SPECIES	MERCURY CONCENTRATION (PPM)				NO. OF SAMPLES	SOURCE OF DATA
	MEAN	MEDIAN	MIN	MAX		
SCORPIONFISH	0.29	NA	0.02	1.35	78	NMFS REPORT 1978
SHEEPSHEAD	0.13	NA	0.02	0.63	59	NMFS REPORT 1978
SKATE	0.14	NA	0.04	0.36	56	NMFS REPORT 1978
SNAPPER	0.19	0.12	ND	1.37	25	FDA SURVEY 2002-03
TILEFISH (Atlantic)	0.15	0.10	0.06	0.53	17	FDA SURVEY 2002-03
TUNA (Canned, Albacore)	0.35	0.34	ND	0.85	179	FDA SURVEY 1990-03
TUNA (Fresh/Frozen)	0.38	0.30	ND	1.30	131	FDA SURVEY 1990-02
WEAKFISH (Sea Trout)	0.25	0.16	ND	0.74	27	FDA SURVEY 1990-03

Source of data: FDA Surveys 1990-2003

"National Marine Fisheries Service Survey of Trace Elements in the Fishery Resource" Report 1978

"The Occurrence of Mercury in the Fishery Resources of the Gulf of Mexico" Report 2000

Market share calculation based on 2001 National Marine Fisheries Service published landings data

* Mercury was measured as Total Mercury and/or Methylmercury

ND - mercury concentration below the Level of Detection (LOD=0.01ppm)

NA - data not available

[1] Includes: Sea bass/ Striped Bass/ Rockfish

[2] Includes: Flounder, Plaice, Sole

[3] Includes: Blue, King, Snow

商業用魚介類における水銀レベル

Table 1. 水銀レベルの高い魚介類

種	SPECIES	水銀濃度(PPM)				検体数	データ元
		平均	中央値	最小	最大		
サワラ(キングマッカレル)	MACKEREL KING	0.73	NA	0.23	1.67	213	メキシコ湾レポート
サメ	SHARK	0.99	0.83	ND	4.54	351	FDA 調査 1990-02
メカジキ	SWORDFISH	0.97	0.86	0.1	3.22	605	FDA 調査 1990-02
アマダイ(タイルフィッシュ)(メキシコ湾)	TILEFISH (Gulf of Mexico)	1.45	NA	0.65	3.73	60	NMFS報告 1978

Table 2. 水銀レベルの低い魚介類

種	SPECIES	水銀濃度(PPM)				検体数	データ元
		平均	中央値	最小	最大		
アンチョビー	ANCHOVIES	0.04	NA	ND	0.34	40	NMFS 報告 1978
バターフィッシュ(イボダイ科の魚)	BUTTERFISH	0.06	NA	ND	0.36	89	NMFS 報告 1978
ナマズ	CATFISH	0.05	ND	ND	0.31	22	FDA 調査 1990-02
二枚貝	CLAMS	ND	ND	ND	ND	6	FDA 調査 1990-02
タラ	COD	0.11	0.1	ND	0.42	20	FDA 調査 1990-03
カニ[3]	CRAB [3]	0.06	ND	ND	0.61	59	FDA 調査 1990-02
ザリガニ	CRAWFISH	0.03	0.03	ND	0.05	21	FDA 調査 2002-03
ニベ科(大西洋)	CROAKER (Atlantic)	0.05	0.05	0.01	0.1	21	FDA 調査 1990-03
カレイ目魚類[2]	FLATFISH [2]	0.05	0.04	ND	0.18	22	FDA 調査 1990-02
ハドック(タラ類)	HADDOCK	0.03	0.04	ND	0.04	4	FDA 調査 1990-02
ヘイク(タラ類)	HAKE	0.01	ND	ND	0.05	9	FDA 調査 1990-02
ニシン	HERRING	0.04	NA	ND	0.14	38	NMFS 報告 1978
ジャックスメルト(トウゴロウイワシの仲間)	JACKSMELT	0.11	0.06	0.04	0.5	16	FDA 調査 1990-02
イセエビ	LOBSTER (Spiny)	0.09	0.14	ND	0.27	9	FDA 調査 1990-02
アトランティックマッカレル(大西洋サバ)	MACKEREL ATLANTIC(N. Atlantic)	0.05	NA	0.02	0.16	80	NMFS 報告 1978
マサバ(太平洋)	MACKEREL CHUB (Pacific)	0.09	NA	0.03	0.19	30	NMFS 報告 1978
ボラ又はヒメジ	MULLET	0.05	NA	ND	0.13	191	NMFS 報告 1978

種	SPECIES	水銀濃度(PPM)				検体数	データ元
		平均	中央値	最小	最大		
カキ	OYSTERS	ND	ND	ND	0.25	34	FDA 調査 1990-02
海産パーチ科	PERCH OCEAN	ND	ND	ND	0.03	6	FDA 調査 1990-02
カワカマス科	PICKEREL	ND	ND	ND	0.06	4	FDA 調査 1990-02
ポラック(タラ類)	POLLOCK	0.06	ND	ND	0.78	37	FDA 調査 1990-02
サケ(缶詰)	SALMON (Canned)	ND	ND	ND	ND	23	FDA 調査 1990-02
サケ(生鮮、冷凍)	SALMON (Fresh/Frozen)	0.01	ND	ND	0.19	34	FDA 調査 1990-02
イワシ	SARDINE	0.02	0.01	ND	0.04	22	FDA 調査 2002-03
ホタテガイ	SCALLOPS	0.05	NA	ND	0.22	66	NMFS 報告 1978
シャッド(ニシン科の魚)	SHAD (American)	0.07	NA	ND	0.22	59	NMFS 報告 1978
エビ	SHRIMP	ND	ND	ND	0.05	24	FDA 調査 1990-02
イカ	SQUID	0.07	NA	ND	0.4	200	NMFS 報告 1978
ティラピア	TILAPIA	0.01	ND	ND	0.07	9	FDA 調査 1990-02
マス(淡水)	TROUT (Freshwater)	0.03	0.02	ND	0.13	17	FDA 調査 2002-03
マグロ(缶詰、ライト)	TUNA (Canned, Light)	0.12	0.08	ND	0.85	131	FDA 調査 1990-03
ホワイトフィッシュ	WHITEFISH	0.07	0.05	ND	0.31	25	FDA 調査 1990-03
ホワイティング(タラ類)	WHITING	ND	ND	ND	ND	2	FDA 調査 1990-02

Table 3. その他の魚介類の水銀レベル

種	SPECIES	水銀濃度(PPM)				検体数	データ元
		平均	中央値	最小	最大		
バス(海水産)[1]	BASS (Saltwater)[1]	0.27	0.15	0.06	0.96	35	FDA調査 1990-03
ブルーフィッシュ	BLUEFISH	0.31	0.3	0.14	0.63	22	FDA 調査 2002-03
バッファローフィッシュ(コイ科の魚)	BUFFALOFISH	0.19	0.14	0.05	0.43	4	FDA 調査 1990-02
コイ	CARP	0.14	0.14	0.01	0.27	2	FDA 調査 1990-02
ホワイトクローカー(太平洋)	CROAKER WHITE (Pacific)	0.29	0.28	0.18	0.41	15	FDA 調査 1990-03
ハタ	GROUPER	0.55	0.44	0.07	1.21	22	FDA 調査 2002-03
オヒョウ	HALIBUT	0.26	0.2	ND	1.52	32	FDA 調査 1990-02
アメリカロブスター	LOBSTER (Northern/American)	0.31	NA	0.05	1.31	88	NMFS 報告 1978

種	SPECIES	水銀濃度(PPM)				検体数	データ元
		平均	中央値	最小	最大		
サワラ(メキシコ湾)	MACKEREL SPANISH(Gulf of Mexico)	0.45	NA	0.07	1.56	66	NMFS 報告1978
サワラ(大西洋)	MACKEREL SPANISH(S. Atlantic)	0.18	NA	0.05	0.73	43	NMFS 報告1978
マカジキ	MARLIN	0.49	0.39	0.1	0.92	16	FDA 調査1990-02
アンコウ	MONKFISH	0.18	NA	0.02	1.02	81	NMFS 報告1978
オレンジラフィー	ORANGE ROUGHY	0.54	0.56	0.3	0.8	26	FDA 調査1990-03
パーチ科(淡水)	PERCH (Freshwater)	0.14	0.15	ND	0.31	5	FDA 調査1990-02
ギンダラ	SABLEFISH	0.22	NA	ND	0.7	102	NMFS 報告1978
スコーピオンフィッシュ(カサゴの仲間)	SCORPIONFISH	0.29	NA	0.02	1.35	78	NMFS 報告1978
シープスヘッド	SHEEPSHEAD	0.13	NA	0.02	0.63	59	NMFS 報告1978
エイ	SKATE	0.14	NA	0.04	0.36	56	NMFS 報告1978
スナッパー	SNAPPER	0.19	0.12	ND	1.37	25	FDA 調査2002-03
タイルフィッシュ(大西洋)	TILEFISH (Atlantic)	0.15	0.1	0.06	0.53	17	FDA 調査2002-03
マグロ(缶詰、ビンナガ)	TUNA (Canned, Albacore)	0.35	0.34	ND	0.85	179	FDA 調査1990-03
マグロ類(生鮮、冷凍)	TUNA (Fresh/Frozen)	0.38	0.3	ND	1.3	131	FDA 調査1990-02
ウィークフィッシュ(シートラウト)	WEAKFISH (Sea Trout)	0.25	0.16	ND	0.74	27	FDA 調査1990-03

データ元:FDAによる調査(1990～2003)
"海洋漁業局による魚介類資源のトレースエレメント調査" 報告1978年
"メキシコ湾の魚介類資源における水銀" 報告2000

マーケットシェアは、海洋漁業局の公表した2001年の水揚げ量より算出した。
※水銀は、総水銀もしくはメチル水銀で測定している。
ND－水銀濃度が検出限界以下(検出限界＝0.01ppm)
NA－データなし
1:シーバス、スズキ、メバル・カサゴを含む
2:かれい/ひらめ、プレイス、シタビラメを含む
3:ブルークラブ、タラバガニ、ズワイガニを含む

Backgrounder for the 2004 FDA/EPA Consumer Advisory: What You Need to Know About Mercury in Fish and Shellfish

Today's Action:

- FDA and EPA are issuing a joint consumer advisory about mercury in fish and shellfish. The advice is for: women who might become pregnant; women who are pregnant; nursing mothers; and young children. This is significant because it is the first time FDA and EPA have combined their advice into a single uniform advisory. Previously FDA issued an advisory on consumption of commercially caught fish, while EPA issued advice on recreationally caught fish.
- FDA and EPA revised their existing advisories as a result of recommendations FDA received from its Foods Advisory Committee (FAC) in July 2002. At that meeting the FAC offered a number of recommendations intended to improve the clarity and understandability of the then current FDA advisory. One of the suggestions was that FDA and EPA combine their two independent advisories.
- The criteria for the advisory was that it be based on sound science; is easy to understand and apply; and protects the public health.
- The purpose of the advisory is to inform women who may become pregnant, pregnant women, nursing mothers and the parents of young children on how to get the positive health benefits from eating fish and shellfish, while minimizing their mercury exposure. \

Message to Consumers:

- Fish and shellfish are important parts of a healthy and balanced diet. They are good sources of high quality protein and other nutrients. However, depending on the amount and type of fish you consume it may be prudent to modify your diet if you are: planning to become pregnant; pregnant; nursing; or a young child. With a few simple adjustments, you can continue to enjoy these foods in a manner that is healthy and beneficial and reduce your unborn or young child's exposure to the harmful effects of mercury at the same time.

Key Parts of the Advisory:

- 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. Thus, women and young children in particular should include fish or shellfish in their diets due to the many nutritional benefits.
- 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.

- 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.

The Difference Between This Advisory and Previous Advisories:

1. The advisory emphasizes the positive benefits of eating fish.
2. The advisory provides examples of commonly eaten fish that are low in mercury.
3. The advisory for the first time specifically addresses canned light tuna and canned albacore ("white") tuna, as well as tuna steaks (in the questions and answers section).
4. The advisory recommends not to eat any other fish in the same week as locally caught fish are consumed (the advice on the amount of locally caught fish to eat is the same as in the 2001 EPA advisory).
5. The advisory contains a section that addresses frequently asked questions about mercury in fish.

What the Risk is:

Research shows that most people's fish consumption does not cause a health concern. However, high levels of mercury in the bloodstream of unborn babies and young children may harm the developing nervous system. With this in mind, FDA and EPA designed an advisory that if followed should keep an individual's mercury consumption below levels that have been shown to cause harm. By following the advisory parents can be confident of reducing their unborn or young child's exposure to the harmful effects of mercury, while at the same time maintaining a healthy diet that includes the nutritional benefits of fish and shellfish.

General Methylmercury Information:

- The methylmercury described in the advisory is not the same type of mercury found in some thermometers or in dental amalgam.
- Mercury is a naturally occurring element in the environment and is also released into the air through industrial pollution. Mercury that falls from the air can accumulate in streams and oceans. Bacteria in the water cause chemical changes that transform mercury into methylmercury. Fish absorb the methylmercury as they feed in these waters. Methylmercury builds up more in some fish than others depending on what they eat how long they live, and how high up the food chain they are.
- Fish and shellfish are the main sources of mercury exposure to humans and that mercury is in the form of methylmercury. Other forms of mercury, such as that in dental amalgams are minor contributors to human mercury exposure.

General Dietary Advice:

- FDA recommends that consumers eat a balanced diet, choosing a variety of foods including fruits and vegetables, foods that are low in *trans* fat and saturated fat, as well as foods rich in high fiber grains and nutrients. Fish and shellfish can be an important part of this diet.

What's Next:

- FDA and EPA want to ensure that women and young children continue to eat fish and shellfish because of the nutritional benefits and encourage them to follow the advisory so they can be confident in reducing their mercury exposure as well.
- FDA and EPA are planning a comprehensive educational campaign to reach: women who might become pregnant; pregnant women; nursing mothers; and young children. The agencies will work with state, local and tribal health departments to get information out into their

communities. Physicians, other health professionals, and health care associations will be sent information to distribute through their offices. Extensive outreach through the media is also planned. Radio and television stations, health editors at newspapers, magazines, and other popular media will be contacted to encourage them to carry the public service message. The methylmercury advisory will also be an important part of a comprehensive food safety education program to be used by educators of pregnant women. FDA plans to launch the comprehensive education program later this year.

- EPA and FDA have begun discussions on how to coordinate other scientific assessments involving fish.

Other:

- FDA and EPA tested different versions of the revised advisory in 16 focus groups in 7 different locations throughout the United States . Based on responses we received we modified the advisory so that it is more easily understood.
    - In December 2003, after 8 focus groups had been conducted, a draft of the revised advisory was presented to the Foods Advisory Committee. Based on their feedback we conducted 8 additional focus groups and modified the advisory according to the feedback we received. The result is the 2004 FDA/EPA Consumer Advisory: "What You Need to Know About Mercury in Fish and Shellfish".
- Since July 2002 FDA has tested over 3400 cans of tuna as well as 227 fish samples, comprising 12 different species, for mercury. These results were added to our previous sampling results.
- FDA continues to sample fish and shellfish, testing for mercury.

For More Information:

For more information about the risks of mercury in fish and shellfish call the FDA's Food Information Hotline toll-free at 1-888-SAFEFOOD or visit FDA's Food Safety website at www.cfsan.fda.gov/seafood1.html. For more information about the safety of locally caught fish and shellfish, visit the Environmental Protection Agency's Fish Advisory website at www.epa.gov/ost/fish or contact your state or local health department. Contact information for state and local health departments is also found at this site.

###

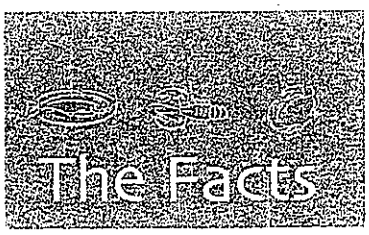
FDA-EPA Advisory: What You Need to Know about Mercury in Fish and Shellfish (March 2004)
Mercury Levels in Commercial Fish and Shellfish (March 2004)
Mercury in Fish: FDA Monitoring Program (1990-2003)
FDA-EPA Press Release (March 19, 2004)

What You Need to Know About Mercury in Fish and Shellfish

Advice for

Women Who Might Become Pregnant
Women Who are Pregnant
Nursing Mothers
Young Children

from the
U.S. Food and Drug Administration
U.S. Environmental Protection Agency



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.

3 Safety Tips

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
   - Tilefish

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.

- Five of the most commonly eaten fish that are low in mercury are shrimp, canned light tuna, salmon, pollock, and catfish.
- 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.

Visit the Food and Drug Administration's Food Safety Website www.cfsan.fda.gov or the Environmental Protection Agency's Fish Advisory Website www.epa.gov/ost/fish for a listing of mercury levels in fish.

Frequently Asked Questions *about Mercury in Fish and Shellfish:*

What is mercury?

Mercury occurs naturally in the environment and can also be released into the air through industrial pollution. Mercury falls from the air and can accumulate in streams and oceans and is turned into methylmercury in the water. It is this type of mercury that can be harmful to your unborn baby and young child. Fish absorb the methylmercury as they feed in these waters and so it builds up in them. It builds up more in some types of fish and shellfish than others, depending on what the fish eat, which is why the levels vary.

I'm a woman who could have children but I'm not pregnant - so why should I be concerned about methylmercury?

If you regularly eat types of fish that are high in methylmercury, it can accumulate in your blood stream over time. Methylmercury is removed from the body naturally, but it may take over a year for the levels to drop significantly. Thus, it may be present in a woman even before she becomes pregnant. This is the reason why women who are trying to become pregnant should also avoid eating certain types of fish.

Is there methylmercury in all fish and shellfish?

Nearly all fish and shellfish contain traces of methylmercury. However, larger fish that have lived longer have the highest levels of methylmercury because they've had more time to accumulate it. These large fish (swordfish, shark, king mackerel and tilefish) pose the greatest risk. Other types of fish and shellfish may be eaten in the amounts recommended by FDA and EPA.

Note:
If you have questions or think you've been exposed to large amounts of methylmercury, see your doctor or health care provider immediately.

I don't see the fish I eat in the advisory. What should I do?

If you want more information about the levels in the various types of fish you eat, see the FDA food safety website www.cfsan.fda.gov/~frf/sea-mehg.html or the EPA website at www.epa.gov/ost/fish.

What about fish sticks and fast food sandwiches?

Fish sticks and "fast-food" sandwiches are commonly made from fish that are low in mercury.

The advice about canned tuna is in the advisory, but what's the advice about tuna steaks?

Because tuna steak generally contains higher levels of mercury than canned light tuna, when choosing your two meals of fish and shellfish, you may eat up to 6 ounces (one average meal) of tuna steak per week.

What if I eat more than the recommended amount of fish and shellfish in a week?

One week's consumption of fish does not change the level of methylmercury in the body much at all. If you eat a lot of fish one week, you can cut back for the next week or two. Just make sure you average the recommended amount per week.

Where do I get information about the safety of fish caught recreationally by family or friends?

Before you go fishing, check your Fishing Regulations Booklet for information about recreationally caught fish. You can also contact your local health department for information about local advisories. You need to check local advisories because some kinds of fish and shellfish caught in your local waters may have higher or much lower than average levels of mercury. This depends on the levels of mercury in the water in which the fish are caught. Those fish with much lower levels may be eaten more frequently and in larger amounts.