

THE ONE THAT GOT AWAY:

*FDA FAILS TO PROTECT THE PUBLIC FROM HIGH
MERCURY LEVELS IN SEAFOOD*

Mercury Policy Project
California Communities Against Toxics

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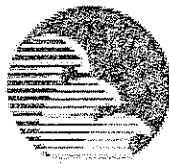
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EXECUTIVE SUMMARY

Recently obtained information from the U.S. Food and Drug Administration (FDA) reveals a seafood mercury monitoring program severely lacking in thoroughness, depth and degree, and a disturbing trend to conduct less and less testing and to altogether cease monitoring for certain species. FDA's monitoring data show that only 13 cans of tuna were sampled for mercury content in 1995 and no samples were taken in 1994, 1996, 1997 and 1998. Yet Americans, on average, consumed 10 cans of tuna in 1998. FDA also failed to monitor mercury levels in large tuna in 1998, and recorded two samples in 1997.

The scant, but existing, FDA data show that significant quantities of seafood exceeding the action level are sold throughout the United States (see table on page 9). FDA's data indicates that 36% of the swordfish, 33% of shark and nearly 4% of the large tuna sampled exceeded FDA's 1 part per million (ppm) action level for methylmercury. Other species acknowledged by FDA to pose a safety hazard because of high mercury levels also have extremely limited or no testing for various years, and include bonito, mackerel, king mackerel, halibut and marlin. Therefore, information that is needed by the public isn't coming from the source most responsible for protecting our seafood—the FDA.

The FDA is charged with protecting the public from mercury contaminated seafood. However, by its own admission, FDA no longer conducts a domestic mercury monitoring program for tuna, shark or swordfish. The FDA is failing to adequately test ocean fish, protect consumers and warn the American public—especially pregnant women and their babies—about high mercury levels in seafood that exceed FDA's guideline for "safe" consumption.

The dangers of mercury have been observed in humans for centuries. The tragic legacy of mercury

pollution in Minamata Bay, Japan in the 1950's helped humanity understand the terrible effects on infants exposed to mercury in the womb. Mercury poisoning in Iraq in the 1970's produced neurological damage to infants at levels that did not adversely affect the mothers. Each new exposure incident has produced more information about the dangerous effects of mercury on humans, especially the most fragile among us: the fetus.

Mercury levels in our environment continue to rise along with the number of states issuing warnings for mercury in freshwater fish; consumption advisories increased from 28 states in 1993 to 40 states in 2000. Recent studies indicate that atmospheric mercury levels have risen, on average, 8% per year between 1990 and 1996, and human activities are responsible for approximately 50-75% of that total. The U.S. Environmental Protection Agency (EPA) estimates that over 150 tons of mercury is emitted into the environment every year from a variety of sources.

Seafood consumption is also rising, and Americans are often urged to eat more fish as a way to improve health and reduce cancer risk. In particular, women are encouraged to increase fish consumption during pregnancy, while the dangers to infants exposed to mercury in the womb are often downplayed. There has been a 25% increase in fish consumption since 1980, with a recent rise from 1997 to 1998. This increase is due in part to a rise in consumption of large tuna (typically sold as fresh steak or sushi) and canned tuna—fish that some states recommend pregnant women limit consumption of due to mercury levels. On average, Americans eat about 19 pounds of fish each year and approximately 15 pounds (or 75%) of that is seafood.

FDA's 1 ppm "action level" for methylmercury in seafood is rarely used to effectively warn the public, is out of date and is not protective of the public's

health. The action level was set over 20 years ago when fish consumption was much lower than today, and prior to the release of new studies indicating neurological damage to the fetus from mercury at exposure levels lower than previously thought.

The EPA's Mercury Study Report to Congress estimated that 7 million women and children are at risk at a given time of mercury exposure due to consumption of contaminated fish. Given the risks of neurological damage to the developing infant, making sure that seafood with high mercury levels is not sold and that the public, and especially pregnant women, are adequately warned should be a high priority—a priority that FDA appears to have turned its back on.

Therefore, the Mercury Policy Project recommends that:

1. The appropriate U.S. Congressional Committees hold a joint oversight hearing concerning FDA's seafood monitoring, enforcement and consumer programs.
2. FDA develop and implement adequate and effective surveillance, monitoring, testing, enforcement and consumer programs for methyl mercury in seafood in conjunction with the appropriate state and federal agencies. The findings should be used to provide the public with consistent quarterly updates and annual reports.
3. FDA establish a regulatory limit for methylmercury in seafood protective of women of childbearing age, pregnant and nursing mothers and children and for those who consume large quantities of mercury contaminated seafood.
4. FDA initiate and maintain a national campaign to educate the public, sensitive popula-

tions, those living along the coasts, and ethnic, low income and subsistent fishers about the risks of consuming mercury contaminated seafood.

5. FDA, EPA and other appropriate agencies implement a culturally sensitive outreach campaign to provide ethnic groups with information about the risks of consuming mercury contaminated seafood.

6. EPA establish policies and regulations to significantly reduce and ultimately eliminate anthropogenic mercury releases from all sources into the environment.

INTRODUCTION

Increases in fossil fuel use, waste disposal, and mining—coupled with ignorance of human sensitivity to mercury's toxicity—have allowed mercury releases to increase two-to-five-fold in the last century. In water elemental mercury changes into a more toxic form: methylmercury. This form is concentrated in the tissue of fish and other organisms that are part of the aquatic food chain. Fish are constantly exposed to mercury in their food and, to a lesser degree, in the water column, and eliminate methylmercury at a very slow rate. Long-lived piscivorous fish such as shark, swordfish, tuna, and king mackerel are known to bioaccumulate methyl mercury and, when consumed by humans, present an exposure risk.¹ The mercury levels found in these species and other species often exceed Food and Drug Administration guidelines designed to protect the public from mercury exposure.

The dangers of human exposure to mercury have been known for centuries. Miners in the Middle Ages exposed to mercury experienced tremors and dementia. The tragic legacy of Minamata Bay, Japan in the 1950's where mercury-contaminated fish were consumed helped humanity understand the terrible effects on Japanese people and their infants exposed to mercury in the womb.² Mercury poisoning in Iraq in the 1970's, where bread baked with seeds coated with mercury was consumed, produced neurological damage to infants at levels that did not adversely affect their mothers.³

The contribution of mercury to the environment from human activities is increasing and responsible for approximately 50-75% of the total mercury loadings.⁴ Studies conducted of the Atlantic Ocean estimate a rise in mercury levels of 1.2-1.5% per year since 1970.⁵ Between 1990 and 1996, mercury levels have risen between 5.5% to 17% in the Upper Midwest, depending on the season, with an average annual increase of 8%.⁶

Over 150 tons of mercury are emitted annually into the United States environment from a variety of sources.⁷ However, despite evidence of the rising levels of mercury in the environment, federal regulatory activity to reduce mercury uses and releases is progressing at a snail's pace. For example, emissions standards have been set for only four of the eighteen major mercury sources identified by EPA.

Fish consumption advisories for mercury have risen from 28 states in 1993 to 40 states in 2000 as monitoring of freshwater fish has steadily increased.⁸ However, although fish consumption advisories for freshwater fish have increased 68% in the past six years, testing and monitoring of seafood (the fish Americans consume the most of) has declined significantly, especially for those species known to have higher mercury levels.⁹

While mercury levels are rising and seafood-monitoring programs for mercury are declining, our understanding of mercury's unique toxicity to children is expanding. New studies point to subtle neurological damage at levels of exposure previously considered safe.¹⁰ The EPA's Mercury Study Report to Congress estimated that 7 million women and children are at risk for mercury poisoning due to consumption of contaminated fish.¹¹ All of this broadens our understanding that continued anthropogenic releases of mercury are having adverse effects on public health, and better prepares decision makers to take steps to protect those most vulnerable among us: our children and those yet to be born.

FDA's Role in Seafood Safety

Two Federal regulatory agencies bear the primary responsibility for the safety of fish in the United States; FDA and EPA. FDA is the agency that operates the nation's seafood safety program for commercial seafood. Through its work with the

states, EPA compiles state data on freshwater fish in U.S. lakes, ponds and streams and issues guidance on consumption advisories. FDA is charged with oversight of domestic and imported commercially-caught fish and conducts inspections, sampling, and analysis except where specifically contracted out to states. FDA, in coordination with state programs, conducts mandatory unannounced inspections of various types of seafood processors, including packers, repackers, and warehouses, but appears to do little consumer outreach, enforcement and monitoring for mercury contaminated seafood.

FDA's seafood safety program operates under the authority of the Federal Food, Drug and Cosmetic Act (FFDCA), which is the primary food safety law in this country. Under the FFDC, a food is adulterated if it contains any substance that may render it injurious to health (in other words, if it poses a human health risk.)¹² FDA's program responsibilities for monitoring fish include the following: (1) domestic inspections of seafood processors and related commercial entities; (2) sampling and analyzing fish and fishery products; (3) examination of imported seafood; (4) negotiation of international agreements; (5) research (6) Federal/State cooperative programs, training, and technical support (7) public education and (8) standard setting for contaminants.¹³ FDA is also responsible for ensuring that imported seafood products meet the same standards that are required of domestic products. Over half of the commercial seafood consumed in this country is imported from approximately 135 countries.

FDA's Policies and Practices Need Improvement

Guidelines, programs and practices established by FDA, but seldom implemented, provide the American public with a false sense of safety about

the consumption of mercury contaminated seafood. FDA practices reveal that it is using guidance developed in the 1970s for protecting the public from mercury levels in seafood, while consumption rates have increased 24% since then.¹⁴ However, according to National Marine Fisheries Service officials, they have no intention of producing an updated consumption survey to reanalyze mercury exposure.¹⁵

In 1979, FDA established an "action level" of 1.0 parts per million (ppm) for guiding the public about the levels of methylmercury in fish that are considered "safe" for sale and consumption.¹⁶ However, the FDA's action level is a non-binding informal guideline, is not legally enforceable, and only serves as discretionary guidance to FDA and to the States. In order to actually remove fish from the marketplace, FDA would be required to prove that levels of methylmercury in seafood pose a public health threat. Then, for each possible infraction, FDA would have to go before a federal court judge and receive permission to remove seafood found in violation of the current action level.

FDA originally established an action level of 0.5 ppm for mercury in fish in 1969. In reaffirming the 0.5 ppm tolerance in its December 1974 Federal Register notice, FDA recognized the unique risk methylmercury poses to sensitive populations.

"Fetal damage may occur at exposure levels lower than that required to produce observable effects in the mother. Therefore, chronic exposure to fish and shellfish containing methylmercury poses a greater potential danger to women of childbearing age than to the general public." Also, according to FDA, "...the first trimester of pregnancy appears to be the critical period of time for the fetus. Dietary practices

immediately before pregnancy would have a direct bearing on fetal exposure during the first trimester, the period of greatest concern.”¹⁷

The original FDA action level was significantly weakened due to a lawsuit filed by the fishing industry resulting in a court ruling based on socioeconomic impacts presented by the National Marine Fisheries Service (NMFS). The NMFS said that raising the action level would expand the number of fisheries available for exploitation and expand the profits of the fishing industry.¹⁸ Despite the earlier recognition by FDA that exposure to methylmercury resulted in the possibility of fetal effects, no allowance was made when the standards were subsequently revised in 1979 establishing the 1 ppm action level for mercury. In addition, FDA failed to make allowances for other critical variables in establishing such a significantly weaker action level, including the following:

- 1) there are well documented differences among individuals and their rate of mercury elimination, ranging from 37 days to 189 days;
- 2) the action level was established to protect a 154 pound man and not a 15 pound child;
- 3) the elderly and those suffering from malnutrition require greater protection; and
- 4) FDA set its action level by the less protective, lowest observable level (LOEL), rather than the most protective, no observable effect level (NOEL).¹⁹

FDA justifies the current action level by stating that it has a safety factor of 10.

“FDA’s action level of 1 ppm for methylmercury in fish was established to limit consumer’s methylmercury exposure to levels 10 times lower than the lowest levels associated with adverse effects (parasthesia) observed in the adult poisoning incidents. FDA based its action level on the lowest level at which adverse effects were found to occur in adults.”²⁰

The General Accounting Office (GAO) and the National Academy of Sciences (NAS) were critical of the risk assessments used by FDA for establishing its current action level. FDA was quoted in a 1991 GAO report as stating that it failed to examine the data on mercury’s reproductive and developmental toxicity when it weakened the action level.²¹ In its 1991 study on seafood safety, NAS recommended that couples who intend to have children in the near future should avoid eating swordfish due to high mercury levels and that “much lower levels of mercury (than FDA-approved levels) should be maintained in canned tuna products.” NAS concluded that the adequacy of the current standard to protect the fetus is highly doubtful, characterizing this approach as “unusual” and criticized FDA for not adequately protecting sensitive populations.²²

FDA'S MERCURY MONITORING DATA

Information obtained from FDA reveals a monitoring program severely lacking in thoroughness, depth and degree. Provided below is monitoring data obtained from FDA in 1999.

The data confirm that FDA is no longer sampling certain species for methylmercury and clearly demonstrate that significant quantities of seafood exceeding the action level are sold throughout the United States. By its own admission, FDA is no longer conducting a domestic monitoring program for tuna, shark or swordfish,²³ although in 1996 and 1997 it posted "detention" alerts for tuna, swordfish and shark due to "residue levels of methyl mercury exceeding 1 ppm."²⁴

FDA's data set indicates that 36% of the swordfish and 33% of shark and nearly 4% of the large tuna samples exceeded FDA's 1 ppm action level for methylmercury.²⁵ If, however, FDA's previous action level of 0.5 ppm mercury is employed, approximately three-quarters of the shark and swordfish samples would exceed that limit, as would nearly one-third of the large tuna, and nearly one-tenth of the canned tuna samples taken in

1992. (This corresponds with a 1992 analysis by the Florida Department of Agriculture which found that 10% of its canned tuna samples exceeded 0.5 ppm mercury utilizing a comparable sample size.²⁶)

Further, there is anecdotal evidence that due to the overharvesting of the larger, predatory species over the past decade, the monitoring data may reflect a bias towards sampling smaller fish known to have lower levels of methylmercury.²⁷ Therefore, the information presented may not be reflective of existing conditions.

Other species of fish known to pose a potential safety hazard because of high mercury levels also appear, based on FDA's data set, to have limited or no testing, including halibut, mackerel, king mackerel, and marlin.²⁸ In addition, the data set includes only 8 samples for seabass and 36 samples for halibut (both known to have higher mercury levels), with no sampling for those species conducted since 1994. For large tuna, no data was recorded for 1998 and only two samples were taken in 1997; for canned tuna no data was

CASE STUDY: SWORDFISH CONSUMPTION CONTRIBUTES TO MERCURY EXPOSURE SYMPTOMS

A few years ago, Ms. Marilyn Winston noticed that she was losing her energy, hearing, and hair and had developed a tremor. Ms. Winston's hair, when tested, was found to contain 13.3 parts per million (ppm) of mercury. (The World Health Organization believes that there is a possibility of adverse effects on the developing fetal nervous system when maternal hair mercury is over 10 ppm.) A blood sample taken from Winston was found to contain 38 micrograms of mercury per liter, compared to most people who have mercury levels below 5 micrograms per liter.²⁹ For health reasons, Ms. Winston was consuming a lot of fish, about 4 fish meals each week, and swordfish was her favorite. The doctor advised her that most, if not all of her symptoms were reversible if she stopped eating fish with high levels of mercury. She now eats less fish and has stopped eating swordfish and other high-mercury species. As a result, her hearing has gotten much better and her energy levels have returned to almost normal.³⁰

FDA MONITORING DATA*

MERCURY CONTAMINATION IN SEAFOOD BY PERCENTAGE OF SAMPLES TAKEN

Canned Tuna Exceeds FDA's Action Level**

Year	# samples taken	0-0.3 ppm	0.3-0.5 ppm	0.5-1 ppm	1-2 ppm**	2-4 ppm**	>4 ppm**
1992	39	74%	18%	8%	0%	0%	0%
1993	19	89%	11%	0%	0%	0%	0%
1994	NONE	--	--	--	--	--	--
1995	13	85%	15%	0%	0%	0%	0%
1996	NONE	--	--	--	--	--	--
1997	NONE	--	--	--	--	--	--
1998	NONE	--	--	--	--	--	--

Large Tuna Exceeds FDA's Action Level**

Year	# samples taken	0-0.3 ppm	0.3-0.5 ppm	0.5-1 ppm	1-2 ppm**	2-4 ppm**	>4 ppm**
1992	47	62%	13%	25%	0%	0%	0%
1993	68	63%	21%	16%	0%	0%	0%
1994	6	33%	50%	0%	17%	0%	0%
1995	32	22%	22%	47%	9%	0%	0%
1996	6	17%	17%	33%	33%	0%	0%
1997	2	50%	50%	--	--	--	--
1998	NONE	--	--	--	--	--	--

Shark Exceeds FDA's Action Level**

Year	# samples taken	0-0.3 ppm	0.3-0.5 ppm	0.5-1 ppm	1-2 ppm**	2-4 ppm**	>4 ppm**
1992	135	1%	18%	42%	30%	8%	1%
1993	62	8%	8%	55%	16%	13%	0%
1994	55	9%	25%	33%	31%	2%	0%
1995	29	3%	34%	38%	25%	0%	0%
1996	14	0%	14%	36%	43%	7%	0%
1997	21	4%	24%	43%	24%	5%	0%
1998	7	0%	29%	29%	29%	1%	0%

Swordfish Exceeds FDA's Action Level**

Year	# samples taken	0-0.3 ppm	0.3-0.5 ppm	0.5-1 ppm	1-2 ppm**	2-4 ppm**	>4 ppm**
1992	109	2%	7%	59%	30%	2%	0%
1993	83	10%	16%	52%	23%	1%	0%
1994	94	1%	10%	56%	28%	5%	0%
1995	47	2%	9%	47%	40%	2%	0%
1996	112	4%	3%	48%	43%	2%	0%
1997	70	9%	6%	41%	40%	3%	1%
1998	33	15%	9%	45%	31%	0%	0%

* Information received in response to a 1999 Freedom of Information Request; Food and Drug Administration (US). Listing of pesticides, industrial chemicals, and elements data by fiscal year, origin, sample flag, and industry/product code. Washington: FDA; 1999 Jun 3.

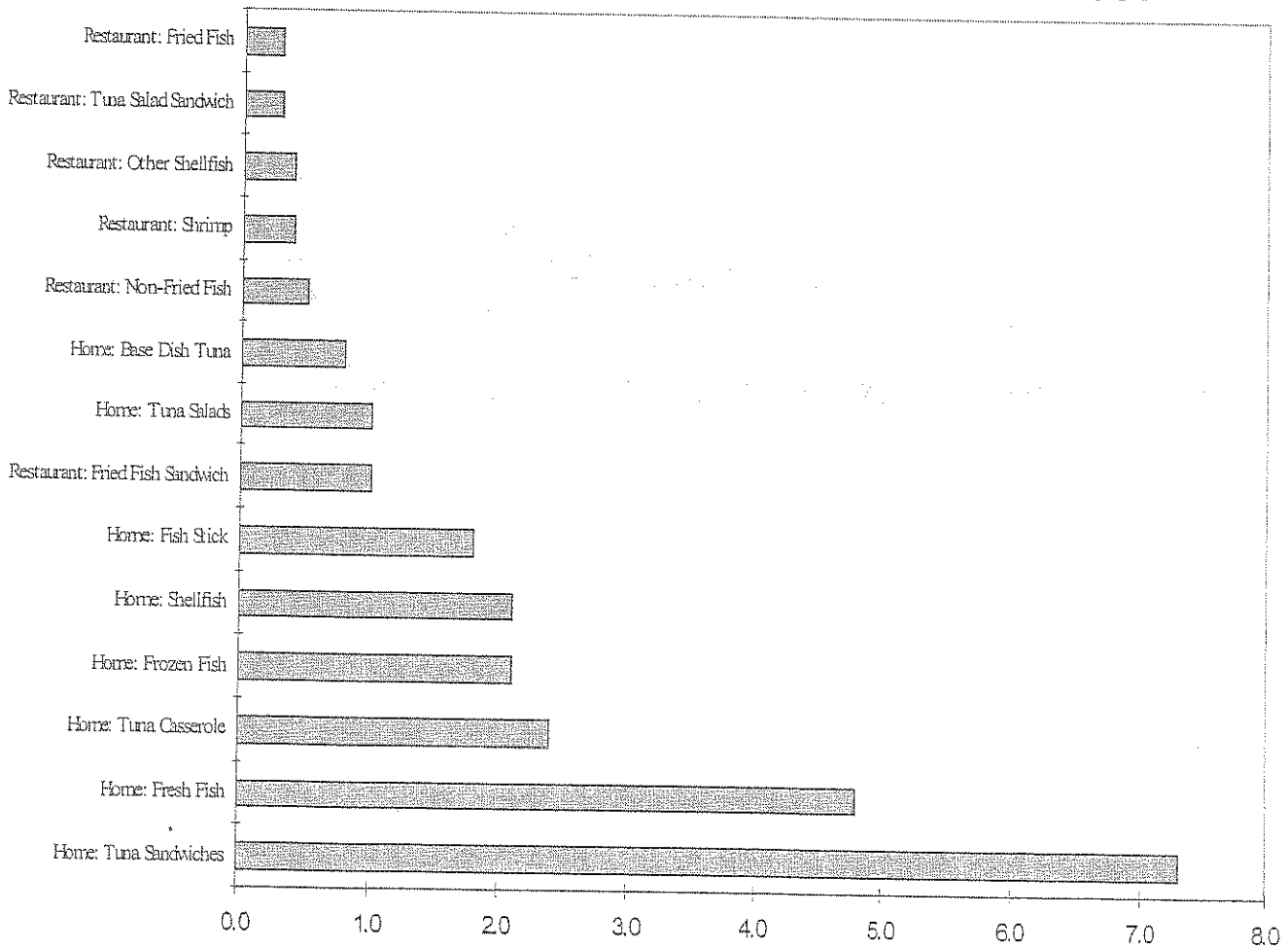
** Percentage over FDA's 1 part per million "action level" for methylmercury in seafood.

reported in 1994, 1996, 1997 and 1998.³¹ In 1995 FDA sampled only 13 cans of tuna for mercury content.³² Yet each American, on average, consumed 10 cans of tuna in 1998, the most commonly consumed fish in America (see below).³³

The FDA data set is extremely limited in size and application, considering the overall quantities of

seafood consumed in the U.S. today, and does not portray a statistically significant sampling size. The data set also demonstrates a disturbing trend by FDA to conduct less and less testing. Assuming that this is a complete data set for the time period, then FDA is not fulfilling its mandate to protect the public from mercury in food.

Average Number of Fish Meals Per Person in 1997



Source: 1998 Annual Report on the United States Seafood Industry

States Warning Sensitive Populations About Mercury Contaminated Seafood³⁴	
<i>State</i>	<i>Type of Seafood Consumption Guidance</i>
Vermont	Pregnant or nursing mothers should not eat swordfish or shark; women who are not pregnant or nursing but are of childbearing age should only eat one, eight ounce portion of shark or swordfish every two months; pregnant women should limit consumption of canned tuna to 7 ounces per week, provided that is the only mercury contaminated fish eaten that week.
Minnesota	Pregnant or nursing mothers should not eat swordfish or shark; pregnant women should limit consumption of canned tuna to 7 ounces per week, provided that is the only mercury contaminated fish eaten that week.
Michigan	Pregnant or nursing mothers should not eat swordfish or shark and should limit consumption of canned tuna to 7 ounces each week.
New Jersey	Women of childbearing age should only eat one, eight ounce portion of shark or swordfish every two months; pregnant should limit consumption of canned tuna to 7 ounces per week; children under 7 are advised not to eat swordfish or shark.

FDA FAILS TO PROTECT VULNERABLE POPULATIONS

FDA is using the same action level for mercury almost a decade after receiving strong criticism from the National Academy of Sciences that it was not protective of sensitive populations. FDA's action level fails to protect vulnerable populations from exposure and does not consider the following subpopulations in its assessment of mercury toxicity:

- women and their fetus, infants and children;
- people who who experience large variations in fish consumption habits, such as seasonal fish consumers; and
- people who eat large quantities of fish for health or cultural reasons.

While FDA posts general information on its website for the public and recommends reducing

consumption of swordfish and shark from an expectant mother's diet, some states now recommend that pregnant women and children not eat either of these highly contaminated fish and to limit consumption of canned tuna due to mercury.³⁵

In addition, although other species of mercury-contaminated fish and seafood may pose a risk to the fetus and developing child if consumed in "average" amounts, FDA fails to provide any warnings about them. In fact, women are often encouraged to increase fish consumption during pregnancy, while the risks of mercury exposure to their developing fetus are often downplayed.³⁶

For health and nutritional reasons, Americans are generally advised to eat fish once or twice per week.³⁷ Should a pregnant mother eat mercury-contaminated fish just prior to or early in her pregnancy, she may be placing her unborn child at risk of exposure to mercury. All children must go through fetal development, placing them at risk from the eating habits of their mother.

Even short term peak exposures to mercury in fish are considered important and were judged to have potential adverse effects on the fetus when looking at developmental problems caused by maternal methylmercury exposure, according to science experts.³⁸ Consumption of a single fish meal containing high levels of mercury, coupled with the added background methylmercury levels, "may be capable of elevating maternal hair concentrations into a risk range for a brief period," according to a recent study.³⁹ As a result, Connecticut Department of Health officials are currently considering the risks of single meal consumption in their approach to warning the public about fish that are highly contaminated with mercury. This also points to the need to provide the public with information on mercury levels in individual fish rather than composite samples. Dr. David Brown,

a scientist with the Northeast States for Coordinated Air Use Management, estimates that, in the Northeast, there is a 1 and 10 chance that a woman could consume fish with mercury levels over the FDA's 1 ppm action level, and that would cause a dose to the fetus over the safe level. According to Dr. Brown, "If the woman is a heavy eater of tuna fish the chance of a high fetal dose is much higher."⁴⁰

Individuals with genetic predisposition to susceptibility from exposure to mercury or those who don't avoid or limit consumption of certain species of fish may also subject their unborn child to contaminant levels above established safety thresholds. Also, as children develop, they continue to undergo powerful neurological changes. These changes are exquisitely sensitive to exposure to neurotoxins such as mercury. Exposure to mercury after birth may also have dramatic impacts on the developing nervous system of the infant.

Additionally, studies based on average human consumption rates of fish used to develop government guidelines for mercury exposure may not accurately reflect the variations in consumption patterns around the country. Statistically, only a fraction of the total population consumes contaminated fish at a level that threatens themselves or their children. Yet variations in consumption rates occur for many varying reasons including geographic location and seasonal availability of fish. People living along coastal areas where fishing is an integral part of the economy or the culture are more likely to eat fresh fish likely to contain higher mercury levels. For example, in lieu of federal action, state health departments in Florida, Mississippi, Texas, Georgia, North Carolina, South Carolina, and Alabama have issued advisories warning the public, and especially women of child-bearing age, to limit consumption of king mackerel after detecting mercury exceeding FDA's action level of 1 ppm.⁴¹

Seasonal variations in diet occur as a result of location. Vacations or travel to areas offering fresh seafood as a cultural norm can result in a greater proportion of consumption than the average. Seasonal movements by fish as well can induce greater amounts in the consumption rates. Spawning runs and seasonal migrations can also trigger

larger harvests and greater consumption. This may occur not only for those sub-populations with lifeways consistent with this behavior, but also as the abundance of fresh fish in the market reduces prices, spurring consumers to make purchases more readily.

CASE STUDY: IMPORTED SEABASS AS A SOURCE OF MERCURY EXPOSURE

During March of 1994, the Wisconsin Department of Health (WDH) investigated a Wisconsin family's exposure to mercury. A 40-year-old resident had been experiencing sleepless nights and difficulty concentrating, leading him to pursue medical testing. Analysis of the individual's hair indicated high mercury, prompting him to call WDH. One of his concerns was that fish in his family's diet contained mercury and was adversely affecting his health and possibly his family's. Of particular concern was the health of his 2 ½ year-old son. The family's regular diet consisted of three to four meals of fish per week purchased from a local seafood market. The fish of choice was seabass, usually eaten twice a week. Other fish eaten were Lake Superior Whitefish, Lake Superior Lake Trout, farm raised trout and farm-raised salmon (all eaten once-or-twice a month). The family split approximately one pound of fish at these meals — dividing it up with the father receiving half (~ 8 oz.) and the remaining half-pound split 2:1 between the mother (~ 5.25 oz.) and the child (~ 2.75 oz.). Blood-mercury samples, taken and analyzed for the family were elevated (58 ug for the man, 37 ug for the woman and 37 ug for the child) confirming recent exposure to mercury.⁴² Analysis of the fish tissue for mercury indicated that all but the seabass had 0.05 ug/g or less. Two samples of seabass, one bought from the store and one provided by the family showed levels at 0.5 and 0.7 ug/g. According to a WDH official, "The daily mercury intakes in this case study exceeded the FDA's Adult Daily Intake (ADI) for mercury even though none of the fish in their diet exceeded the 1 mg/kg guideline set by that agency." The WDH advised the family to eliminate fish and other seafood from their diet. After doing so for 6 months, the father's blood levels came back at 5ug and the mother's at 3 ug — well below toxic levels. One conclusion drawn by the author was "It may also be prudent for the FDA to provide consumption frequency advice to commercial fish consumers."⁴³

RISE IN U.S. FISH CONSUMPTION

Over the past few decades, there has been a dramatic rise in fish consumption. Studies show a 25% per capita increase in fish consumption between 1980 and 1989⁴⁴, with a recent increase from 1997 to 1998.⁴⁵ This increase is due in part to a rise in consumption of large tuna⁴⁶ (typically sold as fresh steak or sushi) that often have higher mercury levels⁴⁷ and increases in canned tuna consumption—fish that state publications recommend pregnant women limit consumption of due to mercury levels.⁴⁸ A recent study indicates that nearly 50% of all reported fish meals were tuna, followed by shrimp and flounder.⁴⁹

Americans consume over 4 billion pounds of fish each year. Over half of all Americans consume fish at least once a week, often consuming fish with methyl mercury at levels above those deemed safe by government agencies.⁵⁰ On average, Americans consume around nineteen pounds of fish each year. About three-quarters of the amount consumed, or about 15 pounds, is seafood.⁵¹ Of the rest, around 3-4 pounds, is recreationally caught fish taken from the Nation's lakes, rivers, streams and ponds. Most at risk from mercury exposure are the millions of women of childbearing age, pregnant women and young children and others who consume more than 3.5 ounces of fish per day.⁵²

FDA's assumptions about the public's fish consumption does not fully take into account populations that consume large quantities of fish, subsist on fish, or eat fish as part of their cultural or spiritual beliefs. Many aboriginal people believe that fish reconnect them spiritually to their Creator. Practicing their native customs and religions demands that they harvest and partake of these foods even though they pose a threat to their health.

Public Awareness of Mercury Exposure Significantly Lacking

Recent studies show that populations most at risk from mercury are the least likely to know about fish advisories. A May 1999 report, "Preliminary findings from the Northeast fish consumption and awareness survey," demonstrates the lack of consumer awareness about exposure risks from mercury. Of those responding, 41% indicated that they consumed tuna and 30% said that they ate swordfish. Over 75% of respondents said that they eat fish on a regular basis, with about half saying that they knew about advisories issued by states or FDA. Yet only one-third knew what they meant.⁵³

Similar results were observed in a 1996 Great Lakes study conducted by the Wisconsin Health Department, where only about half of fish eaters were aware of advisories. A disproportionate amount of fish eaters were minorities, who ate 1.5 fish meals for every 1 meal eaten by whites. Men were twice as likely as women to know about the advisories, and Caucasians were 2 times more likely to know than minorities. Among minorities of both genders, advisory awareness was about 22%. The study concludes that advisories are not reaching the populations most at risk—women and minorities—and recommends targeted outreach.⁵⁴

CONCLUSION

FDA is failing to adequately monitor seafood, protect consumers and warn the American public—especially pregnant women and their babies—about high mercury levels in seafood that exceed FDA's guideline for "safe" consumption. FDA's guidance level is rarely enforced, is ineffective and does not protect those most at risk: children, the fetus and those who consume large amounts of seafood. Although some states are trying to warn sensitive populations about mercury in seafood, FDA appears to be doing little and is now being pressured to encourage states to do the same.

Special interests are now attempting to convince FDA to get states to discontinue warnings to sensitive populations about mercury levels in seafood on the premise (according to an unnamed FDA source) that the warnings contradict federal health agency recommendations that fish should be eaten as part of a healthy diet.⁵⁵ In a recent letter

to Donna Shalala, Secretary, U.S. Department of Health and Human Services, the U.S. Tuna Foundation and the tuna industry urged the federal government to "clarify its position" and inform states that the FDA's action level remains "appropriate."⁵⁶

Unfortunately, comprehensive monitoring of mercury levels in seafood are clearly lacking and are perpetuating the uncertainties needed to better analyze and determine more accurate seafood consumption advisories for methylmercury,⁵⁷ and to raise consumer awareness. Consequently, although Americans are eating more seafood, they know little about the risks involved and are not provided with the information necessary to make informed choices for themselves, their children and their offspring.

RECOMMENDATIONS

1. **Congressional Oversight Hearings.** The appropriate Congressional Committees should hold a joint oversight hearing concerning FDA's testing, monitoring, enforcement and consumer education programs for mercury contaminated seafood. In early October 1999, U.S. Senators Patrick Leahy and Tom Harkin wrote a letter to HHS Secretary Donna Shalala "asking FDA for a comprehensive review and assessment of existing measures to protect consumers from mercury."⁵⁸ However, the FDA's February 15, 2000 response letter is severely lacking in detail.⁵⁹
2. **Adequately Test, Protect and Inform the Public.** FDA should conduct regular and effective monitoring of mercury in seafood and use its enforcement discretion. FDA should provide the public, through a well publicized website, with quarterly updates on testing of mercury-contaminated seafood. FDA and EPA should develop and implement culturally sensitive outreach campaigns to provide ethnic groups with information. Consumer outreach programs should be evaluated on an annual basis to ensure that the information is effectively reaching targeted populations.

3. **Regulations Should Replace FDA's Discretionary Action Level.** Through rulemaking, FDA should establish a regulatory limit for methylmercury in seafood that fully incorporates the risks of sensitive populations as authorized by Federal statute. Regulations would be binding on the agency and the fishing industry, thereby providing more protection for the public. This would shorten the timeframe needed to remove commercial fish from the marketplace that threaten human health.
4. **Conduct Effective Consumer Information Campaign.** FDA should initiate and maintain a national campaign to educate the public about the risks of consuming mercury contaminated seafood through traditional information dissemination, the news media and postings on its website. FDA's formal liaison with the medical and public health communities through its Office of Health Affairs should also be utilized to its fullest extent to provide effective information to doctors and others on the risks posed, especially to sensitive populations, by exposure to mercury in seafood.
5. **Effectively Reduce and Virtually Eliminate Mercury from Human Sources.** EPA should develop an aggressive Mercury Action Plan for curtailing all mercury releases and uses, and set strict mercury emission standards for coal and oil-fired power plants, chlor-alkali facilities, municipal waste and medical waste incinerators, mining operations and other large sources. Regulations should be established to require source separation of mercury-containing products from incinerator feedstocks. Phase outs of non-essential mercury-containing products and processes should also be encouraged. Further, EPA should not allow waste incinerators, including sludge burners and cement kilns, to burn any mercury contaminated products or waste.

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