

Chemicals in Sportfish and Game: 2008-2009 Health Advisories

- [Download advisory booklet Chemicals in Sportfish and Game: 2008-2009 Health Advisories](#) (PDF, 1.40MB, 32pg.)

Fish are nutritious and good to eat. However contaminated fish and game can be the main source of exposure to some contaminants. New York State issues advisories of eating sportfish and game because some of these foods contain chemicals at levels that may be harmful to health. These advisories tell people which fish and game to avoid and how to reduce exposure to fish they do eat. These advisories are for sportfish and game that people take and are not for fish and game sold in markets.

2008-2009 Health Advisories

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 - [Recomendaciones sobre el consumo de pescado del río Hudson](#) (PDF, 30KB, 1pg.)
- [Advisories for Marine Waters](#)
- [Advisories for Adirondack Park Region](#) - Limited quantities available. Please e-mail ceheduc@health.state.ny.us to get a copy.
- [Advisories for Catskill Park Region](#) - Limited quantities available. Please e-mail ceheduc@health.state.ny.us to get a copy.
- [Advisories for New York City Area, Rockland and Westchester Counties and Long Island, Including Marine Waters of New York State](#)
- [Recomendaciones de Salud Para el Consumo de la Pesca Deportiva - Área de la Ciudad de Nueva York, Condados de Rockland y Westchester, y Long Island, incluidas las Aguas Marinas del estado de Nueva York.](#)
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Fish Advisory Publications

- [Advisories for Adirondack Park Region](#) - Limited quantities available. Please e-mail ceheduc@health.state.ny.us to get a copy.
- [Advisories for Catskill Park Region](#) - Limited quantities available. Please e-mail ceheduc@health.state.ny.us to get a copy.
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- [2008 Health Advisories on Eating Sportfish - New York City Reservoir System](#)

Purpose and Rationale

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The New York State Department of Health (DOH) issues advisories on eating sportfish and game because some of these foods contain chemicals at levels that may be harmful to health. The advisories tell people which fish and game to avoid and how to reduce their exposures to contaminants in the fish and game that they do eat. These advisories are for sportfish and game that people take and are not for fish and game sold in markets. The health advisories are (1) general advice on sportfish taken from waters in New York State; (2) advice on sportfish caught in specific New York State waterbodies; and (3) advice on eating New York State game.

Fish and game can be nutritious and good to eat. Fish are an important source of protein and are low in saturated fat. Naturally occurring fish oils lower plasma cholesterol and triglycerides and may have other health benefits.

However, contaminated fish and game can be the main source of exposure to some contaminants. People can get the health benefits of fish and reduce their exposures to unwanted contaminants by following the advisories in DOH Advisory Publications.

Health Risks from Contaminants in Fish and Game

Long-lasting contaminants, such as PCBs, DDT and cadmium, build up in your body over time. Health problems that may result from the contaminants found in fish or game range from small changes in health that are hard to detect to birth defects and cancer. Mothers who eat highly contaminated fish and game before becoming pregnant may have increased risk of having children who are slower to develop and learn. This advisory is also intended to protect children from these potential developmental problems. Women beyond their childbearing years and men face fewer health risks from contaminants than children do. People in this last group should follow the advisory to reduce other types of health risks.

Some contaminants cause cancer in animals. We cannot predict with certainty your risks of cancer from eating contaminated fish or game. Cancer currently affects about one in every three people, primarily due to smoking, diet and hereditary risk factors. Exposure to some contaminants in the fish and game you eat may not increase your cancer risk at all. If you follow this advisory over your lifetime, you will minimize your exposure and reduce whatever cancer risk is associated with these contaminants.

The primary contaminants of concern in New York State fish are mercury and PCBs. Other contaminants such as cadmium, chlordane, DDT, dieldrin, dioxin and mirex are also concerns in fish from some of the State's water bodies. The primary contaminants of concern in waterfowl are PCBs, mirex, chlordane and DDT; and PCBs are the main concern in snapping turtles. More information about the chemicals that have led to advisories in New York State sportfish and game and potential health effects can be found in the [Information on Chemicals in Sportfish and Game](#) section.

Procedures for Setting Advisories

In New York State, these advisories are primarily based on information that the Department of Environmental Conservation (DEC) gathers on contaminant levels in fish and game. DEC collects fish samples each year from different water bodies. In a typical year, DEC collects approximately 2000 fish from more than 50 locations/waters and analyzes these fish for various contaminants. Sampling focuses on water bodies with known or suspected contamination, water bodies susceptible to mercury contamination, popular fishing waters and waters where trends in fish contamination are being monitored. Also, testing focuses on those species that are most likely to be caught and eaten by sport anglers. DEC also tests some game species (e.g., waterfowl, snapping turtles) that accumulate chemical contaminants.

DOH annually reviews the new DEC testing results for fish and game to determine if an advisory should be issued or revised for a given water body or fish or game species. When reviewing the data, DOH compares testing data to federal marketplace standards (when available) for a contaminant and considers other factors such as potential human exposures and health risks; location, type and number of samples, etc.

General Advisory for Eating Sportfish

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The general health advisory for sportfish is that you eat no more than one meal (one-half pound) per week of fish taken from the state's freshwaters and some marine waters at the mouth of the Hudson River.

These include the New York waters of the Hudson River, Upper Bay of New York Harbor (north of Verrazano Narrows Bridge), Arthur Kill, Kill Van Kull, Newark Bay, Raritan Bay west of Wolfe's Pond Park, Harlem River and the East River to the Throgs Neck Bridge (see map). The complete [2008-2009 Health Advisories: Chemicals in Sportfish and Game booklet](#) includes a complete advisory listing and maps (PDF, 1.60MB, 32pg.). DOH issues this advice because:

- some chemicals are commonly found in New York State fish (mercury and PCBs for example),
- fish from all waters have not been tested and
- fish may contain unidentified contaminants.

General Advisory - eat no more than one meal (one-half pound) per week of fish taken from the state's freshwaters and some marine waters at the mouth of the Hudson River.

Specific Advisories

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Fish from more than 130 water bodies in New York have specific advisories. For these listed waters, DOH recommends either limiting or not eating a specific kind of fish. The complete [2008-2009 Health Advisories: Chemicals in Sportfish and Game booklet](#) includes a complete advisory listing and maps (PDF, 1.60MB, 32pg.). In some cases, enough information is available to issue advisories based on the length of the fish. Older (larger) fish are often more contaminated than younger (smaller) fish.

- [Specific Health Advisories](#)

Advisories for Women, Infants and Children

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DOH offers health advice for **infants, children under the age of 15** and **women of childbearing age**. DOH recommends that these groups not eat any fish from the specific waterbodies listed in the advisory.

Women, infants and children should not eat any fish from listed waters

- [Waters with Specific Fish Consumption Advisories](#)

The reason for this specific advice is that chemicals may have a greater effect on developing organs in young children or in the unborn child. They also build up in women's bodies and are often passed on in mother's milk. Waters that have specific advisories have at least one species of fish with an elevated contaminant level, which means that other fish species may also be affected.

DEC has completed a large study that has increased our knowledge about mercury in fish from New York State waters. The DEC study indicates that in the Adirondack and Catskill Mountain regions larger, older individuals of pickerel, northern pike, smallmouth and largemouth bass, walleye and yellow perch often have relatively high levels of mercury in their flesh, higher levels than similar fish from other regions in the state. Because of this, infants, children under 15 and women of child-bearing age should avoid these fish from Adirondack and Catskill Mountain waters.

In addition, due to concerns about mercury contamination, the U.S. Food and Drug Administration (FDA) advises pregnant women, women who may become pregnant, nursing mothers and young children to eat no shark, swordfish, king mackerel or tilefish. FDA notes that seafood can be an important part of a healthy diet, and advises pregnant women, women who may become pregnant and nursing mothers to eat up to 12 ounces per week of a variety of other kinds of fish. FDA also recommends that parents follow these same recommendations when feeding fish and shellfish to their young children, but serve smaller portions. The full FDA advisory, including answers to frequently asked questions about mercury in fish and shellfish, can be found at: [U.S. Environmental Protection Agency's website](#). For further information about the risks of mercury in fish and shellfish call the U.S. Food and Drug Administration's consumer information line toll-free at 1-888-INFO-FDA.

| Regional Advice for Women and Children Adirondack and Catskill Waters | |
|--|--|
| Lower Mercury Levels – Eat no more than one meal per week: | <ul style="list-style-type: none"> • Brook, brown and rainbow trout • Bullhead • Bluegill/sunfish • Rock bass • Crappie • Yellow perch less than 10 inches |
| Higher Mercury Levels – EAT NONE: | <ul style="list-style-type: none"> • Northern pike • Pickerel • Walleye • Largemouth and smallmouth bass • Yellow perch longer than 10 inches |

Spacing Fish Meals

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If you eat fish from a waterbody with an EAT NO MORE THAN ONE MEAL PER MONTH advisory, for one month you should not eat any more fish that have an EAT NO MORE THAN ONE MEAL PER MONTH advisory for the same contaminant. For example, if you eat a meal of Koppers Pond carp, for one month you should not eat American eel from Kinderhook Lake since both of these fish species have EAT NO MORE THAN ONE MEAL PER MONTH advisories and both are based on PCB contamination. The advisory tables list chemical contaminants of concern for each advisory. The complete [2008-2009 Health Advisories: Chemicals in Sportfish and Game booklet](#) includes a complete advisory listing and maps (PDF, 1.60MB, 32pg.)

DOH Advisories for Marine Waters

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- [Marine Waters with Advisories](#)

DOH has specific and general advisories for the Hudson River Estuary, the Upper Bay of New York Harbor, Arthur Kill, Kill Van Kull, Newark Bay, Raritan Bay west of Wolfe's Pond Park and the East and Harlem Rivers. The complete [2008-2009 Health Advisories: Chemicals in Sportfish and Game booklet](#) includes a complete advisory listing and maps (PDF, 1.60MB, 32pg.).

DOH also issues specific advisories for the New York waters of Long Island Sound, Block Island Sound, Peconic/Gardiners Bays, the Lower Bay of New York Harbor, Raritan Bay east of Wolfe's Pond Park, Jamaica Bay and other Long Island south shore waters. The complete [2008-2009 Health Advisories: Chemicals in Sportfish and Game booklet](#) includes a complete advisory listing and maps (PDF, 1.60MB, 32pg.). These apply to striped bass, bluefish and American eels and are the only advisories that apply to these waters. Ocean fish, although tested less often, are generally less contaminated than freshwater fish. However,

striped bass, bluefish and eels have specific habits or characteristics that make them more likely to have contaminants than other marine species.

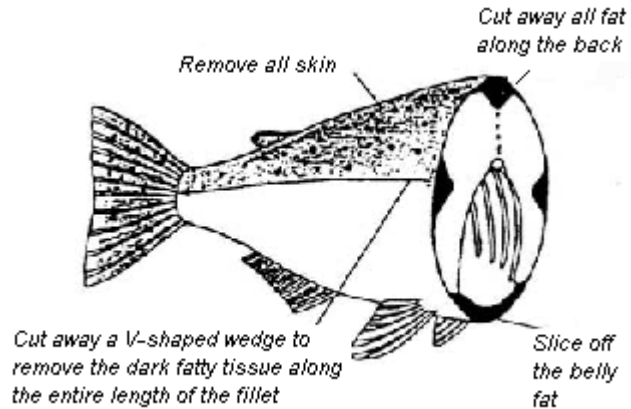
DOH strongly recommends that you not eat the soft "green stuff" (mustard, tomalley, liver or hepatopancreas) found in the body section of crabs and lobsters from any waters because cadmium, PCBs and other contaminants concentrate there. Because contaminants are transferred to cooking liquid, you should also discard crab or lobster cooking liquid.

Don't eat crab or lobster tomalley (hepatopancreas)

Cleaning and Cooking Your Fish

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PCBs, dioxin, mirex, DDT, chlordane and dieldrin are found at higher levels in the fat of fish. You can reduce the amount of these contaminants in a fish meal by properly trimming, skinning and cooking your catch. Remove the skin and trim all the fat from the belly flap, the line along the sides, the fat along the back and under the skin (see the diagram below).



Cooking or soaking fish cannot eliminate the contaminants, but heat from cooking melts some of the fat in fish and allows some of the contaminated fat to drip away. Broil, grill or bake the trimmed, skinned fish on a rack so that the fat drips away. Do not use drippings to prepare sauces or gravies.

These precautions are particularly valuable when preparing fish from waters with advisories due to PCBs, dioxin, mirex, DDT, chlordane and dieldrin; The complete [2008-2009 Health Advisories: Chemicals in Sportfish and Game booklet](#) includes a complete advisory listing and maps (PDF, 1.60MB, 32pg.). These precautions will not reduce the amount of mercury or other metals. Mercury is distributed throughout a fish's muscle tissue (the part you eat), rather than in the fat and skin. The only way to reduce mercury intake is to eat less contaminated fish.

Reducing Exposure to Chemical Contaminants From Fish and Shellfish

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Although eating fish has health benefits, fish with high contaminant levels should be avoided. You can benefit from eating the fish you catch and can minimize your contaminant intake by following these general recommendations:

1. Choose sportfish from waterbodies that are not listed on the tables in the complete [2008-2009 Health Advisories: Chemicals in Sportfish and Game](#)

[booklet](#), which includes a complete advisory listing and maps, and follow the advice in this booklet (PDF, 1.60MB, 32pg.).

2. When deciding which sportfish to eat, choose smaller fish, consistent with DEC regulations, within a species since they may have lower contaminant levels. Older (larger) fish within a species may be more contaminated because they have had more time to accumulate contaminants in their bodies.
3. To reduce exposures to mercury, avoid or eat less largemouth and smallmouth bass, northern pike, pickerel, walleye and larger yellow perch (e.g., longer than 10 inches) because these fish tend to have higher mercury levels.
4. To reduce exposures to PCBs, dioxin, mirex, DDT, chlordane and dieldrin, avoid or eat less American eel, bluefish, carp, lake trout, striped bass, white and channel catfish, and white perch because these fish tend to have higher levels of these contaminants.
5. When preparing sportfish, use a method of filleting the fish that will reduce the skin, fatty material and dark meat. These parts of the fish contain many of the contaminants.
6. When cooking sportfish, use cooking methods (broiling, poaching, boiling and baking) which allow contaminants from the fatty portions of fish to drain out. Pan-frying is not recommended. The cooking liquids and fat drippings of fish from contaminated waters should be discarded since these liquids contain contaminants.
7. Do not eat the soft "green stuff" (mustard, tomalley, liver or hepato-pancreas) found in the body section of crab and lobster. This tissue can contain high levels of chemical contaminants, including PCBs, dioxin and heavy metals.
8. Anglers who want to enjoy the fun of fishing but who wish to eliminate the potential risks associated with eating contaminated sportfish may want to consider "catch and release" fishing. Refer to the DEC [New York State Fishing Regulations Guide](#) for suggestions on catch and release fishing techniques.

Advice on Contaminants in Game

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DOH also issues advisories about eating some game. These are in the [Additional Advice](#) section of this booklet and include advisories for eating snapping turtles and waterfowl statewide because they contain PCBs and other contaminants. Because these contaminants concentrate in fat, you can minimize your exposure by not eating fat from these game and by following the [cooking and eating advice](#).

Other Fish and Game Advice

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Lead in Fishing Tackle and Bullets

Lead can cause health problems when it builds up in the body. Because the unborn baby and young child are at the greatest risk, it is particularly important for pregnant women, women of childbearing age and young children to minimize their lead exposures. Lead poisoning can slow a child's physical growth and mental development and can cause behavior and other nervous system problems, reproductive problems, kidney and liver damage, blindness and even death in both adults and children. Fishing tackle (especially sinkers and jig heads), bullets and shot often contain lead. To reduce exposure to the lead in these products, you should:

- Keep all lead objects away from young children (young children often put their hands and objects in their mouth).
- Wash hands with soap and water after holding or using lead sinkers and jig heads or reloading lead bullets or shot.
- Never put lead sinkers in your mouth. This includes biting down on lead sinkers.
- Never eat, drink, or smoke immediately after handling lead sinkers, bullets or shot; wash hands first.
- Take proper precautions when melting lead and pouring sinkers or bullets at home. Use jacketed bullets (a jacketed bullet is a bullet enveloped in a casing of another material such as copper) and shotgun shells with plastic wads.

Consider non-lead alternatives:

- DEC encourages anglers to use non-lead alternatives for sinkers and jig heads to reduce the risk of lead poisoning to birds. New York State law prohibits the sale of lead fishing sinkers (including "split shot") weighing one-half ounce or less. More information is provided on the DEC website under [Fishing Responsibly in New York State](#).
- The use of lead shot for waterfowl hunting is prohibited in New York State, and waterfowl hunters are required to use DEC-approved non-lead shot alternatives. You may want to consider using non-lead shot alternatives to hunt other small game as well. Remove all bullets, slugs, shot, lead fragments and affected meat (including feathers, fur, debris, etc.) from game when preparing it for consumption. Studies indicate that lead shot can contaminate game meat. Thus, people who eat game harvested with lead shot may be exposed to lead. More information on lead shot alternatives is provided on the DEC website listed under [Migratory Game Bird Hunting Regulations](#).

Lead in Venison

Recent research indicates that small lead fragments are often present in venison from deer harvested with lead bullets. Some bullets shatter into small pieces that can be too small to detect by sight, feel, or when chewing the meat. For advice on how to eliminate or reduce the potential risk of consuming lead fragments go to the DEC website [Information about Lead in Venison for Hunters and Meat Processors](#).

If you have any questions regarding how to reduce the amount of lead in venison, please contact your DEC Regional Wildlife Office. For questions about potential health effects from lead, call DOH at 1-800-458-1158, extension 27820.

Studies have shown that people can be exposed to lead from shooting at indoor and outdoor firing ranges. For additional information on how to minimize your exposure to lead, call 1-800-458-1158, ext. 27900 (toll free).

Good Sanitary Practices - Bacteria, Viruses and Parasites in Fish and Game

Fish and game and other meats can be contaminated with bacteria, viruses or parasites that can cause illness. You should harvest fish and game that act and look healthy, and follow good sanitary practices when preparing them. We recommend that you wear rubber or plastic protective gloves while filleting, field dressing, skinning or butchering. We also recommend that you remove intestines soon after harvest, don't eat intestines and avoid direct contact with intestinal contents. Hands, utensils and work surfaces should be washed before and after handling any raw food, including fish and game meat. Fish and game should be kept cool (with ice or refrigerated below 45° F or 7° C) until filleted or butchered and then should be refrigerated or frozen. Some hunters prefer to hang big game for several days before butchering; this should not be done unless the game can be kept at temperatures consistently below 45° F. Fish and other seafood should be cooked to an internal temperature (in the thickest part) of 140° F (60° C); game birds and other types of wild game meat should be cooked to an internal temperature (in the thickest part) of 165° F (74° C).

Advice on Eating Raw or Partially Cooked Fish, Shellfish and Other Meats

Foods of animal origin, such as pork, poultry, beef, dairy products, eggs, fish and shellfish, can be contaminated with bacteria, viruses or parasites that can cause illness. Persons at high risk (for example, those who are immunocompromised, suffer from liver disease or other chronic diseases) can be more susceptible to and more severely affected by these infectious diseases. This is why we recommend that all of these foods be thoroughly cooked before eating. Government agencies and the food industry strive to minimize contamination of raw animal foods and provide healthful food products.

Call DEC at (631) 444-0475 for information on shellfish regulations, including areas in which clam, oyster and mussel collection are permitted. DEC routinely tests clam, oyster and mussel beds for bacteria. Based on these tests, an area may be closed to clam, oyster and mussel harvesting. You can check the DEC website listed under [Shellfishing](#) for general information on shellfish harvest. Call DEC at (631) 444-0480 for the latest information on emergency closures.

Deformed or Abnormal Fish

The health implications of eating deformed or abnormal fish are unknown. Any obviously diseased fish (marked by tumors, lesions or other abnormal condition of the fish skin, meat or internal organs) should be discarded.

Botulism in Fish and Waterfowl

In recent years, large numbers of some species of Lake Erie fish and waterfowl have been found dead, sick and dying, many of them as a result of botulism poisoning. The botulism poison is produced by *Clostridium botulinum*, a bacterium that is common in the environment and can produce harmful levels of botulism poison under some conditions. This poison has been found in some of the affected fish and waterfowl. The botulism poison can cause illness and death if eaten by humans or animals. Cooking may not destroy the botulism poison. This problem may also occur in other waters, and we don't know whether all or only some fish and waterfowl species can be affected. DEC continues to monitor and investigate this problem.

No human cases of botulism poisoning have been linked to these events. However, as a precaution, do not eat any fish or game if they are found dead or dying, act abnormally or seem sick. If you must handle dead or dying fish, birds or other animals, cover your hands with disposable rubber or plastic protective gloves or a plastic bag.

Rabies and Chronic Wasting Disease (CWD)

Rabies and Chronic Wasting Disease (CWD) are two diseases that can cause abnormal behavior in deer. Rabies can be found in any mammal (especially raccoons, bats, skunks and foxes) and is found only occasionally in New York State deer. Chronic Wasting Disease (CWD) is a disease of deer and elk. In 2005, CWD was found for the first time in captive and wild white-tailed deer in New York State. This disease has been present for several years in some deer or elk from several Western and mid-Western states and some Canadian provinces.

Rabies is a viral infection which causes a rapidly progressive disease of the animal's nervous system that leads to paralysis and death, usually within several days after signs of the disease first appear. Rabid deer may seem to lose their normal fear of humans, appear to have injured hind legs, salivate excessively, or be found laying on the ground struggling. Rabies can be transmitted from infected mammals to humans by exposure to infected tissues, particularly nervous tissue and saliva. Treatment can prevent rabies from developing in exposed humans. Rabies is almost always fatal in exposed humans who develop the disease. Thorough cooking will inactivate the rabies virus (see "[Good Sanitary Practices](#)"), but meat from infected game should not be eaten. Hunters should be aware that deer with rabies might have symptoms similar to CWD.

CWD is a brain infection of deer and elk that leads to loss of body functions, poor body condition and abnormal behavior such as staggering or very poor posture. It eventually leads to the death of the animal. CWD appears to be caused by abnormal, infectious proteins called prions. There is currently no evidence that CWD is linked to disease in people. Cooking does not destroy the CWD prion.

The following precautions are recommended to minimize the risk of transmission of infectious diseases when handling or processing animals:

- Do not handle or eat deer or other game that appear sick, act strangely, or are found dead.
- Wear rubber or latex gloves when field dressing game.
- Avoid handling or cutting through the skull or spinal cord. Use separate dedicated knives, saws and cutting boards to butcher deer, particularly if you cut through the spinal cord or skull (such as when removing antlers). Do not use regular kitchen utensils. Wash thoroughly with soap and water any knives, butchering tools, work surfaces, hands and any other part of the body that has been exposed to animal tissue, blood, urine or feces. Equipment should then be rinsed with boiling (212 degree Fahrenheit) water or sanitized with a chemical sanitizer.
- As an additional precaution against CWD, you can soak cleaned knives and tools for one hour in a fresh solution of household chlorine bleach (unscented) mixed with an equal amount of water (e.g., 1 quart bleach with 1 quart of water), air dry, then rinse with clean water. Wipe down cleaned counters and other surfaces with the bleach solution and allow them to air dry.
- Warning: When handling bleach, wear rubber or latex gloves and avoid getting bleach in eyes or on skin or clothing. If bleach contacts eyes, skin, or clothing, immediately wash affected area with water and remove affected clothing. Make sure that enough fresh air is available because bleach may cause eye, nose, or throat irritation.
- Should you decide to take the skull cap (e.g., with antlers), make sure to thoroughly clean the skull cap, utensils and work surfaces with bleach solution, as described above.
- Avoid handling the brain and spinal tissues or fluids, saliva and mouth parts of game animals. If these tissues or fluids are handled, wash hands thoroughly with soap and water. If these tissues or fluids make contact with a person's eyes, nose, mouth, or fresh open breaks in a person's skin, contact the local health department to see if rabies exposure may have occurred and whether the animal should be tested for rabies.

- If possible, request that the meat from your deer be processed separately, without adding other hunters' deer meat.
- The brain, spinal cord and other nervous tissue, spleen, pancreas, eyes, tonsils, and lymph nodes of game may have CWD prions, and additional organs (liver, kidney, heart and salivary glands) may pose a risk of infection for a number of diseases. Normal field dressing will eliminate most of these organs and tissues. Lymph nodes can be eliminated by boning out the meat and carefully trimming the fat and connective tissue. Although no current evidence links CWD to human health, out of an abundance of caution, we recommend that people not consume a known or suspect CWD positive animal.

For additional information about [CWD and rabies](#), visit the NYS Department of Health Website. For an update on [CWD testing in New York State](#) and for information on wild deer, visit the NYS Department of Environmental Conservation Website.

For information on captive deer, visit the [NYS Department of Agriculture and Markets Website](#)

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The following recommendations are based on contaminant levels in fish and game. To minimize potential adverse health impacts, the DOH recommends:

- Eat no more than one meal (one-half pound) per week of fish from the state's freshwaters, the Hudson River Estuary, Upper Bay of New York Harbor (north of the Verrazano Narrows Bridge), Arthur Kill, Kill Van Kull, Newark Bay, Raritan Bay west of Wolfe's Pond Park, East River to the Throgs Neck Bridge and Harlem River, except as recommended below.
- Women of childbearing age, infants and children under the age of 15 should not eat any fish species from waters listed on pages eight through 19 in the complete [2008-2009 Health Advisories: Chemicals in Sportfish and Game booklet](#), which includes a complete advisory listing and maps.
- Follow trimming and cooking advice.
- Observe the restrictions on eating fish from the waters listed on pages eight to 20 and 24 in the complete [2008-2009 Health Advisories: Chemicals in Sportfish and Game booklet](#).
- The Department of Health advisories apply to New York State portions of listed waters. If you fish in portions of waters in another state, consult that state's fish advisories, available from state health or environmental agencies, or on the internet at the [U.S. Environmental Protection Agency's website](#)

Additional Advice

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Advisories for Lake Erie - Due to PCBs, women of childbearing age, infants and children under 15 are advised to eat no more than one meal per week of chinook salmon less than 19 inches, burbot, freshwater drum, lake whitefish, rock bass and yellow perch and to EAT NO MORE THAN ONE MEAL PER MONTH of all other fish from Lake Erie. Other people should eat no more than one meal per week of any Lake Erie fish species.

Snapping Turtles - Snapping turtles retain contaminants in their fat, liver, eggs and, to a lesser extent, muscle. If you choose to consume snapping turtles, you can reduce your exposure by carefully trimming away all fat and discarding the fat, liver and eggs prior to cooking the meat or preparing soup. Women of childbearing age, infants and children under the age of 15 should AVOID EATING snapping turtles or soups made with their meat. (Contaminant - PCBs)

Wild Waterfowl - Mergansers are the most heavily contaminated waterfowl species and should NOT BE EATEN. EAT NO MORE THAN TWO MEALS PER MONTH of other wild waterfowl; you should skin them and remove all fat before cooking, and discard stuffing after cooking. Wood ducks and Canada geese are less contaminated than other wild waterfowl species and diving ducks are more contaminated than dabbling ducks. (Contaminants - PCBs, mirex, chlordane, DDT)

Special Advice for Women of Childbearing Age and Children

Eating American Shad and Blue Crab from the Hudson River, Upper Bay of New York Harbor, East and Harlem Rivers, Newark Bay, Arthur Kill, Kill Van Kull and Raritan Bay West of Wolfe's Pond Park.

The advisory for women of childbearing age, infants and children under 15 is EAT NONE for all fish from these waters. However, based on contaminant data, a few meals of American shad meat and roe and blue crab meat from these waters would not pose an unacceptable health risk for women of childbearing age and children, assuming these are their only significant exposures to the contaminants of concern. (Contaminants - PCBs in American shad; and PCBs, cadmium and dioxin in blue crab).

The hepatopancreas ("the green stuff" also known as mustard, tomalley, liver) found in the body section of crabs and lobsters should not be eaten because it has high contaminant levels. Because contaminants are transferred to cooking liquid, crab or lobster cooking liquid should also be discarded.

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Most of what we know about the potential health effects of these chemicals comes from high-dose laboratory animal studies or in people exposed by accidents or in the workplace. Chemicals that cause health effects in laboratory animals and people after high level exposures may also increase the risk of effects in people exposed to lower levels for long periods of time.

For information on how to reduce your exposures to contaminants in fish see [Cleaning and Cooking your Fish](#); and for information on how to reduce your exposures from snapping turtles and waterfowl see [Additional Advice](#).

The following write-ups provide some basic information on the chemicals that have been found in sportfish and game in New York State.

PCBs

PCBs (polychlorinated biphenyls) are a family of man-made chemicals that were used in many commercial and electrical products until their manufacture was banned in the mid-1970s. PCBs are persistent in the environment and accumulate in the fat of fish and other animals. Thus, PCBs still remain a fish contaminant.

Health concerns: Studies of women and their children show a link between elevated levels of PCBs in their bodies and slight effects on their children's birth weight, short-term memory and learning ability. A study of older adults (49-86 years old) who ate fish containing PCBs suggest that higher PCB exposure is associated with decreased memory and learning. Other studies have suggested a link between increased PCB exposure and effects on the human reproductive system, including changes in sperm quality, time to pregnancy and menstrual cycles. These studies suggest that the effects were caused by PCBs, but other factors may have played a role too. Studies of workers exposed to PCBs raise concerns that these chemicals can cause cancer in people, but the information is not adequate to prove that this is the case.

Mercury

Mercury is a metal that occurs naturally in the environment and can also get into the environment from human activity. Most of the mercury that accumulates in fish is an organic form called methylmercury. Fish that live longer and eat other fish tend to have more methylmercury than do smaller fish.

Health concerns: Methylmercury can cause effects on the nervous system. Exposure to methylmercury is more of a concern for children and unborn babies because their nervous systems are still developing. People who ate fish that contained large amounts of methylmercury had permanent damage to the brain, kidneys and fetus. Some recent research on populations that eat a large amount of fish finds that methylmercury can affect children's memory, attention and language development. Other research on a different population that also eats large amounts of fish has not found such effects.

Chlordane, DDT, Dieldrin and Mirex

Chlordane, DDT, dieldrin and mirex are all man-made organochlorine chemicals that were once used as insecticides. Mirex was also used as a flame retardant in a number of materials. Although these chemicals have been banned in the United States since the 1970s (with the exception that chlordane and

dieldrin were allowed for termite control until the 1980s), they are very persistent in the environment and accumulate in the fat of fish and other animals. Thus, these chemicals can still be found as fish contaminants.

Health concerns: Chlordane, DDT, dieldrin and mirex can cause effects on the nervous system and the liver in laboratory animals. Chlordane, DDT and dieldrin have also caused effects on the nervous system of people. Some of these chemicals can also cause effects on the kidneys, the thyroid gland and on reproduction in animals and people. The levels of exposure that caused these effects are typically much higher than would likely occur from eating fish containing these chemicals. Chlordane, DDT, dieldrin and mirex also caused cancer in laboratory animals exposed to high levels over their lifetimes. Whether these chemicals cause cancer in people is not known.

Dioxins and Furans

Dioxins (polychlorinated dibenzo-p-dioxins or PCDDs) and **furans** (polychlorinated dibenzofurans or PCDFs) are two closely related families of chemicals. Some dioxins and furans are unwanted by-products of manufacturing and also come from the smoke or ash of motor vehicles, municipal waste incinerators, wood fires and trash burning. Dioxins and furans are very persistent in the environment and accumulate in the fat of fish and other animals. Thus, these chemicals are fish contaminants.

Health concerns: Most of what we know about dioxins and furans come from one particular dioxin, but many of these chemicals are likely to cause similar health effects. Dioxins and furans have been associated with causing skin effects as well as changes in reproductive hormone levels and indicators of liver function in people. Weaker evidence suggests that these chemicals can also cause a number of other health effects in people. Such effects include an association between a mother's exposure and effects on her child's nervous system, hormone levels and immune system. Some dioxins have been shown to cause cancer in laboratory animals exposed to high levels of the chemicals throughout their lifetime. Some evidence suggests that people exposed to dioxins, as well as other chemicals at the same time, have developed cancer.

Cadmium

Cadmium is a naturally-occurring metal found in small amounts in soil and water. Cadmium is used in many industrial operations and in consumer products such as paints, plastics and batteries. Cadmium also occurs in foods (especially fruits, vegetables and cereals) and tobacco. Cadmium can also be found in fish and shellfish from some waters.

Health concerns: Cadmium accumulates in the body, mainly in the kidneys, with continued exposure. Some people with long-term cadmium exposure have had effects on their kidneys, bones and blood.

Contacts for Additional Information

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New York State Department of Health

For more information on **health effects** from exposure to chemical contaminants or to provide comments on the format or content of this report contact:

Environmental Health Information: 1-800-458-1158, extension 27815 (toll-free). Calls are taken from 8:00AM-4:30PM, Monday through Friday. After hours, leave a voice mail message, can be requested by e-mail at: btsa@health.state.ny.us

New York State Department of Environmental Conservation

For more information on **fishing inland waters**, contact:

- **Region 1**, Loop Road, Bldg. 40 SUNY, Stony Brook, NY 11790, (631) 444-0280
- **Region 2**, 1 Hunter Point Plaza, 47-40 21st Street, Long Island City, NY 11101-5407, (718) 482-4922

- **Region 3**, 21 South Putt Corners Road, New Paltz, NY 12561-1696, (845) 256-3161
- **Region 4**, 65561 State Hwy. 10, Suite One, Stamford, NY 12167-9503, (607) 652-7366
- **Region 5**, 1115 NYS Rt. 86, P.O. Box 296, Raybrook, NY 12977-0296, (518) 897-1333
- **Region 6**, 317 Washington St., Watertown, NY 13601-3787, (315) 785-2262
- **Region 7**, 1285 Fisher Avenue, Cortland, NY 13045-1090, (607) 753-3095, ext.213
- **Region 8**, 6274 E. Avon-Lima Road, Avon, NY 14414-9519, (585) 226-5343
- **Region 9**, 270 Michigan Avenue, Buffalo, NY 14203-2999, (716) 851-7000 or 7010

For more information on **fishing marine waters**, contact:

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For information on **contaminant levels** in fish, shellfish and wildlife, contact:

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