higher on the seafood chain accumulate increasingly denser deposits of mercury as they eat smaller fish and plant material.

Mercury enters our bodies in its most toxic form primarily through consumption of mercury-laden seafood according to the National Academy of Science. Even low-levels of mercury

exposure can be dangerous, especially in vulnerable populations such as women of childbearing age, pregnant women, infants and children. In April 2004, U.S. Environmental Protection Agency (EPA) scientists estimated that up to one in six women of childbearing age in the U.S. has a sufficiently high mercury blood level to put 630,000-- over 6 percent of newborns-- infants at risk of neurological damage.<sup>51</sup> By comparison, in July 2007, the New York City Health Department found one in four women has mercury blood levels up to three times higher than those in the 2004 EPA study. These statistics bode ominously for the potential rate of impaired brain development in NYC infants.

Alarmed by the potential epidemic of mentally impaired newborns, the EPA and the Food and Drug Administration (FDA) issued a joint mercury-in-seafood consumer advisory in 2004. The March 2004 advisory (appendix A) warned women of childbearing age, pregnant and nursing women, infants and children to eliminate or reduce consumption of those fish with the highest mercury levels: swordfish, shark, tilefish (golden snapper), and king mackerel. The consumer warning downplayed the heightened levels of mercury in albacore tuna, by suggesting reduced intake alone.

The consumer advisory warnings are based on significant scientific data indicating mercury impairments of brain developmental. Exposed children show symptoms that “include poor performance on neurobehavioral tests, particularly on tests of attention, fine motor function, language, visual-spatial abilities (eg. drawing), and verbal memory.”<sup>6</sup> A recent Harvard study confirmed these outcomes finding that “higher mercury exposure in pregnancy is associated with lower offspring cognitive scores, even at these relatively low levels of exposure.”<sup>7</sup> In adults, recent studies have also linked regular seafood diets high in mercury to cardiovascular disease.

Data confirms that mercury is toxic to human health. Just as the surgeon general requires consumer warning labels about nicotine’s toxic health effects, consumers must be informed about mercury’s dangers. This report serves to demonstrate the frequent consumption of mercury toxins in American’s favorite seafood and to recommend much-needed consumer awareness and policy reform. Sushi lovers need not give up sushi as whole; on the contrary, many fish are both low in mercury and high in important Omega-3 fatty acids. Our recommendations suggest that government and businesses merely inform sushi lovers on how to make the healthiest choices for themselves.

### **Methodology**

Sushi and Japanese cuisine has become one of the most popular dining choices. According to the 2006 *Zagat National Dining Survey*, “sushi restaurants lead the Top Food and Most Popular lists” in cities across the United States. And, per capita, New York City tops *Zagat’s* charts for the most dense concentration of sushi dining options in the country. While many of the city’s premiere sushi restaurants display their *Zagat* ratings, outside of California, hardly any visibly post important mercury-in-seafood consumer advisories.



In response, Got Mercury went undercover to test mercury levels of sushi-lover’s favorite tuna morsels. From *Zagat’s* top-rated sushi restaurants in New York City we dined at eight restaurants between April 5, 2006 and April 8, 2006.

New York City Restaurants Included:

- Haru- 205 West 43<sup>rd</sup> Street*
- Masa- 10 Columbus Circle*
- Sushi of Gari- 402 E. 78<sup>th</sup> Street*
- Haru Sushi- 433 Amsterdam Avenue*
- Benihana- 47 West 56<sup>th</sup> Street*
- Sushi Yasuda- 204 East 43<sup>rd</sup> Street*
- Haru Sushi- 220 Park Avenue South*

When possible, two orders of tuna sushi were requested. The first was typically a tuna *maki* style or tuna roll. The second was a tuna *nigiri* style, recognized by a slice of fish atop a ball of rice.<sup>8</sup> Each order approximated 2 ounces of fish.

The samples were then sent to Enviromatrix Analytical, Inc. laboratories for methylmercury testing. The laboratory specializes in marine sediment, tissue, and water chemistry for marine consultants and governmental agencies.

### Types of Sushi

Sushi is commonly served in the U.S. *maki* style, which comes as a sliced roll containing fish or shellfish often accompanied by vegetables. Traditionally, sushi is served *nigiri* style characterized by a slice of raw fish atop a ball of rice and usually served in pairs. Additionally, *sashimi* style is found as simple slices of top-grade fish, approximating what other restaurants consider “tuna steaks.”

Sushi chefs generally save the prime-cuts for sushi orders that are presented in the most simple manners. Thus, the quality of the fish tends to progressively improve from *maki* to *nigiri* to *sashimi* style. Because *maki* and *nigiri* style were most commonly ordered by patrons in the U.S. our samples reflected the taster’s choice.



### Tuna Species

Tuna served at sushi restaurants vary significantly by species. Bluefin tuna is the most sought after species, with whole fishes auctioned off at over \$30,000 on Japanese fish markets. However, the bluefin tuna is nearing extinction and governing bodies worldwide have called for moratoria on the fishing of this species.

Alternatively, bigeye and yellowfin tuna are frequently purchased for preparation by sushi chefs. These species are commonly referred to as *maguro* on sushi menus. Albacore tuna, or *shiromaguro* is also popular in the United States. *Ahi*, the Hawaiian name for tuna is also commonly served and generally refers to yellowfin tuna, bigeye tuna, or albacore tuna. Although many patrons do not ask, a sushi order could include any of these various species of tuna. Species of tuna vary in average mercury concentration, as indicated in the chart of common species below.

<b>Tuna Species</b>	<b>FDA Mercury Data</b>	<b>Scientific Name</b>	<b>Japanese Name</b>	<b>Hawaiian Name</b>
Albacore	0.357	<i>Thunnus alalunga</i>	Shirmaguro, tomo, binho, binnaga	Ahipalaha, tomo, ahi
Bigeye	0.639	<i>Thunnus obesus</i>	Bachi, mebachi	Ahi, ahi po o nui
Bluefin	NA	<i>Thunnus thynnus</i>	Maguro, kuromaguro	
Bonito	NA	<i>Sarda sarda</i>	Katsuo	
Skipjack	0.205	<i>Katsuwonus pelamis</i>	Katsuo	Aku
Yellowfin	0.325ppm	<i>Thunnus albacares</i>	kihada	Ahi

To date, the FDA has performed only limited testing of tuna species commonly served as sushi. There is no public data yet available for mercury levels in bluefin tuna despite the popularity of this species in the US. However, the Japanese government released test data that showed mercury in bluefin tuna averaging 1.305 ppm—well above the FDA action level.<sup>9</sup>

### **Key Findings**

Key findings show NYC sushi-grade tuna is considerably higher in mercury concentration than government reported averages and dangerously higher than recommended safe levels of consumption.

<b><u>Sample</u></b>	<b><u>Restaurant</u></b>	<b><u>Order</u></b>	<b><u>Mercury ppm</u></b>
1	Haru- 205 West 43 <sup>rd</sup> Street	Tuna roll	1.030
2	Haru- 205 West 43 <sup>rd</sup> Street	Maguro	0.975
3	Masa- 10 Columbus Circle	Tuna roll	1.520
4	Sushi of Gari- 402 E. 78 <sup>th</sup> Street	Tuna roll	0.715
5	Sushi of Gari- 402 E. 78 <sup>th</sup> Street	Maguro	0.727
6	Haru Sushi- 433 Amsterdam Avenue	Tuna roll	0.570
7	Haru Sushi- 433 Amsterdam Avenue	Maguro	0.908
8	Benihana- 47 West 56 <sup>th</sup> Street	Tuna roll	0.307
9	Benihana- 47 West 56 <sup>th</sup> Street	Maguro	0.242
10	Sushi Yasuda- 204 East 43 <sup>rd</sup> Street	Tuna roll	0.702
11	Sushi Yasuda- 204 East 43 <sup>rd</sup> Street	Maguro	1.050
12	Haru Sushi- 220 Park Avenue South	Tuna roll	0.383
13	Haru Sushi- 220 Park Avenue South	Maguro	0.328

The U.S. Food and Drug Administration (FDA) warns women of childbearing age, pregnant and nursing women & children to avoid consumption of the following fish due to dangerous mercury levels: **swordfish, shark, king mackerel, tilefish (golden snapper)**. Additionally, the FDA warning recommends that most vulnerable populations limit consumption of **albacore tuna**. The FDA gets its mercury data from the National

Marine Fisheries Service reports on mercury levels in commercial fish and shellfish tissue. Cross-references show that the FDA noted fish had the following average mercury levels in 2006:

shark → 0.988 ppm  
swordfish → 0.970 ppm  
king mackerel → 0.730 pp  
tilefish (golden snapper) → 1.45 ppm  
tuna- albacore, fresh/frozen → 0.357 ppm

- The mean or average mercury concentration was 0.7275 ppm. Rounding to the nearest thousandth of a ppm, the mean mercury level in samples was equal to that of king mackerel (0.730 ppm). The FDA warns that king mackerel is unsafe for consumption by vulnerable populations in its 2004 consumer advisory.
- At these levels, an average New Yorker weighing 150 pounds and eating 8 oz. of tuna sushi weekly, would reach blood mercury levels at 300% the FDA recommended level of 5.8 micrograms per liter. The New York State recommended mercury blood level is 5 micrograms per liter, estimating your average New York City sushi-eater at an even greater risk for mercury contamination. And, if measuring by the World Health Organization's safe blood mercury threshold of 1.3 micrograms per liter, your average New York City sushi-eater would yield levels of mercury concentration requiring immediate metal detoxification. The median mercury concentration found in New York City tuna sushi samples was 0.715 ppm. This means that over half of the sampled tuna had mercury levels higher than fish highlighted on the FDA consumer advisory warning.
- Of the samples taken, Got Mercury.org found that 6 out of 13 samples tested, *that's nearly half*, contained mercury levels in excess of the FDA safe levels for consumption by women and children as reported in king mackerel mercury averages.
- Over 20 percent of samples taken were considered unsafe for all consumers because they exceeded the FDA action level of 1.0 ppm. Although an enforcement process has yet to be implemented, the FDA theoretically has the power to remove any fish with mercury levels higher than the action level from the retail market.
- Restaurant staff was unable to identify the tuna species served in our samples. For the sake of comparison we therefore measured our sample mercury levels against government-recorded mercury levels of the most commonly served tuna—albacore—to find considerably denser concentrations of mercury in tuna served in NYC. Over 75 percent of the NYC sushi-grade tuna samples had mercury concentrations over the 0.357 ppm level found on average in the FDA fresh albacore tuna tests.

From these findings, we can deduce that tuna consumption in NYC's premiere sushi restaurants has become a high-risk sport. More often than not, sushi-lovers are served tuna with unsafe concentrations of mercury. In fact, over 20 percent of the tuna sushi cuts should never even reach serving plates because they exceed government action levels. As a result, those substituting tuna for other fish or proteins have mercury blood levels exceeding healthy thresholds by all health standards.

## **Mercury Affects the Health of all Members of the Population**

So, what, exactly, can consumers expect if they are experiencing mercury contamination?

All seafood-eating humans risk levels of mercury contamination. While some people are more vulnerable to toxicity, everyone has the power to control their mercury intake to preclude the worst outcomes.

When consumed in seafood, mercury compounds are readily absorbed by the intestine and effectively cross biological membranes such as the blood-brain barrier, spinal cord, peripheral nerves, and placenta.<sup>10</sup> Once in the body, mercury is found bound mostly to proteins containing sulfur amino acids.<sup>11</sup> Mercury can impair brain development as well as induce toxic effects in several organ systems including the kidney, liver and reproductive organs, with neurotoxicity considered the most sensitive endpoint.<sup>12</sup>

### **Most Vulnerable**

Fetal exposure to mercury is considered the highest risk for neurotoxic as higher levels have been found in the fetal rather than the maternal brain.<sup>13</sup> For this reason, women of childbearing age, pregnant women and nursing women are potentially the most sensitive sub-group of the population.<sup>14</sup>

In order to protect this sensitive sub-group, the U.S. EPA has established a recommended blood mercury level that does not exceed 5.8 micrograms per liter.<sup>15</sup> The State of New York has established parallel “reportable” blood mercury level at 5 micrograms per liter.<sup>16</sup> These levels are between 3 and 4 times above the 1.6 micrograms per liter that the World Health Organization provides as tolerable mercury intake for safe consumption by humans on a weekly basis.<sup>17</sup>

In response to the EPA’s release of safe blood mercury levels, in 2002 the Center for Disease Control found that 8 percent of women of childbearing age had excessive prenatal exposure to mercury, which could lead to developmental deficits in children.<sup>18</sup> Given sushi consumption in New York coupled and the State’s slightly lower safe blood mercury level, it should therefore come as no surprise that 25percent of women in this age group have exceedingly high mercury blood levels.<sup>19</sup>

Ample scientific data indicate that mercury impairs brain development. Exposed children show symptoms that “include poor performance on neurobehavioral tests, particularly on test of attention, fine motor function, language, visual –spatial abilities (i.e. drawing), and verbal memory.”<sup>20</sup> Even at relatively low levels of exposure, higher mercury exposure in pregnancy is associated with lower offspring cognitive scores, according to a recent Harvard study.<sup>21</sup>

### **Highly-Moderately Vulnerable**

Studies have also suggested that mercury in seafood consumer advisory warnings should be targeted at adult populations that are not considering childbearing.<sup>22</sup> The studies, corroborated as recently as May 2007, show that adults with higher mercury levels are 15percent more likely to experience heart disease than control groups with lower mercury levels. The studies attribute mercury exposure directly to seafood consumption.<sup>23</sup>

### Symptoms and Remedies

Since 2002, Got Mercury.Org has referred hundreds of people believing they've experienced mercury contamination to physicians. Those concerned show common symptoms such as metallic-taste in the mouth, fatigue, attention deficit, and numbness or tingling in extremities. In most cases, diet adjustments that decrease and vary seafood intake succeed in reducing blood mercury levels. Where mercury concentrations are more dense, chelation procedures, which bind organic chemicals to incorporeal metals in the body, assist in the excretion of heavier metals, such as mercury and lead.

## **Policy Recommendations**

Based on this study's findings of dangerous levels of mercury in NYC's tuna sushi, Got Mercury.Org recommends the following local, state, and federal policy reforms to reduce the threats of mercury contamination.

### **Restaurant Policies**

*Restaurants and markets where tuna sushi is sold should post clear consumer advisories informing customers of the best seafood diet choices and identifying those fish with the highest mercury levels.*

Nearly 400 restaurants in California are already carrying Mercury-in-Seafood Consumer Advisories in compliance with the state's Right-to-Know law. Got Mercury.Org surveyed restaurants managers to determine the market effect of these signs. Nearly all restaurant managers reported no effect on sales as a result of posting signs. 10 percent reported increased consumer confidence and loyalty. And, nearly 40 percent reported decreased purchases of types of seafood known to carry high-mercury levels.

Given the neutral and positive effects of California's Mercury-in-Seafood Consumer Advisories, Got Mercury.Org recommends posting similar signs (Appendix B) in all restaurants where tuna or other mercury-laden seafood is sold.

For an added marketing virtue, Got Mercury.Org recommends regular metals testing and low-mercury advertisement of menu items. In turn, restaurants should pressure whole-sellers to test seafood prior to purchase. With this testing information, restaurant managers can protect customers from receiving fish with mercury above the FDA action level of 1.0 ppm further building consumer confidence.

### **State & County Public Health Policies**

*States legislators should propose Right-to-Know laws that require consumer advisories about all harmful toxins present in consumer goods at point-of-sales.*

Similar to California's Right-to-Know law, state legislators should adopt consumer health advisories into state health and safety codes. California's Proposition 65 requires establishments to inform consumers if they handle materials that are carcinogenic or may cause birth defects. State health monitors should enforce the posting of consumer advisories by conducting random visits and asserting fines against establishments that are out of compliance.

*States and counties should widely release Guides for Safe and Healthy Seafood Diets to inform and protect consumers against mercury poisoning.*

Several government entities, including the City of New York, have produced clear printed and on-line guides already. These Guides should include:

- information about the health benefits and drawbacks of certain seafood diets;
- recommended fish which are low in toxins, such as mercury and PCBs, and high Omega-3 fatty acids
- recommended portions for healthy diets

Guides should be distributed over a wide area. It is not enough for governments to provide this information on-line alone. Public health guides should be in all medical clinics and available at points-of-sale, such as supermarkets and fish markets.

#### Federal Consumer Advisory Policies

*NMFS should update research on average mercury levels in all seafood to reflect the higher levels found in the country's biggest cities.*

Much of the data regarding mercury deposits found in fish tissue dates back to studies conduct in 1978 or 1990, including studies on tuna. This data is out-of-date as revealed by independent laboratory fish testing commissioned by Got Mercury.Org in its various sushi reports. Mercury emissions have increased alongside the advent of coal-fired energy plants. There is a direct correlation between the levels of coal air pollution and mercury found in seafood. Decades old data does not satisfactorily inform consumers of how to protect themselves from mercury contamination.

*The FDA should update its consumer advisory to target all seafood consumers. The FDA advisory should also reflect the dangerous mercury levels found in tuna.*

Currently, the FDA consumer advisory is targeted at women of childbearing age, pregnant and nursing women, and young children. Scientific data shows that *all* seafood consumers may risk deleterious health effects if they regularly consume seafood that is high in mercury. Therefore, the consumer advisory should target all seafood consumers.

The FDA mercury-in-seafood advisory also downplays mercury deposits found in tuna by recommending 2-3 weekly portions of tuna. As opposed to the 2-3 monthly portions that Canada's Health Department recommends, the FDA's suggestions are too high for a healthy seafood diet.

*The FDA should conduct random testing of all seafood imports, rejecting catches with fish at or above the 1ppm mercury action level. The FDA should also conduct random testing at supermarkets, fish markets and restaurants to secure that all retail seafood has mercury levels below the action level.*

Similar to Health Canada, the FDA should conduct random testing of fish sold at ports, wholesale markets, retail markets and restaurants. Where fish contain mercury at or above the legal action level of 1 ppm of mercury, it should be removed from public markets and discarded.

## Endnotes

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- <sup>7</sup> Oken, E. et al., "Maternal Fish Consumption, Hair Mercury, and Infant Cognition in a U.S. Cohort" *Environmental Health Perspective* 113:10. (2005), (Available at <http://ehp.niehs.nih.gov/members/2005/8041/8041/pdf>).
- <sup>8</sup> Where more than two samples were received, the author calculated the mercury rates of the higher of the comparable samples to average and compare against previous findings. In all cases mercury levels were within 0.15 ppm of comparable samples from the same restaurant.
- <sup>9</sup> Japanese Ministry of Health, Labour and Welfare "Advice for Pregnant Women on Fish Consumption Concerning Mercury Contamination," (2003). (Available at <http://www.mhlw.go.jp/english/wp/other/councils/mercury/index.html>).
- <sup>10</sup> Joint Expert Committee on Food Additives, A report by the United Nations Food & Agriculture Organization and the World Health Organization present at *Sixty-first Meeting of the Joint FAO/WHO Expert Committee on Food Additives* (JECFA) Summary and Conclusions, annex 4., Rome, ( 2003).
- <sup>11</sup> Ibid.
- <sup>12</sup> Ibid.
- <sup>13</sup> Ibid.
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- <sup>15</sup> Shim, S.H. et al. "Mercury and Fatty Acids in Canned Tuna, Salmon, and Mackerel," *Journal of Food Science*, V.69, N.9, (2004).
- <sup>16</sup> "1 in 4 NYC adults has Elevated Blood Mercury Levels" New York City Health Department Press Release (2007).
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- <sup>18</sup> Japanese Health Ministry (2003). Supra 9.
- <sup>19</sup> New York City Health Department Press Release (2007). Supra 16
- <sup>20</sup> Committee on the Toxicological Effects of Methylmercury (2000) Supra 6
- <sup>21</sup> Oken, E. et al. (2005). Supra 7.
- <sup>22</sup> Virtanen, J.K et al., (2005). "Mercury, Fish Oils, and Risk of Acute Coronary Events and Cardiovascular Disease, Coronary Heart Disease and All-Cause Mortality in Men in Eastern Finland." *Arterioscler Thromb Vasc Biol.*, 25:228-233. (Available at <http://atvb.ahajournals.org/cgi/content/abstract/25/1/228>)
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## APPENDIX A: The FDA Fish-Mercury Consumer Advisory



U.S. Department of Health and Human Services  
and  
U.S. Environmental Protection Agency



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### ***What You Need to Know About Mercury in Fish and Shellfish***

#### **2004 EPA and FDA Advice For: Women Who Might Become Pregnant Women Who are Pregnant Nursing Mothers Young Children**

Fish and shellfish are an important part of a healthy diet. Fish and shellfish contain high-quality protein and other essential nutrients, are low in saturated fat, and contain omega-3 fatty acids. A well-balanced diet that includes a variety of fish and shellfish can contribute to heart health and children's proper growth and development. So, women and young children in particular should include fish or shellfish in their diets due to the many nutritional benefits.

However, nearly all fish and shellfish contain traces of mercury. For most people, the risk from mercury by eating fish and shellfish is not a health concern. Yet, some fish and shellfish contain higher levels of mercury that may harm an unborn baby or young child's developing nervous system. The risks from mercury in fish and shellfish depend on the amount of fish and shellfish eaten and the levels of mercury in the fish and shellfish. Therefore, the Food and Drug Administration (FDA) and the Environmental Protection Agency (EPA) are advising women who may become pregnant, pregnant women, nursing mothers, and young children to avoid some types of fish and eat fish and shellfish that are lower in mercury.

By following these 3 recommendations for selecting and eating fish or shellfish, women and young children will receive the benefits of eating fish and shellfish and be confident that they have reduced their exposure to the harmful effects of mercury.

1. Do not eat Shark, Swordfish, King Mackerel, or Tilefish because they contain high levels of mercury.
2. Eat up to 12 ounces (2 average meals) a week of a variety of fish and shellfish that are lower in mercury.
  - o Five of the most commonly eaten fish that are low in mercury are shrimp, canned light tuna, salmon, pollock, and catfish.
  - o Another commonly eaten fish, albacore ("white") tuna has more mercury than canned light tuna. So, when choosing your two meals of fish and shellfish, you may eat up to 6 ounces (one average meal) of albacore tuna per week.
3. Check local advisories about the safety of fish caught by family and friends in your local lakes, rivers, and coastal areas. If no advice is available, eat up to 6 ounces (one average meal) per week of fish you catch from local waters, but don't consume any other fish during that week.

Follow these same recommendations when feeding fish and shellfish to your young child, but serve smaller portions.

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## APPENDIX B: The California Fish-Mercury Consumer Advisory

In California, Proposition 65 requires businesses that sell fish and have more than 10 employees to post the mercury-in-seafood consumer advisory shown below. After the California Attorney General Bill Lockyer sued several restaurants in February 2005, nearly 400 of these points-of-sale began to post this consumer advisory. Nearly all restaurant managers reported that the advisories had no effect on sales.



# WARNING!

Nearly all fish and shellfish contain some amount of mercury and related compounds, chemicals known to the State of California to cause cancer, and birth defects or other reproductive harm. Certain fish contain higher levels than others.

**Pregnant and nursing women, women who may become pregnant, and young children should not eat the following fish:**

**SWORDFISH • SHARK • KING MACKEREL • TILEFISH**

**They should also limit their consumption of other fish, including tuna.**

**Fish and shellfish** are an important part of a healthy diet and a source of essential nutrients. However, the federal Food and Drug Administration ("FDA") and U.S. Environmental Protection Agency ("EPA") advise pregnant and nursing women, women who may become pregnant, and children to limit their weekly consumption of fish and to eat fish that are lower in mercury.

The California Department of Health Services recommends that these individuals:

- Eat a variety of different types of fish;
- Eat smaller fish rather than older, larger fish;
- Begin following these guidelines one year before becoming pregnant.

According to the FDA and EPA, fish or shellfish that tend to be lower in mercury include pollock, shrimp, and scallops. Mercury levels in tuna vary. Tuna steaks and canned albacore tuna have higher levels of mercury than canned light tuna.

For more information about the risks of mercury in fish and about the levels in various types of fish consult the following websites:  
U.S. Food and Drug Administration ("FDA") [www.cfsan.fda.gov](http://www.cfsan.fda.gov)  
U.S. Environmental Protection Agency [www.epa.gov/ost/fish](http://www.epa.gov/ost/fish)

or call the FDA toll-free at **1-888-SAFEFOOD (1-888-723-3366)**.