

Site Review And Update

HUDSON RIVER PCBS

GLENS FALLS, WARREN COUNTY, NEW YORK

CERCLIS NO. NYD980763841

SEPTEMBER 30, 1993

REVISED

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service

Agency for Toxic Substances and Disease Registry

Division of Health Assessment and Consultation

Atlanta, Georgia 30333

Site Review and Update: A Note of Explanation

The purpose of the Site Review and Update is to discuss the current status of a hazardous waste site and to identify future ATSDR activities planned for the site. The SRU is generally reserved to update activities for those sites for which public health assessments have been previously prepared (it is not intended to be an addendum to a public health assessment). The SRU, in conjunction with the ATSDR Site Ranking Scheme, will be used to determine relative priorities for future ATSDR public health actions.

REVISED SITE REVIEW AND UPDATE

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Prepared By

**New York State Department of Health
Under Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry**

SUMMARY OF BACKGROUND AND HISTORY

The Hudson River PCB (polychlorinated biphenyl) site is a National Priorities List (NPL) site consisting of the Hudson River between Hudson Falls in Washington County and Troy in Rensselaer County, New York (Attachment A--Figure 1). Site contamination (PCBs) in the river does extend south of Troy and is found in striped bass taken from marine waters. The General Electric Company (GE) discharged PCBs into the Hudson River from about 1950 until 1977 from two capacitor plants in Fort Edward and Hudson Falls. The type of PCBs discharged to the river changed over time from Aroclor 1254 to Aroclor 1242 to Aroclor 1016, with the majority of the discharge being Aroclor 1242. The PCB discharges to the river decreased significantly in 1973 when GE instituted a pollution abatement program. GE stopped using PCBs in 1977.

Much of these PCBs were deposited in the sediments behind the old Fort Edward dam. Niagara Mohawk removed this dam in 1973, allowing the contaminated sediments (including about one million pounds of PCBs) to be swept downstream. The dispersal of these PCBs contaminated media in the river, including surface water, sediments and fish. Removal of the dam also caused siltation and flooding in the area of Roger's Island. The channels around Roger's Island were dredged in the late 1970's. All of this spoil material was deposited either in the old or new Moreau dredge spoil site. The New York State Department of Transportation (NYS DOT) maintains the shipping canal in the upper Hudson. However, NYS DOT has not dredged the channel since 1980 because of concern over PCBs in the sediment.

Several community water systems south of Hudson Falls use the Hudson River as the primary source of drinking water. They are Waterford (V), Green Island (V), Rhinebeck (V), Port Ewen Water District, City of Poughkeepsie, Castle Point Veterans Hospital (in the Town of Fishkill, Dutchess County) and the Highland Water District. Additionally, a new water plant is under construction for the Hyde Park fire and water district in the Town of Hyde Park, Dutchess County with the Hudson River being the primary source of water. Water samples were taken at Waterford, Rhinebeck, and Poughkeepsie during the period 1972 to 1974 and again in 1975. Both raw and filtered water samples usually contained PCBs at low levels; the highest level detected was 3 micrograms per liter (mcg/L) at Waterford.

In 1976, all fishing was banned in the upper Hudson River, north of the Troy dam to Hudson Falls, and the commercial striped bass fishery in the Hudson River was closed by the State in 1976 because of the extremely high PCB levels in the fish (over 500 parts per million (ppm) in some species). Additionally, in 1976, the New York State Department of Health (NYS DOH) issued a health advisory for fish taken from the Hudson River below the Federal Dam at Troy. The advisory has been and continues to be updated as more data

become available. The current advisory for this portion of the Hudson River recommends that women of childbearing age, infants and children under the age of 15 not eat any fish from these waters. Other individuals are advised not to eat American eel, white perch, carp, goldfish and white catfish and striped bass taken above the Tappan Zee Bridge and to eat no more than one meal per month of walleye, rainbow smelt, largemouth bass, smallmouth bass, Atlantic needlefish, bluefish, northern pike and tiger muskellunge from these waters as well as striped bass taken below the Tappan Zee Bridge. (See Attachment B)

In 1981, the NYS DOH announced a consumption advisory for wild waterfowl taken from the state, including the Hudson River area, because they contain elevated levels of PCBs. In 1986, this advisory was expanded to include recommendations on selecting specific water fowl. This advisory recommends not eating mergansers and limiting consumption of other waterfowl species to two meals per month. It also advises that wood ducks or Canada geese are the least contaminated species, with dabbling ducks and then diving ducks having increasingly higher contamination levels. The advisory recommends removing skin and fat from waterfowl before cooking and discarding stuffing after cooking.

US EPA conducted a Remedial Investigation/Feasibility Study (RI/FS) and a Record of Decision was issued in 1984 calling for no action on the river sediments, capping of the remnant deposits and evaluation of the drinking water supply in Waterford.

In 1985, NYS DOH announced a statewide consumption advisory for snapping turtles, based on elevated PCB levels in the fat, liver, eggs and, to a lesser extent, muscle of snapping turtles, most of which were obtained from the Hudson River. This advisory recommends that women of childbearing age, infants and children under the age of 15 not eat snapping turtle meat, soup or stew. These individuals are advised to discard snapping turtle fat, liver and eggs prior to cooking the meat or preparing stew.

In February 1987, NYS DOH updated a cancer incidence investigation for Waterford, New York, for the years 1970 through 1980. The earlier investigation was conducted because the public was concerned about chemicals in the drinking water during the 1971-1983 period. The investigation showed an excess of lymphomas in young males and cancer of the pancreas in older males. Neither of these sites was elevated in females. Cervical cancer was elevated in females of all ages. The cancer cases occurring during the 1970-1980 time period were judged not to be related to the drinking water because of the long latency between the first exposure to a carcinogen and the clinical recognition and diagnosis of cancer.

The updated cancer incidence for the Town and Village of Waterford during 1981-1984 showed an excess of oral cancers in males. None of the other specific cancer sites in either males or females had

numbers of observed cases that were significantly different from the expected numbers. In this investigation, the cancers of the oral cavity occurred mostly among males, and all but one case occurred over age 45. Four of the cases were cigarette smokers at the time of diagnosis, three were former smokers and the remaining case was a non-smoker. In the 1970-1980 study, elevated rates of male lymphomas, male pancreatic cancer and female cervical cancer were found. These excesses did not persist in the updated 1981-1984 study.

A health assessment was completed by the Agency for Toxic Substances and Disease Registry (ATSDR) in April of 1989. The most significant route of human exposure to PCBs identified in the 1989 health assessment was the ingestion of contaminated fish. Other potential pathways included: 1) direct contact with PCB-contaminated sediments and bankside deposits; 2) inhalation of PCBs in ambient air and PCB-contaminated dusts generated from the remnant deposits; 3) consumption of local wildlife, livestock and agricultural products which may be contaminated with PCBs; 4) inhalation, incidental ingestion and dermal contact associated with recreational use of the Hudson River; and, 5) inhalation of PCB-contaminated air at the former Hudson River dredged sediment disposal sites. ATSDR concluded that the Hudson River PCB site is a potential public health concern because of the potential for exposure to PCBs in fish, river sediments and water in the Hudson River. ATSDR recommended the following:

- 1) workers involved with remediation activities at the site should follow all appropriate regulations and guidelines for protection of worker health and safety;
- 2) air monitoring should be conducted at potential human exposure points during dredging of PCB-contaminated sediments; and
- 3) a survey of wildlife and livestock consumption patterns should evaluate the potential for human exposure to PCBs in potentially contaminated food sources.

In the 1989 health assessment, ATSDR identified the potential for public water supplies which obtain potable water from the Hudson River and groundwater supply wells near the river to become contaminated with PCBs. The data were inadequate to evaluate if surface water recharges adjacent groundwater aquifers.

CURRENT SITE CONDITIONS

Site conditions have not significantly changed since 1989. Representatives of the NYS DOH have visited the site numerous times since 1989, most recently in December of 1993.

PCB Source

In 1990, GE capped the remnant sites, one of the possible sources of PCBs above Roger's Island. The remnants are areas of former river bottom which were exposed when the Fort Edward dam was removed. The monitoring of river water, fish and microinvertebrates during the capping indicated that there was a source of PCBs upstream of the remnant sites. In September 1991, the PCB concentrations in the river water rose dramatically into the micrograms per liter (mcg/L) range. The 1992 fish concentrations also rose to higher levels.

During the past two years, GE sampling has pinpointed the source. The PCB loading appears to start at the Baker's Falls dam, which is located immediately in front of the GE Hudson Falls capacitor plant. GE's data indicate that the PCB concentration rises from nondetectable to over 1 mcg/L at this point in the river water. The concentration approximately doubles from the Baker's Falls area to Roger's Island, although this may be a sampling artifact.

The shoreline immediately in front of the GE plant is dominated by Baker's Falls, an 80-foot drop in the river level with cliffs along the shoreline. A mill dating from the 1800s, but abandoned at least 50 years ago, stands along the eastern shore, beneath the GE plant and along the falls. The PCBs appear to be flowing from the GE plant through the mill to the river. Sampling has also indicated a PCB source at the outfall of the GE Ft. Edward plant. Access to the mill and its raceways is restricted.

The mill contains three raceways through which river water is directed. The lower raceway is on the side of the mill nearest the river. The raceway receives water directly from the river through a partially closed intake, directs it along the length of the building, and then discharges the water out four windows in front of the building. The upper raceway receives water through a gate structure in the Baker's Falls dam, carries it through an open part of the raceway, into the mill building. The water flows through a failed gate structure into the mill proper, down several stories into the central raceway and out a central tunnel into the river.

The PCBs seem primarily associated with the upper raceway and central tunnel. In April 1993, the gates into the upper raceway were closed. Fifteen seeps which contained water or oil were discovered in the bedrock inner wall of the upper raceway. One of these oil seeps contained 94% PCBs. GE has also collected sediment samples from the lower raceway; these samples contained up to 5% PCBs. GE has also identified 97 pipes on the GE/mill property and will be investigating those further. GE has sealed the upper raceway and the central tunnel and is collecting and treating all of the seeps in these areas. As a result of these actions, PCB concentrations in the river have decreased about 50% since the 1980's. The closure of the lower raceway and planned removal of

the main outfall pipe at Hudson Falls as well as the remediation of the outfall pipe at the Fort Edward plant should minimize the PCB levels in the water column of the Hudson River.

Roger's Island

In October 1992, NYS DOH reported the results from its soil sampling of Roger's Island. Twenty-five soil samples and five Hudson River sediment samples were collected from locations along Roger's Island. These samples were collected from five different areas: the south shore; the river sediment; the north shore; the interior; and "other soil".

South Shore: The south shore consists of all the shoreline susceptible to flooding south of Route 197. Four samples were taken, and the average of these samples is 100 ppm of PCBs.

The samples from the south shore had higher PCB concentrations than the other samples. The most likely source of these PCBs is contaminated sediment which was deposited on the south shore from flooding of the Hudson River. The sample results vary widely and range from 4.5 ppm to 384 ppm.

River Sediments: Five samples were collected from sediment (about 10 feet from the shore) in the Hudson River on all sides of the island. The average of these samples is 4.0 ppm of PCB's.

The river sediment samples (10 feet from shore) showed lower levels of PCBs than the south shore samples. Based on work by other researchers, the levels of PCBs in these samples are similar to those in recently deposited sediments, in this stretch of the river.

North Shore: The north shore area is the shoreline which is susceptible to flooding north of Route 197, between Riverside Street and the river, and along the shoreline of the Town Park. Nine surface samples were collected in this area and the average is 2.7 ppm of PCBs.

The samples from the north shore contain lower levels of PCBs than the south shore, and are similar to the levels in the river sediment samples. PCBs were most likely deposited on the north shore from flooding of the Hudson River. These results suggest that the deposition of sediment in the area was different than on the south shore. A difference in sediment deposition may be caused by the change in the speed of the river's current along the east channel.

Interior: The interior of the island is all the areas which are not susceptible to flooding. Seven surface samples were collected in this area and the average of the samples is 0.21 ppm of PCBs.

The interior samples contained lower levels of PCBs than the shoreline samples. The history of this area is different than the shoreline. It is not susceptible to flooding like the north and south shores, and the PCB contaminated sediments are not likely to have been deposited here from the river.

"Other Soil": The "other soil" is soil which does not have an obvious source of PCBs. Two samples were taken from the slate dust on the ball field and two samples from the bottom of a pit in a archeological dig. The average of these samples is 0.011 ppm of PCBs.

Drinking Water Supply Sampling

Water from the Waterford supply system was sampled on October 10, 1992. Raw water results showed two Aroclors (1016/1242 and 1254) at 0.12 mcg/L and 0.05 mcg/L, respectively. PCBs were not detected in finished water (detection limit 0.05 mcg/L). Samples were also collected from the Waterford supply system on January 11, 1993. Results of raw and finished water were found to be less than 0.05 mcg/L for all five Aroclors.

CURRENT ISSUES

The US EPA is presently reassessing the 1984 ROD to evaluate whether the sediments of the upper Hudson River should be remediated. The PCB loads to the sediments, fish and water column in all sections of the river will be assessed and EPA will conduct health risk and ecological assessments. This reassessment is expected to be completed in 1994.

The NYS DEC is collecting data to evaluate whether or not 40 miles of the upper Hudson River should be dredged and dredging spoils placed in a new hazardous waste landfill. The final decision on the dredging will be made after the US EPA's reassessment.

The most significant potential exposure route of concern is consumption of PCB-contaminated fish from the river. While all fishing is banned in the upper Hudson and commercial fishing of striped bass is banned in the lower Hudson, sportfish are still taken from the lower Hudson River.

One community concern is the closure of the striped bass fishery in the lower Hudson. This commercial fishery was closed at the same time as the upper Hudson recreational fishery. Some people feel that dredging the upper Hudson would eventually lead to lower PCB levels in striped bass so that the commercial fishery could be reopened.

Recently, an anglers survey was completed by the Hudson River Sloop Clearwater, Inc. in Poughkeepsie, New York. This survey evaluated the adherence to fish consumption health advisories among Hudson

River anglers. Fishing bans and health advisories were found to be not completely effective in minimizing exposure to PCBs through consumption of Hudson River fish. NYS DOH is working with the NYS DEC to increase awareness about the advisory among Hudson River anglers. Updated versions of the NYS DOH health advisories, specific to the lower Hudson River, New York Harbor and marine waters are being developed by NYS DOH. The NYS DEC is planning to distribute these updated advisories to anglers who fish in these areas.

CONCLUSIONS

The original 1989 health assessment stated that this site is a potential health concern because of the risk to human health resulting from possible exposure to PCBs through consumption of fish at concentrations that may result in adverse health effects. This concern is still valid. Based on current public health assessment guidance and available information, the Hudson River PCB site poses a public health hazard. The assessment also raised concerns about exposure through other media, such as direct contact with contaminated river sediments and bank deposits. The 1989 health assessment made recommendations about a wildlife consumption survey. The NYS DOH had effectively addressed this issue earlier by issuing consumption advisories for ducks, snapping turtles, and fish.

Further assessment of the site (i.e., a public health assessment or health consultation) may be indicated after the completion of EPA's health risk and ecological assessment of the site.

RECOMMENDATIONS

The ongoing investigation into the source of PCBs at the GE Hudson Falls plant site should continue. Eliminating this source should help to reduce exposures from eating contaminated fish. Fish should continue to be monitored and the health advisory modified as necessary.

ATSDR and the NYS DOH should evaluate the US EPA health risk and ecological assessments of the site to determine the need for further assessment of the site (i.e., public health assessment or health consultation).

The data and information developed in the Site Review and Update for the Hudson River PCB site in upstate New York, has been evaluated by ATSDR's Health Activities Recommendation Panel (HARP) to determine appropriate follow-up actions. The Panel has determined that health actions are indicated because of human exposure to PCBs. Specifically, the Panel determined that a review of health statistics and community health education are indicated. The NYS DOH has performed two evaluations of cancer incidence in the Town of Waterford; however, the Panel determined that an

evaluation of reproductive outcomes in the Town is also indicated. In addition, the Panel determined that a review of a recently released angler's survey was needed. However, NYS DOH had reviewed this angler's survey and determined that additional health education among Hudson River anglers is needed. Additionally, NYS DOH is evaluating the effectiveness of the fishing advisory for the lower Hudson River, New York Harbor and marine waters. Additional community health education efforts may be needed to inform those who still fish in the Hudson River of the health risks posed by PCB exposure to contaminated fish. Additional review by the HARP may be necessary after the NYS DOH reviews US EPA's health risk and ecological assessments.

PUBLIC HEALTH ACTIONS

The Public Health Action Plan (PHAP) for the Hudson River PCB site contains a description of actions to be taken by ATSDR and/or the NYS DOH at and near the site, following completion of this Site Review and Update. For those actions already taken at the site, please refer to the Summary of Background and History section of this Site Review and Update. The purpose of the PHAP is to ensure that this Site Review and Update not only identifies public health hazards, but provides a plan of action designed to mitigate and prevent adverse human health effects resulting from past, present and/or future exposures to hazardous substances at or near the site. Included, is a commitment on the part of ATSDR and/or the NYS DOH to follow-up on this plan to ensure that it is implemented.

The public health actions planned for the Hudson River PCB site are as follows:

1. ATSDR and NYS DOH will coordinate with the appropriate environmental agencies to develop plans to implement the recommendations contained in this Site Review and Update.
2. ATSDR will provide an annual follow-up to this PHAP, outlining the actions completed and those in progress. This report will be placed in repositories that contain copies of this Site Review and Update, and will be provided to persons who request it.
3. NYS DOH will request that the cancer incidence investigation for the Town of Waterford be updated to evaluate reproductive outcomes.
4. NYS DOH will review US EPA's health risk and ecological assessment, once it is completed.

5. NYS DOH will continue community health education to the affected populations, including annual reviews and updates to the state fish and game consumption advisories, as needed.
6. NYS DOH will work with NYS DEC to distribute updated versions of the NYS DOH Health Advisories to anglers who fish in the Hudson River, New York Harbor and marine waters.

ATSDR will re-evaluate and expand the Public Health Action Plan when needed. New environmental, toxicological, or health outcome data, or the results of implementing the above proposed actions may determine the need for additional actions at this site.

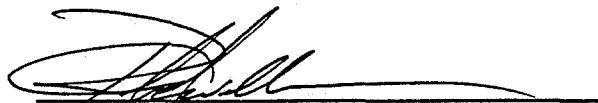
CERTIFICATION

This Site Review and Update for the Hudson River PCB site was prepared by the under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the Site Review and Update was initiated.



Technical Project Officer, SPS, RPB, DHAC

The Division of Health Assessment and Consultation (DHAC), ATSDR, has reviewed this Site Review and Update and concurs with its findings.



Division Director, DHAC, ATSDR

DOCUMENTS REVIEWED

1. ATSDR Health Assessment for Hudson River PCB NPL site, April 17, 1989.
2. Ft. Edward Dam PCB Remnant Deposit Containment Environmental Monitoring Program, Report of 1989 results (February 1990), Report of 1990 result (January 1992), Report of 1991 results (March 1992) and Report of 1992 results (various letter communications).
3. Hudson River Sloop Clearwater, Inc. Hudson River Angler Survey - A Report on the Adherence to Fish Consumption Health Advisories Among Hudson River Anglers; March 1993.
4. NYS DOH. Cancer Surveillance Program. Incidence of Cancer in the Town and Village of Waterford (Saratoga County), New York; February 1987.
5. NYS DOH. Fact Sheet: Roger's Island--Update; October 1992.
6. US EPA Hudson River PCB Reassessment RI/FS, Phase I Report, August 1991.
7. USEPA Hudson River PCB Reassessment RI/FS Responsiveness Summary for the Phase I Report, July, 1992.

PREPARERS OF THE REPORT

Robert Montione
Public Health Specialist II

and

Claudine Jones Rafferty
Public Health Specialist II

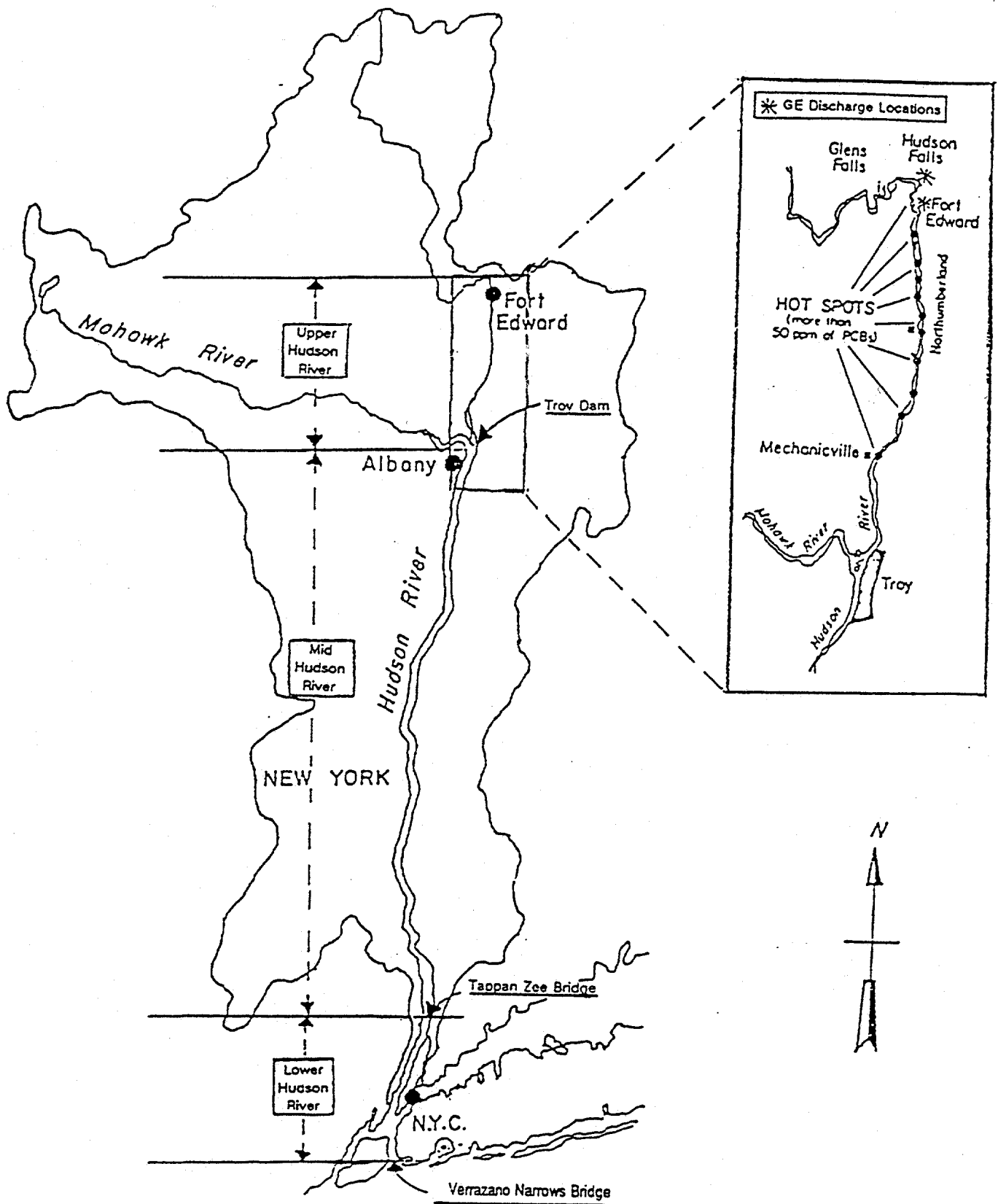
Bureau of Environmental Exposure Investigation
New York State Department of Health
Albany, New York

APPENDIX A

FIGURE 1

Figure 1: Hudson River PCB Site

(Adapted from: Hudson River Sloop Clearwater, Inc.; March 1993).



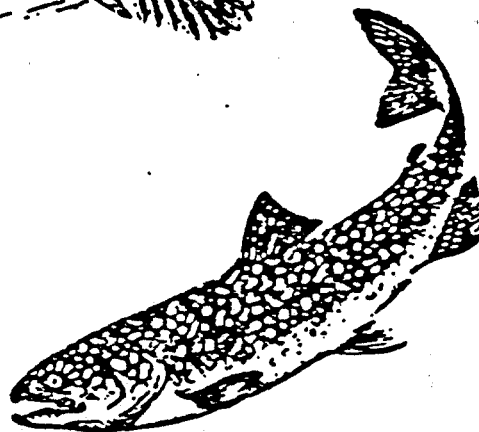
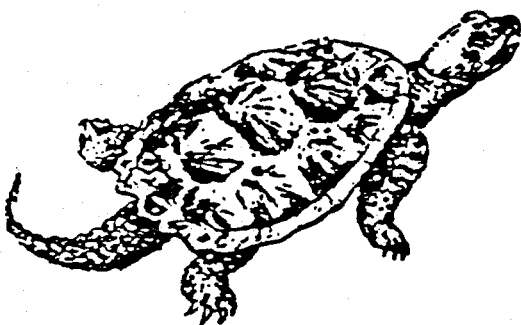
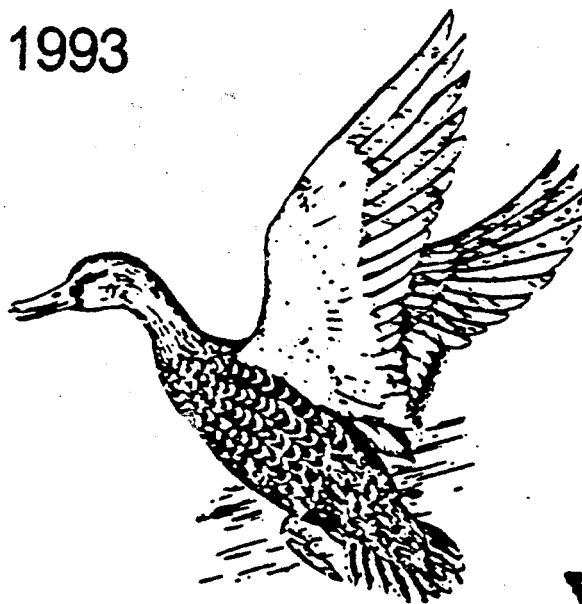
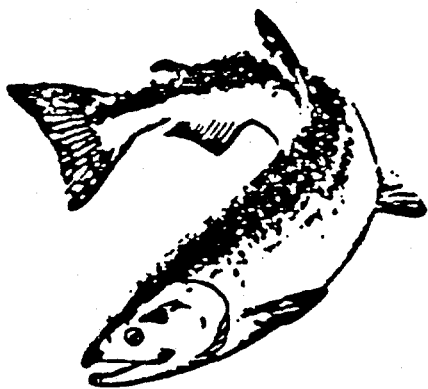
APPENDIX B

**NEW YORK STATE DEPARTMENT OF HEALTH
1993-1994 HEALTH ADVISORIES: CHEMICALS IN SPORTFISH OR GAME**

Health Advisory

CHEMICALS IN SPORTFISH AND GAME

1992 - 1993



Prepared by



New York State Health Department

1992-1993 HEALTH ADVISORIES: CHEMICALS IN SPORTFISH OR GAME

SUMMARY

The New York State Department of Health (DOH) issues an advisory on eating sportfish and wildlife taken in New York State because some of these foods contain potentially harmful levels of chemical contaminants. The health advisory is divided into three sections: (1) general advice on sportfish taken from waters in New York State; (2) advice on sportfish from specific water bodies; and (3) advice on wildlife. The advisory is developed and updated yearly and is directed to persons who may be likely to eat large quantities of sportfish or wildlife which might be contaminated.

BACKGROUND

Fishing and hunting provide many benefits including food and recreation. Many people enjoy cooking and eating their own catch. However, some fish and wildlife contain elevated levels of potentially harmful chemicals. These chemicals or contaminants enter the environment through such means as past industrial discharges, leaking landfills and the widespread use of pesticides. Fish and wildlife take in contaminants directly from the environment and from the food they eat. Some chemicals remain in them and then are ingested by people. DDT, PCBs, mirex, chlordane and mercury have been found in some species of fish taken in New York State at levels that exceed federal food standards. Long-term exposure to high levels of these chemicals has been linked to health effects such as cancer (in laboratory animals) or nervous system disorders (in humans).

The federal government establishes standards (tolerance levels or action levels) for chemical residues in or on raw agricultural products, including fish. A tolerance level is the maximum amount of a residue expected when a pesticide is used according to the label directions, provided that the level is not an unacceptable health risk. The federal government estimates of health risks assume that people eat about one one-half pound of fish each month. Action levels are established for chemicals that do not have approved agriculture uses but may unavoidably contaminate food due to their environmental persistence. Fish and wildlife cannot be legally sold if they contain a contaminant at a level greater than its tolerance or action level.

In New York State, the Department of Environmental Conservation (DEC) routinely monitors contaminant levels in fish and wildlife. The contaminant levels are measured in a skin-on fillet which has not been trimmed; the federal government uses this sample in determining whether or not the fish exceeds the tolerance level. When fish from a specific water body are found to contain high contaminant levels, DOH issues a sportfish consumption advisory for that species of fish. Under some circumstances, the state prohibits the sale or offering for sale of fish containing high contaminant levels. Advisories are also developed for contaminated wildlife. These actions are taken to minimize public exposure to contaminated food products.

GENERAL ADVISORY

The general health advisory for sportfish is that an individual eat no more than one meal (one-half pound) per week of fish from the state's freshwaters, the Hudson River estuary, or the New York City harbor area (the New York waters of the Hudson River to the Verrazano Narrows Bridge, the East River to the Throgs Neck Bridge, the Arthur Kill, Kill Van Kull, and Harlem River). This general advisory is designed to protect against consumption of large amounts of fish which may come from contaminated waterways that are as yet untested or which may contain unidentified contaminants. The general advisory does not apply to fish taken from marine waters. Ocean fish, although less tested, are generally less contaminated than freshwater fish, and fish that live further out from shore are likely to be even less contaminated than those that live or migrate close to the shore.

SPECIFIC FRESHWATER ADVISORIES

The second part of the health advisory contains information and recommendations for specific bodies of water. Fish monitoring has identified over thirty water bodies that have fish with a contaminant level that exceeds an action level or a tolerance level. Department of Health recommendations are based on the contaminant levels and suggest either limiting or avoiding eating a specific kind of fish from a particular body of water. 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.

The health advisory contains specific advice for infants, children under the age of fifteen and women of childbearing age. The Health Department recommends that they not eat fish from the specific water bodies listed in the advisory. The reason for this specific advice is that chemicals can have a potentially greater impact on developing organs in young children or in the fetus. Waters which have specific advisories have at least one species of fish with an elevated contaminant level, which means that a contamination source is in or near the water.

MARINE WATERS

The Department of Health has issued specific advisories for marine waters. These apply to striped bass, bluefish, and American eels and are the only marine fish advisories currently in effect. Striped bass, bluefish, and eels have specific habits or characteristics which make them more likely to have contaminants than other marine species.

An advisory has been issued for striped bass because of PCB contamination. Although saltwater fish are generally less contaminated than freshwater fish, fish like striped bass which spend time in Hudson River waters, can be contaminated at levels above food standards. The advisory for striped bass is divided into three geographical areas. For striped bass taken from the Hudson River from the Federal Dam at Troy south to the Tappansee Bridge, the Health Department recommends against any consumption. For striped bass from the Hudson River from the Tappansee Bridge south to and including the lower N.Y. Harbor and Long Island Sound west of Wading River, the advisory is to eat no more than one meal per month. The general advisory applies to striped bass from eastern Long Island Sound, the Peconic/Gardiners Bays and Long Island South Shore waters. Women of childbearing age, infants and children under fifteen should not eat striped bass from the Hudson River or lower New York Harbor, and western Long Island Sound.

The Department has extended the general advisory to bluefish and American eels. They are contaminated with PCBs, although to a lesser extent than striped bass from the Hudson River, New York Harbor, and western Long Island Sound. The recommendation for bluefish and American eels caught in New York State's waters is to eat no more than one meal (one-half pound) per week, with an additional recommendation to not eat American eels from the Hudson, Harlem, and East Rivers and New York City harbor area.

OTHER ADVISORIES

The Department has also issued special advisories for crabs in the Hudson River, snapping turtles, and waterfowl which have been found to be contaminated with PCBs. Cooking methods that minimize the amount of contaminants which would be eaten are recommended. The complete advisory is provided at the end of this brochure.

The health implications of eating deformed or cancerous 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.

SHELLFISH

All foods of animal origin, such as meat, poultry, seafoods and dairy products should be thoroughly cooked before consumption. The Health Department specifically recommends that the public not eat raw or partially cooked clams or oysters. This advice is not because of chemical contamination. Raw or partially cooked shellfish illegally harvested from waters contaminated with sewage have been linked to gastrointestinal illness and hepatitis A, caused by bacteria or viruses.

SHOULD I BE CONCERNED ABOUT MEDICAL-TYPE WASTE AND GARBAGE AFFECTING FISH?

The wash-up of medical-type waste and garbage on New York and Long Island beaches has not affected the sanitary condition of marine fish, lobster and crabs. Furthermore, fish do not carry or transmit the AIDS virus. Consumers need not limit consumption of these foods because of these problems. Good sanitary practices should be followed when preparing fish from any waters. Fish should be kept iced or refrigerated until cleaned and filleted and then refrigerated until cooked. Hands, utensils, and work surfaces should be washed before and after handling any raw food, including fish. Seafood should be cooked to an internal temperature of 140° F.

WHAT CAN I DO TO REDUCE MY EXPOSURE TO CHEMICAL CONTAMINANTS FROM FISH?

Fish is an important source of protein and is low in saturated fat. Naturally occurring fish oils have been reported to lower plasma cholesterol and triglycerides, thereby decreasing the risk of coronary heart disease. Increasing fish consumption is useful in reducing dietary fat and controlling weight. By eating a diet which includes food from a variety of protein sources, an individual is more likely to have a diet which is adequate in all nutrients.

Although eating fish has some health benefits, fish with high contaminant levels should be avoided. When deciding whether or not to eat fish which may be contaminated, the benefits of eating those fish can be weighed against the risks. For young women, eating contaminated fish is a health concern not only for herself but also to any unborn or nursing child, since the chemicals may reach the fetus and can be passed on in breastmilk. For an older person with heart disease the risks, especially of long term health effects, may not be as great a concern when compared to the benefits of reducing the risks of heart disease.

Everyone can benefit from eating the fish they catch and can minimize their contaminant intake by following these general recommendations:

1. Choose uncontaminated species from water bodies which are not listed in the Health Department's advisory.
2. Use a method of filleting the fish which will reduce the skin, fatty material and dark meat. These parts of the fish contain many of the contaminants. A pamphlet on this method is available from the DEC.
3. 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.
4. For shellfish, such as crab and lobster, do not eat the soft green substance found in the body section (tomalley, liver). This part of the shellfish has been found to contain high levels of chemical contaminants, including PCBs and heavy metals.
5. Based on limited studies, cooking methods such as broiling, poaching, boiling, and baking, which allow contaminants from the fatty portions of fish to drain out, are preferable. Pan frying is not recommended. The cooking liquids of fish from contaminated waters should be avoided since these liquids may retain contaminants.

1992-93 HEALTH ADVISORY

The following recommendations are based on evaluating contaminant levels in fish and wildlife. To minimize potential adverse health impacts, the New York State Department of Health recommends:

- Eat no more than one meal (one half pound) per week of fish from the state's freshwaters, the Hudson River estuary, or the New York City harbor area (the New York waters of the Hudson River to the Verrazano Narrows Bridge, the East River to the Throgs Neck Bridge, the Arthur Kill, Kill Van Kull, and Harlem River), except as recommended below.
- Women of childbearing age, infants and children under the age of 15 should not eat fish with elevated contaminant levels. The fish species listed from the waters below have contaminant levels that exceed federal food standards and most fish taken from these waters contain elevated contaminant levels.
- Observe the following restrictions on eating fish from these waters and their tributaries to the first barrier impassable by fish:

<u>Water</u>	<u>Species</u>	<u>Recommendation</u>
*Barge Canal (Tonawanda Creek, Lockport to Niagara River; Erie & Niagara Co.)	Carp	Eat no more than one meal per month.
Belmont Lake (Suffolk Co.)	Carp	Eat None.
Buffalo River and Harbor (Erie Co.)	Carp	Eat none.
Canadice Lake (Ontario Co.)	Lake or Brown trout over 21"	Eat none.
Canandaigua Lake (Ontario-Yates Co.)	Lake trout over 24"	Eat no more than one meal per month.
*Carry Falls Reservoir (St. Lawrence Co.)	Walleye	Eat no more than one meal per month.
Cayuga Creek (Niagara Co.)	All species	Eat none.
East River (NYC)	American eel	Eat none.
Fourth Lake (Herkimer- Hamilton Co.)	Lake trout	Eat none.
Freeport Reservoir (Nassau Co.)	All species	Eat no more than one meal per month.
Gill Creek (Niagara Co.) Mouth to Hyde Park Lake Dam	All species	Eat none.

Grasse River (St. Lawrence Co.) Mouth to dam in Massena; Also see St. Lawrence River

Hall's Pond (Nassau Co.)

Harlem River (NYC)

Hoosic River (Rensselaer Co.)

*Hudson River

- Hudson Falls to Troy Dam

- Troy Dam south to and including the lower N.Y. Harbor

- Troy Dam south to Tappan Zee Bridge

- Tappan Zee Bridge south to & including lower N.Y. Harbor

Indian Lake (Lewis Co.)

Irondequoit Bay

Keuka Lake (Yates-Steuben Co.)

Kinderhook Lake (Columbia Co.)

*Koppers Pond (Chemung Co.)

Smallmouth bass, Brown bullhead, Walleye

Carp, Goldfish

American eel

Brown and Rainbow trout

All species

American eel, White perch, Carp, Goldfish, White catfish,

Walleye, Rainbow smelt, Largemouth bass, Smallmouth bass, Atlantic needlefish, Bluefish, Northern pike, Tiger muskellunge

Blue crab

-hepatopancreas (mustard, liver or tomalley)

-cooking liquid

Striped bass

Striped bass

All species

Carp

Lake trout over 25"

American eel

Carp

Eat no more than one meal per month.

Eat none.

Eat none.

Eat no more than one meal per month.

No fishing.

Eat none.

Eat no more than one meal per month.

Eat no more than 6 crabs per week.

Eat none.

Discard.

Eat none.

Eat no more than one meal per month.

Eat no more than one meal per month.

Eat none.

Eat no more than one meal per month.

Eat no more than one meal per month.

Eat no more than one meal per month.

Lake Champlain

-whole lake

Lake trout greater than 25",
Walleye greater than 19"

Eat no more than one
meal per month.

-Bay within
Cumberland
Head to
Valcour Island

American eel,
Brown bullhead

Eat no more than one
meal per month.

Lake Ontario and
Niagara River
below the falls

American eel, Channel
catfish, Carp, Lake
trout, Chinook salmon,
Coho salmon over 21",
Rainbow trout over 25",
Brown trout over 20".

Eat none.

White sucker,
smaller Coho salmon,
Rainbow & Brown trout.

Eat no more than
one meal per month.

- West of Point Breeze
- East of Point Breeze

White perch
White perch

Eat none.
Eat no more than
one meal per month.

Loft's Pond
(Nassau Co.)

Carp, Goldfish

Eat no more than
one meal per month.

Long Pond
(Lewis Co.)

Splake over 12"

Eat none.

Upper Massapequa
Reservoir (Nassau Co.)

White perch

Eat no more than
one meal per month.

*Meacham Lake
(Franklin Co.)

Yellow perch over 12"
Smaller Yellow perch

Eat none
Eat no more than
one meal per month.

Mohawk River
Below Lock 7

White perch
Smallmouth bass

Eat none.
Eat no more than
one meal per month.

Nassau Lake
(Rensselaer Co.)

All species

Eat none.

Niagara River
Above the falls

Carp

Eat no more than
one meal per month.

Niagara River
Below the falls;
also see Lake Ontario

White perch
Smallmouth bass

Eat none
Eat no more than
one meal per month.

Onondaga Lake
(Onondaga Co.)

All species

Eat none.

Oswego River
(Oswego Co.)
Power dam in
Oswego to upper
dam at Fulton

Channel catfish

Eat no more than one
meal per month.

St. James Pond
(Suffolk Co.)

All species

Eat no more than
one meal per month.

St. Lawrence River

- Entire River	American eel, Channel catfish, Lake trout, Carp, Chinook salmon, Coho salmon over 21", Rainbow trout over 25", Brown trout over 20"	Eat none.
	White perch, smaller Coho salmon, Rainbow and Brown trout	Eat no more than one meal per month.
- Bay at St. Lawrence-Franklin County line	All species	Eat none.
Salmon River (Oswego Co.) Mouth to Salmon Reservoir; also see Lake Ontario	Smallmouth bass	Eat none.
Saw Mill River (Westchester Co.)	American eel	Eat no more than one meal per month.
*Schroon Lake (Warren & Essex Co.)	Lake trout over 27"	Eat no more than one meal per month.
Sheldrake River (Westchester Co.)	American eel	Eat none.
*Skaneateles Creek from Dam at Skaneateles to Seneca River (Onondaga Co.)	Brown trout over 10"	Eat no more than one meal per month.
Smith Pond Rockville Center (Nassau Co.)	Carp, Goldfish	Eat no more than one meal per month.
Smith Pond Roosevelt Park (Nassau Co.)	Carp, Goldfish	Eat no more than one meal per month.
Spring Pond (Suffolk Co.)	All species	Eat none.
Stillwater Reservoir (Herkimer Co.)	Splake	Eat no more than one meal per month.
Threemile Creek (Oneida Co.)	White sucker	Eat no more than one meal per month.
Valatie Kill - between Co. Rt. 18 and Nassau Lake	All species	Eat none.

Additional Advice

Additional information on the health advisory may be obtained by calling 1-800-458-1158.

The health implications of eating deformed or cancerous fish are unknown. Any grossly diseased fish should probably be discarded. Levels of PCB, mirex and possibly other contaminants of concern can be reduced by removing the skin and fatty portions along the back, sides and belly of smallmouth bass, brown

trout, lake trout, coho salmon, striped bass, and bluefish. (This technique does not reduce mercury levels, however.) A guide to this method can be obtained from any DEC office.

Marine Waters - The general advisory (eat no more than one meal per week) applies to bluefish and American eels but not to other fish species taken from marine waters. American eels from the Hudson, Harlem, and East Rivers and New York Harbor should not be eaten.

***Marine Striped Bass** - Eat no more than one meal (1/2 pound) per month of striped bass taken from New York Harbor or Long Island Sound west of Wading River. Eat no more than one meal (1/2 pound) per week of striped bass taken from Eastern Long Island Sound, the Peconic/Gardiners Bays, and Long Island South Shore waters (legal minimum length of marine striped bass is 36").

Marine Crabs and Lobsters - It is recommended that the hepatopancreas (liver, mustard, or tomalley) of crabs and lobsters not be eaten because this organ has high contaminant levels.

Snapping turtles - Snapping turtles retain contaminants in their fat, liver, eggs and to a lesser extent in the muscle. If you choose to consume snapping turtles, carefully trimming away all fat and discarding the fat, liver, and eggs prior to cooking the meat or preparing soup or other dishes will reduce exposure. Women of childbearing age, and children under the age of 15 should avoid ingesting snapping turtles or any soup or stew made with snapping turtle meat.

Waterfowl - It is recommended that you eat no mergansers since they are the most heavily contaminated waterfowl species. Other waterfowl should be skinned and all fat removed before cooking; stuffing should be discarded after cooking; limit eating to two meals per month. Monitoring data indicate that wood ducks and Canada geese are less contaminated than other waterfowl species with dabbling ducks and then diving ducks having increasingly higher contaminant levels.

***Changes from the 1991-92 Health Advisory**

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ADDITIONAL INFORMATION

NEW YORK STATE DEPARTMENT OF HEALTH

For more information on health effects from exposure to chemical contaminants, contact:

Environmental Health Information
1-800-458-1158 (toll-free number)

Leave your name, number and brief
message. Your call will be
returned as soon as possible.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

For more information on fishing, contact:

Regional Offices

Region 1 SUNY Campus,
Bldg. 40 Stony Brook, NY
11794 (516) 751-7900

Region 2 47-40 21st St.
Long Island City, NY 11101
(718) 482-4900

Region 3 21 South Putt
Corners Rd. New Paltz, NY
12561 (914) 255-54538

Region 4 2176 Guilderland
Ave. Schenectady, NY
12306 (518) 382-0680

Region 5 Route 86 Ray
Brook, NY 12977 (518)
891-1370

Region 6 State Office Bldg.
Watertown, NY 13601 (315)
785-2236

Region 7 615 Erie Blvd.
West Syracuse, NY 13204
(315) 426-4700

Region 8 Routes 5 and 20
Avon, NY 14414 (716)
226-2466

Region 9 600 Delaware Ave.
Buffalo, NY 14202 (716)
847-4600

For information on contaminant levels, contact:

Bureau of Environmental Protection
50 Wolf Road
Albany, NY 12233
(518) 457-6178

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