Preliminary Assessment of Total Mercury Concentrations in Fishes from Connecticut Water Bodies

Prepared for the Connecticut Department of Environmental Protection

Robert M. Neumann
Department of Natural Resources Management and Engineering,

The Connecticut Institute of Water Resources, and

Robert J. Carley, Christopher R. Perkins, and Robert Pirrie
Environmental Research Institute

University of Connecticut
Storrs, Connecticut 06269

March 1996

EXECUTIVE SUMMARY

In 1995-1996, the Environmental Research Institute of the University of Connecticut conducted a study "Preliminary assessment of total mercury concentrations in fishes from Connecticut water bodies." The University of Connecticut's Department of Natural Resources Management and Engineering and the Institute of Water Resources were partners in this project. This study was conducted in cooperation with the Connecticut Department of Environmental Protection (DEP) and the Connecticut Department of Public Health (DPH).

During the past several years, many governmental agencies have investigated the levels of mercury concentrations in fishes because of the potential health effects on humans resulting from consumption of contaminated fish. The occurrence of elevated mercury levels in fish was reported to be widespread among lakes in Canada, the U. S., and Scandinavia. Fish consumption advisories have been issued in a number of states in the northeastern and Midwestern U. S. In Ontario, Canada, the Ministry of the Environment has placed consumption limits on fish obtained from more than 75% of the 1,500 lakes tested in that region.

The northeastern U. S. is potentially impacted from mercury pollution through a combination of local sources, such as coal-burning power plants and waste-to-energy incinerators, along with long-range transport and deposition of mercury from other areas, both nationally and globally. Consequently, the northeastern U. S. may have higher rates of atmospheric deposition of mercury than in other regions of the country. Moreover, because low pH of water bodies has been linked to increased mercury concentrations in fish, the northeastern U. S. may be more susceptible to elevated mercury concentrations in fish because precipitation in the northeast typically is more acidic than in other parts of the country.

A limited database exists on the status of mercury contamination in fishes from Connecticut lakes and streams. The DEP and the DPH conducted a monitoring effort from 1988 to 1994 to assess mercury levels in fish from rivers and streams. From 1988 to 1995, fish monitoring was conducted at twelve water bodies with suspected mercury contamination. In 1992 and 1993, a preliminary assessment of mercury levels in fishes in Connecticut lakes was conducted as part of an international mercury monitoring survey involving northeastern states and Canada. Preliminary mercury monitoring was also conducted in fishes from Long Island Sound in the mid 1980's. These monitoring efforts resulted in a fish consumption advisory for one Connecticut lake.

The accumulation of mercury in fishes has been shown to be related to a variety of environmental factors. Chemical characteristics of lakes related to mercury concentrations typically are acidity and hardness. Interest in the role of pH and alkalinity in mercury accumulation has increased with concern about the ecological impacts of acid precipitation. Mercury concentration in fishes has been shown to be directly related to fish age, size, and growth rate. This type of information is necessary to properly assess the relations between fish mercury concentration and other environmental attributes. Moreover, these relations aid in developing fish consumption advisories.

The primary objectives of this study were to determine the status of mercury concentrations in a common predator fish (and other species to a lesser extent) from lakes and ponds in Connecticut, to gain preliminary information on the relations between mercury concentrations in fish and environmental attributes of water bodies (a subsequent report will expand on the results presented in this document), and to gather baseline information on the status of mercury contamination in surficial sediments. The primary target species for mercury analysis in this study was largemouth bass. Largemouth bass was chosen because it is a common top-level piscivore in Connecticut lakes and is a popular sport fish among anglers in the state. Yellow perch and bluegills were chosen as secondary species because of their popularity among Connecticut anglers and because they exist at a lower trophic level than largemouth bass. Three marine fish species (blackfish, bluefish, and porgy) were also sampled during this study to gather data on mercury levels in popular sportfish in Long Island Sound.

A total of 664 fish representing 8 fish species was analyzed for mercury concentrations during this study. Mercury concentration data were obtained for 508 largemouth bass from 54 locations (51 lakes and 3 sites on the Connecticut River) and five geographic regions within the state, 22 smallmouth bass from 10 locations (9 lakes and 1 site on the Connecticut River), 19 bluegills from 2 lakes, 88 yellow perch from 10 locations (9 lakes and one site on the Hockanum River), 1 pumpkinseed from 1 lake, and 7 blackfish, 8 bluefish, and 10 porgy from Long Island Sound.

The mean and maximum mercury concentrations found for all largemouth bass analyzed during this study were 0.51 and 2.65 ug/g (wet weight); the mean and maximum mercury concentrations for smallmouth bass were 0.65 and 2.32 ug/g, respectively. Mercury concentrations greater than or equal to 0.5 ug/g were observed in 199 of the 508 largemouth bass. Five sites had all bass exceeding 0.5 ug/g (Billings Lake, Dodge Pond, Glasgo Pond, Moodus Reservoir, and Saugatuck Reservoir). Mercury concentrations greater than or equal to 1.0 ug/g (wet weight) were observed in 42 of the 508 largemouth bass. Two sites had at least 50% of the individual specimens with mercury concentrations greater than or equal to 1.0 ug/g (Dodge Pond and Silver Lake).

The mean and maximum mercury concentrations found for all bluegills were 0.10 and 0.14 ug/g, respectively. None of the bluegills analyzed during this study had mercury concentrations greater than or equal to 0.5 ug/g. The single pumpkinseed analyzed had a mercury concentration below 0.5 ug/g. The mean and maximum mercury concentrations found for all yellow perch were 0.16 and 0.45 ug/g, respectively. None of the 88 yellow perch analyzed during this study had mercury concentrations greater than or equal to 0.5 ug/g. None of the individual blackfish, bluefish, or porgy had mercury concentrations greater than or equal to 0.5 ug/g.

Results from this study suggest that mercury has the potential to biomagnify within aquatic food webs. Mercury levels for yellow perch and bluegills were observed to be lower those for largemouth bass. In this study, no yellow perch or bluegills had mercury levels above 0.50 ug/g. Typically, mercury levels in top-level piscivores are greater than for other fish species inhabiting lower trophic levels. Results from this study are consistent with this concept and suggest that human mercury exposure might be greatest from consuming top-level predators, such as largemouth bass and smallmouth bass, rather than fish inhabiting lower trophic levels, such as panfish.

There were significant differences in largemouth bass mercury concentrations among regions in the state. Mercury concentrations were found to be higher in the southeast compared to the southwest, northwest, and central lowlands. Regional variations in largemouth bass mercury concentrations can possibly be explained by differences in mean pH of waterbodies among regions in the state. Overall, mercury concentrations in largemouth bass were inversely correlated with lake pH; this relationship is consistent with other studies.

This study provides an overview of mercury contamination in largemouth bass, and other species to a lesser extent in Connecticut water bodies. Recommendations for further study include:

1) *Additional monitoring of mercury concentrations in other top-level predators.*

2) *Determining seasonal variations in fish mercury levels.*

3) *Quantifying rates of mercury biomagnification among fishes inhabiting different trophic levels.*

4) *Intensive study of factors affecting mercury bioavailability in lakes.*

5) *Quantify the emissions from specific sources in Connecticut believed to have significant air emissions of mercury.*

6) *Assess the spatial and seasonal distribution of atmospheric mercury concentration and deposition in Connecticut.*

7) *Develop a comprehensive model to determine the proportion of mercury deposition from local and regional sources, and to use this as a tool to predict and quantify the effects of emission reduction strategies.*

8) *Work in progress: Investigate further the relationship between fish mercury concentrations in largemouth bass and chemical and physical characteristics of Connecticut lakes.*

TABLE OF CONTENTS

INTRODUCTION

Mercury pollution in aquatic systems is a serious issue globally, because it is among the most toxic of metals and readily bioaccumulates within aquatic organisms (ANSP 1994). The concentrations of mercury in air, water, and soil are generally far too low to present a direct threat to human health. However, mercury is an environmental problem primarily because it can biomagnify through the aquatic food chain to the point that consumption of fish may cause adverse affects in birds and mammals, including humans. Consequently, even small amounts of mercury in the environment can potentially have a significant negative effect, both locally and globally. For example, the average concentration of mercury in a northeast Minnesota lake was approximately 2 ng/l while the average concentration in northern pike *Esox lucius* from this lake was approximately 450 ng/g indicating a bioconcentration factor of 225,000 (Sorenson et al. 1990).

Fish accumulate mercury primarily in the form of methylmercury. The mercury methylation process occurs at the microbial level and the degree of methylmercury production influences the quantity of subsequent methylmercury uptake by fish (Rudd et al. 1983). The vector for methylmercury bioaccumulation in fish is primarily through food consumption, although small amounts may be taken up through respiratory surfaces (Phillips and Buhler 1988).

The accumulation of mercury in fishes has been shown to be related to a variety of environmental factors. Chemical characteristics of lakes related to mercury concentrations typically are those related to acidity (pH: Wren and MacCrimmon 1983; McMurtry et al. 1989; Wiener et al. 1990; Wren et al. 1991; Lange et al. 1993; ANSP 1994; alkalinity: McMurtry et al. 1989; Wren et al. 1991; Lange et al. 1993) and hardness (Rodgers and Beamish 1983; McMurtry et al. 1989; Wren et al. 1991). Interest in the role of pH and alkalinity in mercury accumulation has increased with concern about the ecological impacts of acid precipitation. A linkage between water acidification and fish mercury content has been inferred, and several mechanisms have been hypothesized to explain this phenomenon, including increases in production of methylmercury with decreases in pH and increased permeability of fish gills to methylmercury (Driscoll et al. 1994).

Mercury concentration in fishes has been shown to be directly related to fish age, size (MacCrimmon et al. 1983; Wren et al. 1991) and growth rate (Wren and MacCrimmon 1983). This type of information is necessary to properly assess the relations between fish mercury concentration and other environmental attributes. Moreover, these relations aid in the issuing of fish consumption advisories.

During the past several years, many governmental agencies have investigated the levels of mercury concentrations in fishes because of the potential health effects on humans resulting from consumption of contaminated fish. The occurrence of elevated mercury levels in fish was reported to be widespread among lakes in Canada, the U. S., and Scandinavia. Fish consumption advisories have been issued in a number of states in the northeastern and Midwestern U. S. In Ontario, Canada, the Ministry of the Environment has placed consumption limits on fish obtained from more than 75% of the 1,500 lakes tested in that region (Ontario Ministry of the Environment 1988).

The northeastern U.S. is potentially impacted from mercury pollution through a combination of local sources, such as coal-burning power plants and waste-to-energy incinerators, along with long-range transport and deposition of mercury from areas, both national and international. Consequently, the northeast may be one of the regions in the U.S. that has higher rates of atmospheric deposition of mercury than other regions of the country. Moreover, because low pH of water bodies has been linked to increased mercury concentrations in fish, the northeast U.S. may be more susceptible to elevated mercury concentrations in fish because precipitation in the northeast typically is more acidic than in other parts of the country (Summerfelt 1993).

A limited amount of data exists on the status of mercury contamination in fishes from Connecticut lakes and streams. The Connecticut Department of Environmental Protection (DEP) and the Connecticut Department of Public Health (DPH) conducted a monitoring effort from 1988 to 1994 to assess levels of mercury levels in fish from rivers and streams. From 1988 to 1995, fish monitoring was conducted at twelve water bodies with suspected mercury contamination. In 1992 and 1993, a preliminary assessment of mercury levels in fishes in Connecticut lakes was conducted as part of an international mercury monitoring survey involving northeastern states and Canada. Preliminary baseline monitoring was also conducted in fishes from Long Island Sound in the mid 1980's. These monitoring efforts resulted in a fish consumption advisory for one Connecticut lake. Although mercury monitoring programs have been conducted in the past, Connecticut has lacked a systematic data base describing mercury levels in fishes from lakes and ponds statewide. Specifically, information was needed regarding mercury levels in fish species most likely to have elevated mercury levels in lakes and ponds statewide, as well as information on environmental characteristics of lakes that may contribute to increased mercury levels in fish.

This report contains results of a preliminary assessment of mercury concentrations in fishes from Connecticut, primarily in lakes and ponds. This project was conducted by the University of Connecticut's Environmental Research Institute under contract by the DEP, and is part of Connecticut's continuing effort to assess the extent of mercury contamination in freshwater fishes throughout the state. This report primarily focuses on a statewide screening study to determine mercury levels in largemouth bass *Micropterus salmoides*, and to a lesser extent smallmouth bass *Micropterus dolomieu*, bluegill *Lepomis macrochirus*, yellow perch *Perca flavescens* primarily from lakes and ponds, and three fish species from Long Island Sound (blackfish *Tautoga onitis*, bluefish *Pomatomus*, and porgy *Stenostomus chrysops*). In addition to providing a summary of baseline data for mercury in fish, this report also includes information on surficial sediment mercury concentrations and their relation to mercury in fish.

The specific objectives of this study were to:

1) Gather baseline data on the status of mercury contamination in important recreational sport fish species (primarily largemouth bass) from Connecticut water bodies, primarily lakes and

ponds.

2) Examine the relations between mercury concentrations and biological characteristics (e.g., length and weight) of largemouth bass (and other species to a lesser extent) from Connecticut water bodies, primarily lakes and ponds.

3) Determine if there are regional patterns in largemouth bass mercury concentrations from lakes and ponds in Connecticut.

4) Examine relations between largemouth bass mercury levels and pH of lakes and ponds.

5) Gather baseline data on sediment mercury levels in Connecticut water bodies and determine whether there is a relation between sediment mercury levels and mercury concentrations in largemouth bass from lakes and ponds.

Data collected during this study will also be used as part of an investigation to determine the relation between environmental characteristics of lakes and ponds mercury concentrations in largemouth bass; results will be provided in a subsequent report. This report includes all water quality data collected to date; as well as a preliminary assessment of the relation between mercury in largemouth bass and lake pH. The follow-up report will include a more in-depth analysis of which environmental attribute, or which combination of environmental attributes, influence mercury concentrations in largemouth bass.

METHODOLOGY AND PROCEDURES

Selection of Species and Study Sites

The target species for mercury analysis in this study was largemouth bass. Largemouth bass were chosen as the primary indicator organism in this study because it is a common top-level piscivore in Connecticut lakes and is a popular sport fish among anglers in the state. Mercury biomagnifies through the food chain and bioaccumulates to the greatest potential in top-level piscivorous species (e.g., largemouth bass). Yellow perch and bluegills were chosen as secondary species in this study with the primary purpose of gathering preliminary baseline data on mercury levels in these species because they are popular panfish species among Connecticut anglers and because they exist at a lower trophic level than largemouth bass. Three fish species (blackfish, bluefish, and porgy) were also sampled during this study to gather baseline data on mercury levels in popular sportfish in Long Island Sound.

The selection criteria for water bodies to be sampled in this study included: 1) lakes that are state-owned or have public access if they are privately owned; 2) lakes that are greater than 10 ha (25 acres) in surface area; 3) the Connecticut River; and 4) Long Island Sound. The study sites selected and the distribution of study sites are discussed below.

The concept of "ecoregions" was applied to aid in the selection and distribution of lakes for this study. Dowhan and Craig (1976) adopted the concept of ecoregions on the national scale, and developed ecoregions specific to Connecticut. These ecoregions have similar interrelationships among physiography, geography, local climate, soil profiles, and plant and animal communities. Thus, ecoregions are natural divisions of land, climate, and biota that are especially useful in forestry, wildlife management, land planning, and natural-resource monitoring and management. In this study, examination of fish mercury levels on an ecoregion level may provide information on those attributes which are ecoregion specific that may contribute to mercury contamination. Dowhan and Craig (1976) divided Connecticut into eleven ecoregions. Thus, many of these regions were small and may limit the amount of information that could be obtained from each region. Dowhan and Craig (1976) recommended that the degree of subdivision should depend on its usefulness for purposes of scientific description. Thus, this study focused on five specific regions adapted from Dowan and Craig (1976): northeast hills/uplands; southeast hills/coastal; northwest hills/uplands; southwest hills/uplands; and, the central lowlands (Figure 1). These zones can be characterized as having relatively similar geology, vegetation, population density, and industry.

A base list of water bodies that met the selection criteria (N=129) was provided by the Natural Resources Center of the CTDEP. Through the help of the Fisheries Division of the CTDEP, lakes where bass fishing tournaments were likely to occur were identified within each region. Electrofishing was conducted at locations within regions underrepresented by bass fishing tournaments (primarily the central lowlands and southwest uplands/coastal regions). Thus, locations sampled within each region were not selected at random, but were selected based on the potential for fish collection through bass fishing tournaments or electrofishing where tournaments were not held. Therefore, the locations sampled provide a subset of the most popular bass angling sites. Largemouth bass were collected from 51 lakes and the Connecticut River (3 sites), smallmouth bass were collected from 9 lakes and the Connecticut River (1 site), yellow perch were collected from 9 lakes and the Hockanum River (1 site), bluegill were collected from 2 lakes, and single pumpkinseed was collected from 1 lake. Blackfish, bluefish, and porgy were sampled during a CTDEP Fisheries Division trawl survey of Long Island Sound. The number of lakes and ponds sampled within each region that met the selection criteria include: northeast 8/29 (28%), southeast 14/42 (33%), central lowlands 9/16 (56%), northwest 9/28 (32%), southwest 11/14 (79%). A list of sampling locations, species collected, and the method of fish collection is provided in Table 1.

Fish Sampling Methods

All surfaces and instruments that came in contact with fish were detergent washed, rinsed with tap water, soaked/sprayed with dilute nitric acid, and triple rinsed with deionized (DI) water. After decontamination, containers were sealed and instruments were placed in clean plastic bags. All standard operating procedures used during this study are listed in Appendix 10.

Tournament fish collection

An attempt was made to collect at least ten largemouth bass from each tournament with a minimum of three fish per length group (300-379 mm; 379-457 mm, and greater than 457 mm). Immediately upon collection, fish were stored in a clean polyethylene holding tank filled with ambient lake water. After fish collection, individual fish were removed from the tank, rinsed in ambient lake water, sealed in a clean polyethylene bag, measured to the nearest mm, and weighed to the nearest g. The fish was then double bagged and packed on dry ice in a clean cooler and returned to the laboratory. The detailed standard operating procedure can be found in Appendix 10.

Electrofishing

Electrofishing was conducted using a Coffelt electrofishing boat and a VVP-15 model electrofishing unit powered by a 5,000-W generator. An attempt was made to collect at least ten largemouth bass from each electrofishing site with a minimum of three fish per length group (300-379 mm; 379-457 mm, and greater than 457 mm). Immediately upon collection, fish were stored in a clean polyethylene holding tank filled with ambient lake water. Once all fish were captured, the boat motor was stopped before sample preparation. Individual fish were removed from the tank, rinsed in ambient lake water, sealed in a polyethylene bag, measured to the nearest mm, and weighed to the nearest g. The fish were then double bagged and packed on dry ice in a clean cooler and returned to the laboratory. The detailed standard operating procedure can be found in Appendix 10.

Sediment Sampling Methods

Sediment samples were collected using a box-corer lined with an acrylic liner. Sediment was collected at a central location within each water body. A clean acrylic liner was placed in the dredge between samples. The dredge was allowed to freely descend and dig into the sediment. The dredge was retrieved from the water and lowered onto a clean polyethylene cutting board. The top 5 cm of the core were removed and placed into a premarked polyethylene sample cup. The cup was sealed, placed in an individual plastic bag, and placed in a polyethylene bag. The sample was returned to the laboratory at ERI. The detailed standard operating procedure can be found in Appendix 10.

Water Sampling Methods

Prior to each sampling trip the kemmerer bottle and 1-L sample bottles were acid washed in 3% HCl. The kemmerer bottle was placed in a clean plastic bag and stored in its case between sampling trips. The water bottle was lowered over the side of the boat, upstream of the engine smoke plume to avoid contamination. Samples were taken at central locations in each water body at depths of 1m below the surface, mid depth, and 1m above the bottom. The bottle was pulled to the surface, the clamp on the drain tube was opened, and water allowed to drain away for 5 s. The remainder of the water was siphoned into an acid washed 1-L bottle. Chemical attributes measured from kemmerer water samples included: alkalinity, magnesium, calcium, conductivity, particulate carbon, organic carbon (total and dissolved), ammonia, particulate nitrogen, nitrate, nitrite, total dissolved nitrogen, dissolved inorganic phosphorus , particulate phosphorus, total dissolved phosphorus, total suspended solids, temperature, dissolved oxygen, redox potential, and secchi depth.

A Hydrolab recorder was used to monitor several additional ambient water quality parameters. These parameters included pH, conductivity, temperature, salinity, dissolved oxygen, redox potential, and depth. The probe was lowered to 1 m below the surface and kept at depth for 1 minute for the readings to stabilize. This procedure was repeated at mid depth and 1 m above the lake bottom. Data were stored in the probe every 20 s for each parameter until downloaded to a computer.

Depth at sample location was measured by a graphical depth/fish finder that had been calibrated against a depth sounding line. Secchi depth transparency was measured by lowering the disk over the side of the boat until it disappeared from sight. The disk was then slowly raised, and the secchi depth was recorded as the depth at which the disk reappeared. This process was repeated three times. Standard operating procedures can be found in Appendix 8.

Water quality analyses for chemical parameters were performed at ERI using approved methodologies listed in the following table.

Standard methods used in the analysis of water quality parameters.

Analyte	Method
Ammonia (NH3)	EPA 350.1
Nitrate & Nitrite (NOX)	EPA 353.2
Orthophosphate (DIP)	EPA 365.1
Total Dissolved Nitrogen (TDN)	EPA 353.2
Total Dissolved Phosphorus (TDP)	EPA 365.2
Particulate Phosphorus (PP)	EPA 365.1
Particulate Carbon and Nitrogen (PC & PN)	Thermal Conductivity
Dissolved Organic Carbon (DOC)	EPA 415.1
Total Suspended Solids (TSS)	EPA 160.1
Calcium and Magnesium (Ca & Mg)	EPA 200.7

Fish Specimen Preparation

All fish were dissected in a positive pressure laminar flow hood on acid washed surfaces. Stainless steel dissecting instruments used for fish dissection were cleaned thoroughly and acid washed. Fish were examined for abnormalities, discoloration, general well-being, etc. The outside of the fish was rinsed with DI water and placed on a clean polyethylene cutting board. The fish was laid flat, and a sample of scales was removed. Fish were measured to the nearest mm (total length) and weighed to the nearest g on a clean polyethylene-lined measuring board and balance tray, respectively. Fish were placed with their left side facing up and a series of three cuts were made to expose the muscle. The knife was rinsed in a DI container, and sprayed with DI between cuts to remove any scales and mucus. The skin was then pulled back using clean stainless steel forceps, the core of the muscle tissue mass was cut free and removed, placed in a clean whirl-pak, labeled, and stored until homogenization. The filets were homogenized in an acid washed food processor with a stainless steel blade inside the laminar flow hood, and ground until the entire filet was homogenized. Approximately 1 g of the homogenate was removed using a clean pair of forceps, placed on clean weighing paper, weighed, wrapped in the paper, and inserted into an acid washed BOD bottle.

Quality control checks during field sampling

Hatchery rainbow trout (obtained from Quinebaug State Fish Hatchery) were used to detect for possible introduction of contamination during any step of the fish collection and necropsy procedures. These trout were placed in the holding tank with the other fish and were analyzed and processed in the same manner. A total of 18 trout from 6 sampling trips were analyzed. Parafilm and livewell chemical (which is used by anglers to help keep fish alive prior to tournament weigh-ins) were analyzed for potential sources of contamination.

Analytical Methods

Mercury in fish

This method is a slightly modified version of EPA method 245.6. The need for validation of this modification is addressed by the analysis of a standard reference material (SRM), the results for which are available on request.

Sampling and storage. Each fish was received from the field wrapped in two new polyethylene bags. The fish were stored in a freezer at ≤ -20°C until filleted and homogenized. Once filleted and homogenized (within three weeks from collection date) each sample was placed in a clean BOD bottle, sealed, and secondarily sealed with a protective cap. The bottles were then stored in a freezer at ≤ -20°C until digestion.

Digestion. The tissue sample was first homogenized in a tissue grinder. A one gram (wet weight) subsample was weighed onto mercury-free weighing paper and placed in a BOD bottle. Eight ml of concentrated trace metal grade sulfuric acid and 2 ml of concentrated trace metal grade nitric acid were added. The BOD bottle was stoppered, capped with a vented plastic dust cover, and placed on a hot plate maintained at 60°C until the tissue was completely dissolved. Periodic swirling was used to facilitate the dissolution of the tissue. The bottles were left on the hotplate for one hour to ensure complete digestion. The BOD bottles were then removed and cooled to 4°C in a refrigerator. Ten ml of potassium permanganate (5%

w/v) were added, 1 ml at a time. An additional 10 to 20 ml of permanganate were added until oxidizing conditions were maintained (the dark purple/bronze color is maintained for 15 minutes). Ten mls of potassium persulfate (5%w/v) were added and the samples were allowed to stand at room temperature overnight. The digestate was decanted into a 100 ml volumetric flask and then an $NaCl/(NH_2OH)^{\circ}HCl$ (12g NaCl, 12g $(NH_2OH)^{\circ}$ HCl, q.s. to 250ml) solution was slowly added to reduce the remaining $KMnO_4$ (solution clears). The sample was then brought to final volume, sealed with parafilm and refrigerated.

Procedure. The instrument used was a Perkin Elmer model 460 atomic absorption spectrophotometer (CVAAS), equipped with a Perkin Elmer model MHS-10 sample introductory system. A five point calibration curve was created using a 1000mg/l mercury stock standard purchased from a reputable commercial source. To analyze each standard and sample, a thirty ml aliquot was placed in a reaction flask. Three drops of a silicon suspension/antifoam agent were added and the sample was placed on the MHS-10 where the reducing agent, tin chloride ($SnCl_2$), was introduced into the sample by use of argon. Vaporized elemental mercury containing ground state atoms was released from the sample and entered a quartz cell. Atomization radiation from an excited source (mercury electrodeless discharge lamp) was then passed through the cell. The thermally agitated atomic vapor selectively absorbs (on the atomic level) certain frequencies of the incident spectrum. The optical bench and photomultiplier tube sequesters and measures the intensity of the chosen wavelength (253.7 nm). In this way, the amount of a given frequency of light that was absorbed by the atomic vapor was determined and was proportional to the concentration of the analyte in the sample.

Calibration and verification. A five point calibration curve was run at the beginning of the analysis. The calibration curve was then verified with a certified external quality control sample (continuing calibration verification) from either the Ricca Chemical Company (Arlington, Texas) or Environmental Resource Associates (Arvada, Colorado). The initial calibration check demonstrated that the instrument was capable of acceptable performance at the beginning of the analysis. A continuing calibration blank was also run. The blank was made from the reagents used in the procedure, and matched the reagent matrix of the samples. In order to ensure continuing acceptable performance, a CCV and CCB were run at least every tenth sample. For every twenty samples, two laboratory spike analysis, a laboratory duplicate analysis, a laboratory control spike and a laboratory preparation blank were analyzed.

<u>Mercury in Sediment (EPA method 7471A)</u>

Sampling and storage. Each sediment sample were received from the field double wrapped in new polyethylene bags. These were stored in a freezer at ≤ -20°C. Each sub-sample to be analyzed was placed in a clean BOD bottle, sealed, and secondarily sealed with a protective cap. The bottles were then stored in a freezer at ≤ -20°C until digestion.

Digestion. 0.8-1.6 g (wet weight) portions of sediment were weighed onto mercury free weighing paper and placed in the bottom of a BOD bottle. Five mls of DI water and 5 ml of aqua regia were added, and the bottle was stoppered and capped with a plastic dust cover.

The bottles were then heated for two minutes in a water bath at 95°C. The bottles were cooled, and 50 ml of DI water and 15 ml of potassium permanganate solution (5%w/v) were added. The bottles were mixed thoroughly and returned to the 95°C water bath for thirty minutes. The samples were cooled again, and 6 ml of $NaCl/(NH_2OH)°HCl$ (12g NaCl, 12g $(NH_2OH)°$ HCl, q.s. to 250ml) solution were added to reduce the excess permanganate (samples clear). The bottles were then decanted into 100-ml graduated cylinders brought to 100 ml final volume, sealed with parafilm, and refrigerated.

Procedure. The instrument used was a Perkin Elmer model 460 atomic absorption spectrophotometer, equipped with a Perkin Elmer model MHS-10 sample introductory system. A five point calibration curve was created using a 1000mg/l mercury stock standard purchased from a reputable commercial source. To analyze each standard and sample, a thirty ml aliquot was placed in a reaction flask. Three drops of a silicon suspension/antifoam agent were added and the sample is placed on the MHS-10 where the reducing agent, tin chloride ($SnCl_2$), was introduced into the sample by use of argon. Vaporized elemental mercury containing ground state atoms was released from the sample and entered a quartz cell. Atomization radiation from an excited source (mercury electrodeless discharge lamp) was then passed through the cell. The thermally agitated atomic vapor selectively absorbs (on the atomic level) certain frequencies of the incident spectrum. The optical bench and photomultiplier tube sequesters and measures the intensity of the chosen wavelength (253.7 nm). In this way, the amount of a given frequency of light that is absorbed by the atomic vapor is determined and is proportional to the concentration of the analyte in the sample.

Calibration and verification. A five point calibration curve was run at the beginning of the analysis. The calibration curve was then verified with a certified external quality control sample (continuing calibration verification) from either the Ricca Chemical Company (Arlington, Texas) or Environmental Resource Associates (Arvada, Colorado). The initial calibration check demonstrated that the instrument was capable of acceptable performance at the beginning of the analysis. A continuing calibration blank was also run. The blank was made from the reagents used in the procedure, and matched the reagent matrix of the samples. In order to ensure continuing acceptable performance, a CCV and CCB were run at least every tenth sample. For every twenty samples, two laboratory spike analysis, a laboratory duplicate analysis, a laboratory control spike and a laboratory preparation blank were analyzed.

Quality control checks and frequency

Below is a summary of the quality control checks required for each group of analyses and the criteria for documenting compliance. The QC checks rely on analysis of samples traceable to the National Institute of Standards and Technology (NIST) or the Environmental Protection Agency (EPA). These were used as controlling elements for the methods. In this case, a mid-level standard prepared independently, containing all of the analytes of interest is analyzed as a QC check after every tenth sample. This will ensure that the calibration curve used is representative for the entire analytical run, and that the precision meets the requirements. Below is a summary of quality control checks for the analysis of mercury using the CVAAS.

Calibration curve	Five points
Calibration curve verification	Every 10 samples
Calibration blank verification	Every 10 samples
Method blank	Every 20 samples
Laboratory duplicate analysis	Every 20 samples (RPD)
Laboratory control Sample	Every 20 samples
Relative percent difference	15%
Spike recovery	85-115%
Completeness	90%

Split samples with the Connecticut Department of Public Health (DPH)

In November 1995, ten largemouth bass were collected from Dodge Pond by personnel representing the University of Connecticut. The samples were split and prepared independently by ERI and DEP personnel. The prepared fish tissue samples were analyzed independently by ERI and the laboratory at the DPH.

Data Analyses

Descriptive tabulations. The first data analysis procedure was to provide a descriptive tabulation of the numbers and percentages of fish and lakes that were either $\geq$ 0.5 ug/g (wet weight) or $\geq$ 1.0 ug/g (Tables 2 and 3). This matches the data presentation from a large mercury in fish study in New Jersey and thus provides easy comparison to the results obtained in that study. The classification of data according to these values is not for the purpose of determining health risks or the need for fish consumption advisories for specific species at each water body.

Adjustment of mercury levels for length and weight of fish. Linear regression (REG procedure; SAS Institute 1990) was used to test relations between $\log_{10}$mercury concentration (ug/g wet weight) and $\log_{10}$total length (mm) and between $\log_{10}$mercury concentration (ug/g wet weight) and $\log_{10}$weight (g) for each species collected from each sampling location. The basis for these analyses was to determine which variable (length or weight) was more highly and consistently correlated to mercury concentration across water bodies. The variable that was more consistently correlated with mercury concentrations in fish across water bodies was used to adjust mercury concentrations to a standardized fish size to provide more meaningful comparisons between water bodies and groups of water bodies. The variable selected to adjust mercury concentrations to a standard fish size was length (see results section for description of findings). When there was a significant ($P \leq 0.05$) linear relationship between $\log_{10}$mercury concentration and $\log_{10}$total length, the mercury concentration for that sample was adjusted to a standardized fish total length of 356 mm (14 in). A total length of 356 mm (14 in) was chosen to be within the range of total lengths of the majority samples analyzed. When there was no significant relationship between $\log_{10}$mercury concentration and $\log_{10}$total length for largemouth bass, means unadjusted for fish length were used in subsequent analyses. Mean lengths for these samples were similar to the overall adjusted mean length and length ranges of these samples were broadly overlapping. Only two of these samples had length ranges below the adjusted mean length (Mamanasco Lake and Wononscopomuc Lake), and one above the adjusted mean length (Gardner Lake).

In addition to developing site-specific regression models, regression models of log_{10}mercury concentration and log_{10}total length were also developed for the entire sample of largemouth bass collected throughout the state and for each region.

Linear regression was also used to test the relation of log_{10}mercury concentration and log_{10}total length for additional species collected during this study (smallmouth bass, bluegill, yellow perch, pumpkinseed, blackfish, bluefish, and porgy). In general, study constraints did not permit enough specimens from each site and region to allow accurate site- or region-specific mercury-length regressions. All individual fish with mercury concentrations found to be below the detectable limit were excluded from regression analyses; non detectable levels of mercury were observed in 8 of 10 bluegills from Lake Saltonstall, 1 of 5 yellow perch from the Hockanum River, and 1 of 10 porgys from Long Island Sound. No largemouth bass were found to be below the detectable limit.

Investigation of regional patterns in fish mercury concentration. Regional differences in mercury concentrations for largemouth bass were tested by analysis of variance (GLM procedure; SAS Institute 1990) using adjusted mercury concentrations when significant ($P \leq 0.05$) relationships existed between log_{10}mercury concentration and log_{10}total length, otherwise means unadjusted for fish length were used. Five regions were defined as northwest hills/uplands, southwest hills/coastal, central lowlands, northeast hills/uplands, and southeast hills/coastal and were based on modifications of major ecoregion delineations proposed by Dowan and Craig (1976). Differences among means were tested using the LSD multiple range test if the overall model was significant ($P \leq 0.05$).

Investigation of regional patterns in sediment mercury concentration and relation of fish mercury to sediment mercury. Regional differences in surficial sediment mercury concentrations were tested by analysis of variance (GLM procedure; SAS Institute 1990). Locations with non-detectable sediment mercury levels were included in the analysis and were standardized to a mercury concentration of zero. Differences among means were tested using the LSD multiple range test if the overall model was significant ($P \leq 0.05$). The relation between largemouth bass mercury concentration and sediment mercury concentration was tested using linear regression. In order to standardize largemouth bass mercury levels among sites, adjusted mercury values for a standard fish length of 356 mm was used. Where no significant relations between mercury and fish length occurred, non-adjusted mean mercury values were used.

Investigation of regional patterns in lake pH and relationship of fish mercury concentration to lake pH. Regional differences in lake pH were tested by analysis of variance (GLM procedure; SAS Institute 1990). Differences among means were tested using the LSD multiple range test if the overall model was significant ($P \leq 0.05$). The relation between largemouth bass mercury concentration and lake pH (taken at 1 m below the water surface) was tested using linear regression. In order to standardize largemouth bass mercury levels among sites, adjusted mercury values for a standard fish length of 356 mm was used. Where no significant relations between mercury and fish length occurred, non-adjusted mean mercury values were used. Largemouth bass mercury-length relations were also determined by pH group by linear regression of $\log_{10}$mercury concentration - $\log_{10}$total length for individual fish within four pH groups: <7.00, 7.00-7.49, 7.50-7.99, $\geq$ 8.0.

Special considerations. Largemouth bass from Crystal Lake (Ellington) were collected by both electrofishing and by tournament anglers. In order to determine whether mercury levels were dependent on the method of fish collection (i.e., whether data could be pooled into one sample), analysis of covariance (GLM procedure; SAS Institute 1990) was used to test for differences in slope and intercept values for $\log_{10}$mercury concentration and $\log_{10}$total length for each sampling method with length as the covariate. Data were pooled if there were no differences ($P \geq 0.05$) in slope and intercept estimates. This statistical test was also used to determine whether the method of collection influenced mercury concentrations (i.e., contamination of samples by tournament anglers).

Largemouth bass from Dodge Pond were collected during two seasons (early summer and fall). In order to determine whether mercury levels were dependent on the season of collection (i.e., whether data could be pooled into one sample), analysis of covariance (GLM procedure; SAS Institute 1990) was used to test for differences in slope and intercept values for $\log_{10}$mercury concentration and $\log_{10}$total length for each season with length as the covariate. Data were pooled if there were no differences ($P \geq 0.05$) in slope and intercept estimates.

RESULTS

A total of 664 fish representing 8 species was analyzed for mercury concentrations during this study. Mercury concentration data were obtained for 508 individual largemouth bass representing 54 locations (51 lakes and 3 sites on the Connecticut River) and five geographic regions, 22 smallmouth bass representing 10 locations (9 lakes and one site on the Connecticut River), 19 bluegills representing 2 lakes, 88 yellow perch representing 10 locations (9 lakes and the Hockanum River), 1 pumpkinseed representing 1 lake, and 7 blackfish, 8 bluefish, and 10 porgy representing one location (Long Island Sound). Mercury data for individual fish are listed in Appendices 1 and 2.

No significant differences in slope ($P > 0.41$) or intercept ($P > 0.43$) estimates were observed for largemouth bass collected from Crystal Lake (Ellington) by electrofishing and angler tournaments, therefore, data for both collection methods were pooled for subsequent analyses. Similarly, no significant differences were observed in slope ($P > 0.57$) or intercept ($P > 0.56$) estimates for largemouth bass collected between seasons at Dodge Pond, therefore, those data were also pooled for subsequent analyses.

Largemouth bass

The mean and maximum mercury concentrations found for all largemouth bass were 0.51 and 2.65 ug/g (wet weight), respectively. The mercury database was tabulated according to those lakes ≥0.5 ug/g (wet weight) or ≥1.0 ug/g to facilitate comparison with a large data set collected from New Jersey. Mercury concentrations greater than or equal to 0.5 ug/g (wet weight) were observed in 199 of the 508 (39%) largemouth bass (Table 2). These fish represented 42 of the 54 (78%) locations sampled. Twenty sites (37%) had at least 50% of the individual specimens with mercury concentrations greater than or equal to 0.5 ug/g (wet weight), and five sites had all fish exceeding 0.5 ug/g (wet weight) (Billings Lake, Dodge Pond, Glasgo Pond, Moodus Reservoir, and Saugatuck Reservoir). The distribution of maximum mercury concentrations pooled across all sample locations depicted in Figure 2.

Mercury concentrations greater than or equal to 1.0 ug/g (wet weight) were observed in 42 of the 508 (8%) largemouth bass. These fish represented 17 of the 54 (31%) sites sampled (Table 2). Two sites (4%) had at least 50% of the individual specimens with mercury concentrations greater than or equal to 1.0 ug/g (wet weight) (Dodge Pond and Silver Lake). None of the sites had all specimens with mercury concentrations greater than or equal to 1.0 ug/g (wet weight). The distribution of maximum mercury concentrations for largemouth observed at each location is depicted in Figure 2.

Smallmouth bass

The mean and maximum mercury concentrations found for all smallmouth bass were 0.65 and 2.32 ug/g (wet weight), respectively. Mercury concentrations greater than or equal to 0.5 ug/g (wet weight) were observed in 11 of the 22 (50%) smallmouth bass (Table 3). These fish represented 5 of the 10 (50%) locations sampled. Five sites (50%) had at least 50% of the individual specimens with mercury concentrations greater than or equal to 0.5 ug/g (wet weight), and three sites had all fish exceeding 0.5 ug/g (wet weight) (Bashan Lake, Lake McDonough, and Wyassup Lake)

Mercury concentrations greater than or equal to 1.0 ug/g (wet weight) were observed in 3 of the 22 (14%) smallmouth bass. These fish represented 2 of the 10 (20%) sites sampled (Table 3). One sites (10%) had at least 50% of the individual specimens with mercury concentrations greater than or equal to 1.0 ug/g (wet weight) (Lake McDonough). None of the sites had all specimens with mercury concentrations greater than or equal to 1.0 ug/g (wet weight).

Bluegill, pumpkinseed and yellow perch

The mean and maximum mercury concentrations found for all bluegills were 0.10 and 0.14 ug/g (wet weight), respectively. None of the bluegills analyzed during this study had mercury concentrations greater than or equal to 0.5 ug/g (wet weight) (Table 3). The single pumpkinseed analyzed had a mercury concentration below 0.5 ug/g (wet weight) (Table 3). The mean and maximum mercury concentrations found for all yellow perch were 0.16 and

0.45 ug/g (wet weight), respectively. None of the 88 yellow perch analyzed during this study had mercury concentrations greater than or equal to 0.5 ug/g (wet weight) (Table 3).

Blackfish, bluefish, and porgy

None of the individual blackfish, bluefish, or porgy had mercury concentrations greater than or equal to 0.5 ug/g (wet weight) (Table 3).

Relation of Mercury Concentration to Fish Length and Weight

Length and weight were correlated with largemouth bass mercury concentrations for 37 and 30 locations, respectively. Of the 30 locations where length and weight were both correlated with largemouth bass mercury concentrations, correlation coefficients were higher for length in 21 locations. Therefore, length was chosen as the variable to best describe the relation between fish mercury concentrations and fish size.

Significant ($P \leq 0.05$) relations were observed between $\log_{10}$mercury concentration (ug/g, wet weight) and $\log_{10}$total length (mm) in 37 of the 54 sites sampled for largemouth bass (Table 4). Mercury values for each of these populations were adjusted to a length of 356 mm (14 in). The least squares mean (364 mm) of total length for all largemouth bass analyzed during the entire study was rounded to the nearest inch (14 in; 356 mm). Where no significant relations between $\log_{10}$mercury concentration and $\log_{10}$total length existed, mean lengths for these samples were similar to the overall adjusted mean length and length ranges of these samples were broadly overlapping. Only two of these samples had length ranges below the adjusted mean length (Mamanasco Lake and Wononscopomuc Lake), and one above the adjusted mean length (Gardner Lake). Of the remaining species analyzed, only three yellow perch samples had significant relations between mercury and length (Table 5). In general, study constraints did not permit enough specimens representing a range of lengths from each site to allow accurate site-specific mercury-length regressions. For all species with significant mercury-length relationships, slopes of the relations were greater than one indicating that the rate of increase in mercury concentration increased with increasing length.

In addition to site-specific mercury-length analyses, all individual fish for each species were pooled to determine species-specific statewide mercury-length models. Significant relations were found between mercury concentration and length for largemouth bass ($P \leq 0.0001$, $r^2=0.34$) and yellow perch ($P \leq 0.0001$, $r^2=0.41$) (Table 6) (Figures 3 and 4). The moderate r-square values for these models reflects the high variability between mercury and length within and among locations.

Mercury-length regressions were also determined for individual largemouth bass pooled in each geographic region and the Connecticut River. All regions had significant relations between $\log_{10}$mercury concentration and $\log_{10}$total length (Connecticut River, $P \leq 0.0001$, $r^2=0.61$; NW, $P \leq 0.0001$, $r^2=0.29$; SW, $P \leq 0.0001$, $r^2=0.57$; CL, $P \leq 0.0001$, $r^2=0.45$; NE, $P \leq 0.0001$, $r^2=0.35$; SE, $P \leq 0.0001$, $r^2=0.20$) (Figures 5-10) (Table 6).

Considerations for Adjusting Fish Mercury Concentrations to a Standard Fish Length

In order to make meaningful comparisons of mercury concentrations in largemouth bass among locations and regions, as well as for assessing relations between largemouth bass mercury concentrations and other variables such as lake pH or sediment mercury levels, mercury concentrations were adjusted to standard fish length (356 mm). As mentioned above, 37 of the 54 locations had significant relations between mercury concentrations and length of largemouth bass. Where no significant relations between $\log_{10}$mercury concentration and $\log_{10}$total length existed, non-adjusted mean mercury values were used in these analyses.

The inclusion of non-adjusted mean mercury concentrations where no significant length-mercury concentrations were observed may bias the statistical analyses where both adjusted and non-adjusted means were used. Of the 37 locations where there were significant relations between mercury concentration and length, the mean mercury concentration was higher than the adjusted mercury concentration at 29 locations, and was lower at 8 locations. However, mean lengths of largemouth bass in samples where non-significant mercury concentration-length relations were observed were similar to the overall adjusted mean length and length ranges of these samples were broadly overlapping. Only two of these samples had length ranges below the adjusted mean length (Mamanasco Lake and Wononscopomuc Lake), and one above the adjusted mean length (Gardner Lake). An additional bias may have been added to regional comparisons if the proportion of water bodies where non-significant relations was disproportional among regions, especially if non-adjusted means were systematically higher than adjusted mercury values. However, the percentages of lakes within each region where non-significant relations occurred were similar among regions (northeast 38%, southeast 36%, central lowlands 33%, northwest 22%, and southwest 36%) thus reducing this potential bias. We believe that the inclusion of adjusted values and non-adjusted means together in among-location and among-region comparisons provided a larger sample size upon which to draw general conclusions from these analyses without compromising the results obtained.

Regional Patterns in Largemouth Bass Mercury Concentrations

Significant differences in largemouth bass mean adjusted mercury concentrations (for locations where no significant mercury-length regressions were found, unadjusted means were used) were found among geographic regions in the state ($P<0.02$). Mean adjusted mercury concentrations were significantly higher in the southeast compared the southwest, northwest, and central lowlands regions. No significant differences were observed between the northeast and southeast regions. Because Dodge Pond is a location where inflated mercury values may be due to possible historic contamination, this analysis was conducted with Dodge Pond omitted. When Dodge Pond was omitted from the analysis, significant regional differences were observed ($P<0.05$) (Figure 11). However, based on this analysis, the southeast region (mean=0.54 ug/g) was significantly higher than the central lowlands (mean=0.33 ug/g) and the southwest (mean=0.38 ug/g), but not significantly different than the northwest (mean=0.41 ug/g) or northeast (mean=0.47 ug/g). Maps of Connecticut showing the distribution of adjusted mercury concentrations for largemouth bass (where no significant relations were found between mercury and length, the mean mercury concentration was used) and the maximum concentration found in each water body are provided in Figures 12 and 13, respectively. Lack of sufficient sample sizes prohibited regional analyses for other species. No regional differences were observed among mean maximum mercury levels for individual largemouth bass from each location due to the high variability of individual mercury values within each region, although regional trends similar to mean adjusted mercury concentrations were apparent.

Identification of relations between environmental attributes of water bodies and mercury levels in largemouth bass will provide needed information to develop a better understanding of whether the observed regional differences are related to regional patterns in anthropogenic loading of mercury (e.g., atmospheric deposition) or regional differences in physical and chemical lake characteristics.

Relation of Mercury Concentration Between Fish Species

We found no significant relation between site-specific mean mercury concentration in yellow perch and largemouth bass from locations where both species were collected. In general, this study was not designed to test this relation and only eight locations had both yellow perch and largemouth bass represented. However, relations between species will be further investigated pending age adjustment of mercury concentration of each species. Age adjusted mercury levels should provide a better test for this analysis because age-adjusted mercury levels should reduce within-site variance in mercury concentration.

Both bluegills and largemouth bass were collected from two locations. Mean mercury concentrations (individuals pooled) for largemouth bass from these sites were 2.7 to 2.9 times greater than mercury concentrations in bluegills. Both yellow perch and largemouth bass were collected from eight locations. Largemouth bass mercury concentrations from these locations were 1.4 to 8.7 (mean = 3.0) times greater than mercury concentrations for yellow perch. Excluding the highest difference value (8.7; Lake Kenosia), largemouth bass mercury concentrations were 1.4 to 2.9 (mean = 2.2) times greater than mercury concentrations for yellow perch.

Regional Patterns in Sediment Mercury Concentration

No significant difference in surficial sediment mercury concentrations were observed among regions in the state (P=0.19). Because Dodge Pond may be a site where historic contamination has occurred, it was omitted from this analysis. Although no significant differences in mean sediment mercury concentrations were observed, general trends were apparent (Figure 14). Mean sediment mercury appeared to be highest in the central lowlands and southwest, with declining concentrations to the northwest, northeast, and southeast. A summary of the sediment data used in this analysis is provided in Table 7 and a detailed listing of the sediment mercury data is listed in Appendix 3. No significant relation was observed between lake surficial sediment samples and adjusted largemouth bass mercury levels.

Regional Patterns in Lake pH

Significant regional differences in mean lake pH (taken at 1 m below the lake surface) were observed ($P<0.001$) (Figure 15). Lakes in the southeast region had significantly lower pH than lakes in the central lowlands, northwest, or southwest. Lake pH data are listed in Table 8. All water quality data taken during this study are listed in Appendices 4 and 5. Follow-up analyses will include a more in-depth analysis of the environmental attributes of lakes and ponds influencing mercury concentrations and will be provided in a subsequent report.

Relation Between Largemouth Bass Mercury Concentration and Lake pH

There was a significant relation between largemouth bass mercury concentration and lake pH ($r^2=0.25$, $P<0.001$) (Figure 16). Largemouth bass mercury concentration declined with increasing pH. Regressions between $\log_{10}$mercury concentration and $\log_{10}$total length for individual largemouth bass generally had higher coefficients of determination within pH groups than when analyzed for all largemouth bass combined statewide (Figure 17). Regression statistics for the relations between $\log_{10}$mercury concentration and $\log_{10}$total length for individual largemouth bass by pH group are listed in Table 9. The number of lakes that were classified into each pH group were: <7.0, 5; 7.0-7.49, 27; 7.5-7.99, 9; ≥ 8.0, 8).

Quality Assurance/Quality Control Results

Split samples

Data for split samples analyzed from Dodge Pond are listed in Appendix 6. Data inspected by DEP Water Management Bureau personnel indicated no discernable difference between results from the DPH state laboratory and ERI.

Field

Seventeen of the eighteen hatchery trout samples were below the detection limit (Appendix 7). A detectable level of mercury of 0.04 ug/g (wet weight) was observed in one of the three field blanks from Black Pond (#101). The parafilm and livewell chemical were found to have levels of mercury below the detection limit.

Laboratory

Quality assurance/quality control data are provided in Appendices 8 (fish) and 9 (sediment).

CONCLUSIONS

Comparison of the results from this study to a similar study in New Jersey indicated that overall Connecticut had relatively fewer largemouth bass (all individuals pooled statewide) above 0.5 and 1.0 ug/g than did New Jersey. In Connecticut, the numbers of largemouth bass with mercury concentrations greater than 0.5 and 1.0 ug/g were 39% and 8%, respectively, compared to 43% and 17% found in New Jersey. However, the percentage of locations where mercury concentrations of an individual largemouth was above 0.5 and 1.0 ug/g was greater for Connecticut (78% and 31%) than New Jersey (56% and 24%).

Although atmospheric deposition is known to contribute to the environmental loading of mercury to water and sediments, other factors have been identified as being directly related to elevated fish mercury concentrations. Factors that enhance the production and availability of methylmercury are believed to be responsible for bioaccumulation in fish. Fish accumulate mercury mainly in the form of methylmercury and almost all (>95%) mercury in fish tissue is in the form of methylmercury (Bloom 1992). Wren and MacCrimmon (1986) described three mechanisms by which mercury levels in fish can become elevated: (1) mercury concentrations in the water are increased via direct input (e.g., atmospheric deposition); (2) increased rate of methylation from sediments; or, (3) increased rate of uptake of existing mercury by changing its bioavailability. Modifications of natural environmental parameters such as pH and alkalinity, and changes in other natural processes such as fish growth rate and primary productivity may result in changes in the uptake of mercury by fish. A comparison of mercury loading and concentrations in fish indicated not only the amount, but also the bioavailability, of loaded mercury is most important (Lidqvist 1991).

Water bodies where fish were sampled during this study represented a wide range of lakes with different chemical and physical characteristics. Although subsequent analyses will be undertaken to determine the chemical and physical factors that affect mercury in fish, preliminary analyses did show that mercury in largemouth bass was inversely correlated with lake pH in the subset of lakes and ponds sampled in Connecticut. Several studies have reported inverse correlations between fish mercury concentrations and lake pH (Wren and MacCrimmon 1983; McMurtry et al. 1989; Wiener et al. 1990; Wren et al. 1991; Lange et al. 1993). Several mechanisms have been hypothesized to explain this phenomenon, including increases in production of methylmercury with decreases in lake pH, and increased permeability of fish gills to methylmercury (Driscoll et al. 1994). The linkage between pH and methylation rate has been reported by Xun et al. (1987) as they found increasing methylmercury production with decreasing pH in surficial sediments.

The inverse relation observed in Connecticut between mercury concentrations in largemouth bass and pH was also observed on a regional scale. Mean lake pH was found to be lower in the southeast region of Connecticut compared to the central and western regions of the state. Mercury concentrations in largemouth bass were found to be significantly higher in the southeast, compared to the central and southwestern regions. Therefore, based on the subset of water bodies sampled from various regions in Connecticut during this study, regional differences in lake pH may help explain observed differences in mercury concentrations in largemouth bass. Moreover, these results may suggest that the ecoregion delineations used in this study were valuable for detecting a region-specific characteristic related to mercury in fish.

Mean sediment mercury concentrations were not significantly different among regions for the subset of water bodies sampled in Connecticut during this study; however, general regional trends were apparent. Mean sediment mercury levels were higher in the southwest and central lowlands region of the state compared to the eastern regions. The southwest and central lowlands regions may be characterized as having high population density and industry. Local increases in mercury deposition may occur near point sources (Nater and Grigal 1992). These factors may be contributing the observed regional trends of sediment mercury levels in Connecticut. Although sediment mercury concentrations were highest in the southwest and central lowlands, mercury concentrations in largemouth bass were lower in these regions compared to the eastern regions of the state where sediment mercury concentrations appeared to be lower. There appears to be no direct relation between mercury concentration in sediments and mercury concentration in largemouth bass for the subset of water bodies sampled during this study. These results suggest that perhaps other environmental attributes of water bodies, such as pH, rather than the concentration of mercury in sediments, play a greater role in the production of methylmercury and its subsequent uptake by largemouth bass.

Results from this study suggest that mercury has the potential to biomagnify within aquatic food webs. Mercury levels for yellow perch and bluegills were observed to be lower those for largemouth bass. In this study, no yellow perch or bluegills had mercury levels above 0.50 ug/g. Typically, mercury levels in top-level piscivores are greater than for other fish species inhabiting lower trophic levels. Results from this study are consistent with this concept and suggest that human mercury exposure might be greatest from consuming top-level predators, such as largemouth bass and smallmouth bass, rather than fish inhabiting lower trophic levels, such as panfish.

RECOMMENDATIONS

This study provides an overview of mercury contamination in largemouth bass, and other species to a lesser extent in Connecticut water bodies. The following recommendations for further study include potential future monitoring and research efforts.

1) *Additional monitoring*. Additional monitoring of mercury concentrations in other top-level predators inhabiting Connecticut water bodies may be important because preliminary results from this study suggest that mercury concentrations tend to be higher in predators (bass) than in panfish (bluegills and yellow perch). Additional species for consideration include northern pike, walleye *Stizostedion vitreum*, American eel *Anguilla rostrata,* trophy brown trout *Salmo trutta,* and largemouth bass from other popular angling locations not sampled during this study. Additional monitoring of other panfish species, such as yellow perch, may also be needed in those water bodies where mercury concentrations were found to be highest in this study.

2) *Determining seasonal trends in fish mercury levels.* In addition to identifying mechanisms affecting mercury bioaccumulation in fish in Connecticut lakes, research is also needed to determine seasonal variability of mercury in fish muscle tissue. This information could have important implications for identifying periods when standardized samples of fish tissue should be made for more accurate monitoring programs, and for interpreting data collected over different seasons. The seasonal variations of mercury concentrations in fish were confirmed by Lidqvist (1991) examining seasonal variations in mercury concentrations in the muscle tissue of the roach (*Rutilus rutilus*). They found that the general pattern consisted of a peak at the very start of the ice free period. The amplitudes were most dramatic in small fish, where spring values were up to twice as high as summer values. Seasonal variations in mercury levels in muscle tissue need to be identified in fishes from Connecticut lakes for a more accurate assessment of monitoring and remediation programs.

3) *Quantifying rates of mercury biomagnification among trophic levels.* Research is needed to quantify the degree of mercury biomagnification among fish species representative of Connecticut lakes. By quantifying differences in mercury concentrations among species inhabiting different trophic levels, information on mercury concentrations found for one species may be used to extrapolate mercury concentrations to other fish species inhabiting the same water body.

4) *Intensive study of factors affecting mercury bioavailability in lakes.* Based on existing knowledge, the mechanisms affecting bioavailibility and biomagnification of mercury in lake ecosystems are complex, and many variables ultimately contribute to mercury accumulation in fish. Wren and MacCrimmon (1986) conducted a detailed study of mercury levels in several fish species from Wisconsin lakes and demonstrated the biomagnification potential of mercury within a freshwater food chain and identified some factors contributing to bioavailability of mercury to fish. They indicated that biota mercury levels can differ substantially between two adjacent waters with similar atmospheric mercury loading and that differences were explained on the basis of ambient biological and environmental conditions which ultimately determine the bioavailability of mercury within natural ecosystems. Therefore, to understand mercury cycling and bioaccumulation in Connecticut lake ecosystems it is important to identify these natural biological processes and environmental factors that affect mercury bioavailability.

5) *Quantify emissions from specific sources in Connecticut believed to have significant air emissions of mercury.*. There is currently a limited database of emissions from Connecticut sources. Additional sampling and analysis is required to develop a more accurate emissions inventory.

6) *Assess the spatial and seasonal distribution of ambient mercury concentration and deposition in Connecticut.* Before emission sources can be invoked as the explanation for the particular problems in the Connecticut, we must measure the distribution, over space and time, of atmospheric mercury burdens and deposition. This will also establish a baseline to measure the effectiveness of Clean Air Act Ammendments of 1990 initiatives.

7) *Develop a comprehensive model to determine the proportion of mercury deposition from local and regional sources, and to use this as a tool to predict and quantify the effects of emission reduction strategies.* Due to the complex sequence of physical and chemical processes affecting mercury transport and deposition patterns, direct experimental study of source-receptor relationships can be costly and inconclusive. Numerical modeling can be used to simulate a large number of "what if" scenarios at lower cost than a measurement program.

8) *Work in progress: investigate further the relationship between fish mercury concentrations in largemouth bass and chemical and physical characteristics of Connecticut lakes.* This report included only a preliminary analysis of the relation between fish mercury levels and lake pH. Subsequent investigations using data collected during this first year project will include multiple regression analyses to determine which factors, or which combination of factors, affect mercury in largemouth bass. Results may provide needed information to accurately identify water bodies where high levels of mercury may exist in largemouth bass. Results from these analyses may reduce the effort for monitoring of large numbers of fish from a large number of additional water bodies if a substantial amount of variation in largemouth bass mercury levels can be explained by these multivariate models. Further monitoring should involve validity testing of these models.

LITERATURE CITED

ANSP (Academy of Natural Sciences of Philadelphia). 1994. Preliminary assessment of total mercury concentrations in fishes from rivers, lakes and reservoirs of New Jersey. Academy of Natural Sciences of Philadelphia, Division of Environmental Research Report No. 93-15F, Philadelphia.

Bloom, N.S. 1992. On the chemical form of mercury in edible fish and marine invertebrate tissue. Canadian Journal of Fisheries and Aquatic Sciences 49:1010-1017.

Dowan, J.J., and R.J. Craig. 1976. Rare and endangered species of Connecticut and their habitats. Connecticut State Geological and Natural History Survey. Connecticut Department of Environmental Protection, Hartford.

Driscoll, C.T., C. Yan, C.L. Schofield, R. Munson, and J. Holsapple. 1994. The mercury cycle and fish in the Adirondack lakes. Environmental Science and Technology 28:136-143.

Lange, T.R, H.E. Royals, and L.L. Conner. 1993. Influence of water chemistry on mercury concentration in largemouth bass from Florida lakes. Transactions of the American Fisheries Society 122:74-84.

Lidqvist, O. 1991. Mercury in the Swedish environment. Water, Air, and Soil Pollution 55.

MacCrimmon, H.R., C.D. Wren, and B.L. Gots. 1983. Mercury uptake by lake trout, *Salvelinus namaycush*, relative to age, growth, and diet in Tadenac Lake with comparative data from other PreCambrian Shield lakes. Canadian Journal of Fisheries and Aquatic Sciences 40:114-120.

McMurtry, M.J., D.L. Wales, W.A. Scheider, G.L. Beggs, and P.E. Dimond. 1989. Relationship of mercury concentrations in lake trout (*Salvelinus namaycush*) and smallmouth bass (*Micropterus dolomieui*) to the physical and chemical characteristics of Ontario Lakes. Canadian Journal of Fisheries and Aquatic Sciences 46:426-434.

Nater, E.A., and D.F. Grigal. 1992. Regional trends in mercury distribution across the Great Lakes states, north central USA. Nature 358:139-141.

Ontario Ministry of the Environment. 1988. Guide to eating sportfish in Ontario, OME, Toronto, Ontario. 303 pp.

Phillips, G.R., and D.R. Buhler. 1978. The relative contributions of methylmercury from food or water to rainbow trout (*Salmo gairdneri*) in a controlled laboratory environment. Transactions of the American Fisheries Society 107:853-861.

Rodgers, D.W., and F..W.H. Beamish. 1983. Water quality modifies uptake of waterborne methylmercury by rainbow trout, *Salmo gairdneri*. Canadian Journal of Fisheries and Aquatic Sciences 40:824-828.

Rudd, J.W.M., M.A. Turner, A Furutani, A.L. Swick, and B.E. Townsend. 1983. The English-Wabigoon River system: I. A synthesis of recent research with a view towards mercury amelioration. Canadian Journal of Fisheries and Aquatic Sciences 40:2206-2217.

SAS Institute. 1990. SAS/STAT users guide, volume 2. SAS Institute, Cary, North Carolina.

Sorensen, J.A., G.E. Glass, K.W. Schmidt, J.K. Huber, and G.R. Rapp, Jr. 1990. Airborne mercury deposition and watershed characteristics in relation to mercury concentrations in water, sediments, plankton, and fish of eighty northern Minnesota lakes. Environmental Science and Technology 24:1716-1727.

Summerfelt, R.C. 1993. Lake and reservoir habitat management. Pages 231-262 *in* C.C. Kohler and W.A. Hubert, editors. Inland fisheries management in North America. American Fisheries Society, Bethesda, Maryland.

Wiener, J.G., R.E. Martini, T.B. Sheffy, and G.E. Glass. 1991. Factors influencing mercury concentrations in walleyes in northern Wisconsin lakes. Transactions of the American Fisheries Society 119:862-870.

Wren, C.D., and H.R. MacCrimmon. 1983. Mercury levels in the sunfish, *Lepomis gibbosus*, relative to pH and other environmental variables of PreCambrian Shield lakes. Canadian Journal of Fisheries and Aquatic Sciences 40:1737-1744.

Wren, C.D., and H.R. MacCrimmon. 1986. Comparative bioaccumulation of mercury in two adjacent freshwater ecosystems. Water Research 20:763-769.

Wren, C.D., W.A. Scheider, D.L. Wales, B.W. Muncaster, and I.M. Gray. 1991. Relation between mercury concentrations in walleye (*Stizostedion vitreum vitreum*) and northern pike (*Esox lucius*) in Ontario lakes and influence of environmental factors. Canadian Journal of Fisheries and Aquatic Sciences 48:132-139.

Xun, L.X., N.E.R. Campbell, and J.W.M. Rudd. 1987. Measurements of specific rates of methyl mercury production in the water column and surface sediments of acidified and circumneutral lakes. Canadian Journal of Fisheries and Aquatic Sciences 44:750-757.

Table 1. Water bodies, sampling methods, and fish species collected in 1995 during a preliminary assessment of mercury concentrations in Connecticut fishes. Fish species sampled includes bluegill (BLG) largemouth bass (LMB), pumpkinseed (PUM), smallmouth bass (SMB), yellow perch (YEP), blackfish (BLA), bluefish (BLU), and porgy (POR).

Location	Sampling method	Species collected
Northeast Hills/ Uplands		
Aspinook Pond	Tournament	LMB
Bolton Lake	Tournament	LMB
Coventry Lake	Tournament	LMB, SMB
Crystal Lake (Ellington)	Tournament, Electrofishing	LMB
Mansfield Hollow Reservoir	Tournament	LMB
Mashapaug Pond	Tournament	LMB
North Grosvenor Dale Pond	Electrofishing	YEP
Quaddick Reservoir	Tournament	LMB
Wauregan Reservoir	Electrofishing	LMB, YEP
Southeast Hills/Coastal		
Amos Lake	Tournament	LMB
Bashan Lake	Tournament	LMB, SMB
Beach Pond	Tournament	LMB
Billings Lake	Tournament	LMB
Dodge Pond	Electrofishing	LMB
Gardner Lake	Tournament	LMB, SMB
Glasgo Pond	Tournament	LMB
Lake of Isles	Electrofishing	LMB
Moodus Reservoir	Tournament	LMB
Pachaug Pond	Tournament	LMB
Pattagansett Lake	Tournament	LMB
Powers Lake	Tournament	LMB
Rogers Lake	Tournament	LMB
Wyassup Lake	Tournament	LMB, SMB
Central Lowlands		
Batterson Park Pond	Electrofishing	LMB
Black Pond	Electrofishing	LMB
Crystal Lake (Middletown)	Electrofishing	LMB
Hanover Pond	Electrofishing	LMB
Lake Saltonstall	Electrofishing	LMB, BLG
North Farms Reservoir	Electrofishing	LMB, BLG, PUM
Rainbow Reservoir	Electrofishing	LMB, SMB, YEP
Silver Lake	Electrofishing	LMB
Union Pond	Electrofishing	LMB
Lower Hockanum River	Electrofishing	YEP

Table 1, continued. Water bodies, sampling methods, and fish species collected in 1995 during a preliminary assessment of mercury concentrations in Connecticut fishes. Fish species sampled include bluegill (BLG), largemouth bass (LMB), pumpkinseed (PUM), smallmouth bass (SMB), yellow perch (YEP), blackfish (BLA), bluefish (BLU), and porgy (POR).

Location	Sampling method	Species collected
Northwest Hills/Uplands		
Bantam Lake	Tournament	LMB
East Twin Lake	Tournament	LMB
Highland Lake	Tournament	LMB
Lake McDonough	Tournament, Electrofishing	LMB, SMB
Lake Winchester	Tournament	LMB
Lake Waramaug	Tournament	LMB
Mudge Pond	Electrofishing	LMB, YEP
Tyler Lake	Electrofishing	LMB, YEP
Wononscopomuc Lake	Electrofishing	LMB, YEP
Southwest Hills/Coastal		
Ball Pond	Electrofishing	LMB
Candlewood Lake	Tournament	LMB, SMB
Canoe Brook Lake	Electrofishing	LMB, SMB, YEP
Cedar Swamp Pond	Electrofishing	LMB
Housatonic Lake	Tournament	LMB
Lake Kenosia	Electrofishing	LMB, YEP
Lake Quassapaug	Electrofishing	LMB
Lake Zoar	Tournament	LMB, SMB
Mamanasco Lake	Electrofishing	LMB
Saugatuck Reservoir	Electrofishing	LMB
Taunton Lake	Electrofishing	LMB, YEP
Connecticut River		
Northern segment, Enfield	Electrofishing	LMB
Central segment, Wethersfield Cove	Electrofishing	LMB, SMB
Southern segment, Chapman's Pond	Electrofishing	LMB
Long Island Sound	DEP Trawl Survey	BLA, BLU, POR

Table 2. Summary of number (N) of individual largemouth bass analyzed from Connecticut water bodies, fish total length (TL, mm) ranges, mercury concentration ranges (μg/g wet weight), and number (n) and proportion (q) of fish from each water body with mercury concentrations equal to or exceeding 0.5 μg/g wet weight and 1.0 μg/g wet weight.

Site	N	TL range	Hg range	$n \geq 0.50$	$n \geq 1.0$	$q \geq 0.50$	$q \geq 1.0$
Amos Lake	10	333 - 472	0.421 - 1.069	7	2	0.70	0.20
Aspinook Pond	10	323 - 438	0.293 - 1.005	5	1	0.50	0.10
Ball Pond	10	325 - 490	0.232 - 0.676	2	0	0.20	0.00
Bantam Lake	10	321 - 510	0.140 - 0.889	2	0	0.20	0.00
Bashan Lake	8	312 - 436	0.335 - 0.970	3	0	0.43	0.00
Batterson Park Pond	8	302 - 462	0.170 - 0.736	1	0	0.13	0.00
Beach Pond	10	318 - 456	0.348 - 1.314	2	0	0.20	0.00
Billings Lake	9	311 - 429	0.616 - 0.945	9	0	1.00	0.00
Black Pond	10	279 - 430	0.294 - 0.868	5	0	0.50	0.00
Bolton Lake	10	310 - 361	0.249 - 0.536	1	0	0.10	0.00
Candlewood Lake	7	372 - 476	0.398 - 0.904	4	0	0.57	0.00
Canoe Brook Lake	9	292 - 426	0.096 - 0.297	0	0	0.00	0.00
Cedar Swamp Pond	10	290 - 458	0.079 - 0.797	1	0	0.10	0.00
Coventry Lake	9	311 - 385	0.154 - 0.411	0	0	0.00	0.00
Crystal Lake (Ellington)	20	267 - 475	0.152 - 0.593	1	0	0.05	0.00
Crystal Lake (Middlefield)	10	285 - 500	0.245 - 1.072	3	1	0.30	0.10
CT River, Chapman Pond (Lower)	10	314 - 447	0.182 - 0.705	2	0	0.20	0.00
CT River, Wethersfield Cove (Middle)	8	285 - 487	0.074 - 0.619	1	0	0.13	0.00
CT River, Enfield (Upper)	10	317 - 450	0.191 - 0.541	1	0	0.10	0.00
Dodge Pond	20	247 - 479	0.719 - 2.645	20	13	1.00	0.65
East Twin Lake	10	312 - 440	0.214 - 0.828	5	0	0.50	0.00
Gardner Lake	2	378 - 379	0.281 - 0.333	0	0	0.00	0.00
Glasgo Pond	7	345 - 389	0.531 - 1.235	7	1	1.00	0.14
Hanover Pond	8	294 - 380	0.138 - 0.291	0	0	0.00	0.00
Highland Lake	10	301 - 450	0.119 - 0.659	3	0	0.30	0.00
Housatonic Lake	9	307 - 390	0.279 - 0.578	1	0	0.11	0.00
Lake Kenosia	10	291 - 498	0.238 - 1.143	4	1	0.40	0.10
Lake McDonough	10	259 - 492	0.292 - 2.462	7	4	0.70	0.40
Lake of Isles	10	315 - 504	0.296 - 1.018	4	1	0.40	0.10
Lake Quassapaug	10	303 - 440	0.280 - 0.737	4	0	0.40	0.00
Lake Saltonstall	10	297 - 490	0.032 - 0.459	0	0	0.00	0.00
Lake Waramaug	10	314 - 405	0.158 - 0.362	0	0	0.00	0.00
Lake Winchester	10	311 - 388	0.347 - 1.026	6	1	0.60	0.10
Lake Wyassup	9	314 - 505	0.449 - 1.418	8	3	0.89	0.33
Lake Zoar	6	325 - 386	0.331 - 0.968	5	0	0.73	0.00
Mamanasco Lake	2	278 - 295	0.176 - 0.201	0	0	0.00	0.00
Mansfield Hollow Reservoir	10	305 - 417	0.440 - 0.675	9	0	0.90	0.00
Mashapaug Pond	10	303 - 422	0.271 - 1.115	3	1	0.30	0.10
Moodus Reservoir	10	372 - 479	0.527 - 1.042	10	1	1.00	0.10
Mudge Pond	10	282 - 358	0.165 - 0.388	0	0	0.00	0.00
North Farms Reservoir	10	253 - 451	0.075 - 0.542	1	0	0.10	0.00
Pachaug Pond	7	317 - 373	0.368 - 0.481	0	0	0.00	0.00
Pattagansett Lake	10	306 - 443	0.426 - 1.036	7	1	0.70	0.10
Powers Lake	10	305 - 425	0.425 - 0.767	4	0	0.40	0.00
Quaddick Reservoir	10	304 - 433	0.342 - 1.255	8	2	0.80	0.20
Rainbow Reservoir	5	277 - 377	0.158 - 0.403	0	0	0.00	0.00

Table 2, continued. Summary of number (*N*) of individual largemouth bass analyzed from Connecticut water bodies, fish total length (*TL*, mm) ranges, mercury concentration ranges (ug/g wet weight), and numbers (*n*) and proportion (*q*) of fish from each water body with mercury concentrations exceeding 0.5 ug/g wet weight and 1.0 ug/g wet weight.

Site	*N*	TL range	Hg range	$n \geq 0.50$	$n \geq 1.0$	$q \geq 0.50$	$q \geq 1.0$
Rogers Lake	10	309 - 450	0.198 - 0.657	6	0	0.60	0.00
Saugatuck Reservoir	10	340 - 439	0.542 - 1.043	9	1	1.00	0.11
Silver Lake	9	269 - 512	0.162 - 1.488	7	7	0.78	0.78
Taunton Lake	10	304 - 455	0.144 - 0.670	2	0	0.20	0.00
Tyler Lake	10	301 - 512	0.282 - 1.114	5	1	0.50	0.10
Union Pond	8	276 - 387	0.233 - 0.443	0	0	0.00	0.00
Wauregan Pond	10	261 - 390	0.266 - 0.661	0	0	0.00	0.00
Wononscopmuc Lake	10	277 - 331	0.318 - 0.661	4	0	0.40	0.00

Table 3. Summary of number (*N*) of individual bluegill (BLG), pumpkinseed (PUM), smallmouth bass (SMB), yellow perch (YEP), blackfish (BLA), bluefish (BLU), and porgy (POR) analyzed from Connecticut water bodies, fish total length (*TL*, mm) ranges, mercury concentration ranges (µg/g wet weight), and number (*n*) and proportion (*q*) of fish from each water body with mercury concentrations equal to or exceeding 0.5 µg/g wet weight and 1.0 µg/g wet weight.

Site	Species	N	TL range	Hg range	$n \geq 0.50$	$n \geq 1.0$	$q \geq 0.50$	$q \geq 1.0$
Bashan Lake	SMB	3	338 - 403	0.754 - 1.252	3	1	1.00	0.33
Candlewood Lake	SMB	3	323 - 414	0.250 - 0.298	0	0	0.00	0.00
Canoe Brook Lake	SMB	1	419	0.325	0	0	0.00	0.00
Coventry Lake	SMB	1	306	0.234	0	0	0.00	0.00
CT River, Wethersfield Cove (Middle)	SMB	2	453 - 455	0.384 - 0.549	1	0	0.50	0.00
Gardner Lake	SMB	3	355 - 421	0.372 - 0.497	0	0	0.00	0.00
Lake McDonough	SMB	3	364 - 483	0.669 - 2.319	3	2	1.00	0.67
Rainbow Reservoir	SMB	1	402	0.290	0	0	0.00	0.00
Wyassup Lake	SMB	1	313	0.683	1	0	1.00	0.00
Lake Zoar	SMB	4	310 - 423	0.446 - 0.995	3	0	0.75	0.00
North Farms Reservoir	BLG	9	127 - 165	0.063 - 0.140	0	0	0.00	0.00
Lake Saltonstall	BLG	10[a]	154 - 175	N.D. - 0.118	0	0	0.00	0.00
Canoe Brook Lake	YEP	8	140 - 298	0.031 - 0.123	0	0	0.00	0.00
Hockanum River	YEP	5[b]	185 - 223	N.D. - 0.111	0	0	0.00	0.00
Lake Kenosia	YEP	10	137 - 188	0.033 - 0.121	0	0	0.00	0.00
Mudge Pond	YEP	10	138 - 253	0.330 - 0.278	0	0	0.00	0.00
North Grovnerdale Pond	YEP	7	170 - 254	0.061 - 0.161	0	0	0.00	0.00
Rainbow Reservoir	YEP	10	152 - 189	0.059 - 0.174	0	0	0.00	0.00
Taunton Lake	YEP	9	225 - 300	0.116 - 0.283	0	0	0.00	0.00
Tyler Lake	YEP	10	173 - 213	0.118 - 0.323	0	0	0.00	0.00
Wauregan Pond	YEP	10	185 - 248	0.127 - 0.325	0	0	0.00	0.00
Wononskopomuc Lake	YEP	10	220 - 300	0.213 - 0.450	0	0	0.00	0.00
North Farms Reservoir	PUM	1	145	0.065	0	0	0.00	0.00
Long Island Sound	BLA	7	347 - 472	0.114 - 0.225	0	0	0.00	0.00
Long Island Sound	BLU	8	375 - 560	0.125 - 0.290	0	0	0.00	0.00
Long Island Sound	POR	10[c]	189 - 208	N.D. - 0.092	0	0	0.00	0.00

[a] Eight of the 10 bluegills analyzed from Lake Saltonstall had mercury concentrations below the detectable limit
[b] One of the 5 yellow perch analyzed from the Hockanum River had mercury concentrations below the detectable limt
[c] One of the 10 porgys analyzed from Long Island Sound had mercury concentrations below the detectable limit

Table 4. Regression statistics (*a*=intercept; *b*=slope) of the relations between $\log_{10}$ total length(mm) and $\log_{10}$ mercury concentration ($\mu g/g$ wet weight) of edible muscle tissue for largemouth bass collected from Connecticut water bodies during 1995. Mercury levels were adjusted to a total length of 356 mm. For sites where no significant ($P \geq 0.50$) relations were observed, only the unadjusted mean mercury concentration is listed.

Site	*N*	*a*	*b*	r^2	*P*	Mean mercury concentration	Adjusted mercury concentration
Amos Lake	10	-6.558	2.459	0.70	0.0025	0.688	0.520
Aspinook Pond	10	-7.664	2.859	0.41	0.0458	0.553	0.466
Ball Pond	10	-7.008	2.550	0.90	0.0001	0.388	0.315
Bantam Lake	10	-10.124	3.712	0.93	0.0001	0.367	0.222
Bashan Lake	8	-8.957	3.388	0.98	0.0001	0.540	0.487
Batterson Park Pond	8					0.401	
Beach Pond	10	-8.267	3.108	0.66	0.0042	0.573	0.460
Billings Lake	9					0.750	
Black Pond	10	-5.463	2.046	0.88	0.0001	0.542	0.572
Bolton Lake	10					0.345	
Candlewood Lake	7	-6.837	2.506	0.62	0.0348	0.594	0.361
Canoe Brook Lake	8	-6.517	2.287	0.65	0.0085	0.192	0.208
Cedar Swamp Pond	10	-11.995	4.479	0.86	0.0001	0.355	0.271
Coventry Lake	9	-9.256	3.405	0.47	0.0428	0.252	0.270
Crystal Lake (Ellington)	20	-6.032	2.176	0.61	0.0001	0.307	0.330
Crystal Lake (Middlefield)	10	-6.858	2.531	0.85	0.0001	0.471	0.398
CT River, Chapman's Pond (Lower)	10	-7.320	2.647	0.47	0.0276	0.344	0.271
CT River, Wethersfield Cove (Middle)	8	-8.727	3.128	0.73	0.0065	0.205	0.179
CT River, Enfield (Upper)	10	-7.328	2.646	0.59	0.0097	0.276	0.265
Dodge Pond	20	-3.543	1.407	0.58	0.0001	1.169	1.114
East Twin Lake	10	-7.981	2.960	0.47	0.0285	0.480	0.373
Gardner Lake	2					0.307	
Glasgo Pond	7					0.729	
Hanover Pond	8					0.189	
Highland Lake	10	-12.075	4.486	0.89	0.0001	0.287	0.235
Housatonic Lake	9					0.385	
Lake Kenosia	10	-5.876	2.158	0.68	0.0031	0.520	0.427
Lake McDonough	10	-8.249	3.167	0.83	0.0003	0.905	0.682
Lake of Isles	10	-6.847	2.517	0.91	0.0001	0.476	0.376
Lake Quassapaug	10	-5.951	2.178	0.62	0.0072	0.514	0.404
Lake Saltonstall	10	-13.353	4.846	0.92	0.0001	0.227	0.103
Lake Waramaug	10					0.240	
Lake Winchester	10	-8.321	3.193	0.62	0.0067	0.593	0.670
Lake Wyassup	9	-5.195	1.997	0.72	0.0037	0.903	0.795
Lake Zoar	6					0.627	
Mamanasco Lake	2					0.189	
Mansfield Hollow Reservoir	10					0.601	
Mashapaug Pond	10	-9.835	3.737	0.88	0.0001	0.551	0.597
Moodus Reservoir	10	-4.896	1.791	0.43	0.0397	0.675	0.472
Mudge Pond	10	-5.549	1.959	0.44	0.0370	0.244	0.281
North Farms Reservoir	10	-8.069	2.924	0.89	0.0001	0.273	0.246
Pachaug Pond	7					0.427	

Table 4, continued. Regression statistics (*a*=intercept; *b*=slope) of the relations between $\log_{10}$ total length(mm) and $\log_{10}$ mercury concentration ($\mu g/g$ wet weight) of edible muscle tissue for largemouth bass collected from Connecticut water bodies during 1995. Mercury levels were adjusted to a total length of 356 mm. For sites where no significant relations were observed, only the unadjusted mean mercury concentration is listed.

Site	*N*	*a*	*b*	r^2	*P*	Mean mercury concentration	Adjusted mercury concentration
Pattagansett Lake	10	-4.325	1.601	0.58	0.0103	0.635	0.575
Powers Lake	10	-3.930	1.442	0.47	0.0291	0.533	0.561
Quaddick Reservoir	10	-6.836	2.621	0.66	0.0044	0.750	0.710
Rainbow Reservoir	5					0.258	
Rogers Lake	10					0.509	
Saugatuck Reservoir	10					0.748	
Silver Lake	9	-9.463	3.567	0.93	0.0001	1.084	0.435
Taunton Lake	10	-10.264	3.801	0.84	0.0002	0.356	0.272
Tyler Lake	10	-6.416	2.383	0.81	0.0004	0.569	0.461
Union Pond	8	-4.285	1.515	0.60	0.0247	0.322	0.381
Wauregan Pond	10					0.437	
Wononscopmuc Lake	10					0.478	

Table 5. Regression statistics (a=intercept; b=slope) of the relations between $\log_{10}$ total length(mm) and $\log_{10}$ mercury concentration ($\mu g/g$ wet weight) of edible muscle tissue for bluegill (BLG), pumpkinseed (PUM), smallmouth bass (SMB), yellow perch (YEP), blackfish (BLA), bluefish (BLU), and porgy (POR) collected from Connecticut water bodies during 1995. Due to lack of significant site-specific relations, adjustments for length by species for each site were not determined.

Site	Species	N^a	a	b	r^2	P	Mean mercury concentration
Bashan Lake	SMB	3					0.926
Candlewood Lake	SMB	3					0.269
Canoe Brook Lake	SMB	1					0.325
Coventry Lake	SMB	1					0.234
CT River, Wethersfield Cove (Middle)	SMB	2					0.467
Gardner Lake	SMB	3					0.423
Lake McDonough	SMB	3					1.336
Rainbow Reservoir	SMB	1					0.290
Wyassup Lake	SMB	1					0.683
Lake Zoar	SMB	4					0.738
Lake Saltonstall	BLG	2					0.078
North Farms Reservoirs	BLG	9					0.102
Canoe Brook Lake	YEP	8	-5.181	1.711	0.67	0.0135	0.067
Hockanum River	YEP	4					0.086
Lake Kenosia	YEP	10					0.060
Mudge Pond	YEP	10	-7.306	2.679	0.64	0.0053	0.105
North Grovnerdale Pond	YEP	7					0.119
Rainbow Reservoir	YEP	10					0.111
Taunton Lake	YEP	10					0.239
Tyler Lake	YEP	10	-11.232	4.596	0.77	0.0009	0.202
Wauregan Pond	YEP	10					0.222
Wononskopmuc Lake	YEP	10					0.342
North Farms Reservoir	PUM	1					0.065
Long Island Sound	BLA	7					0.149
Long Island Sound	BLU	8					0.202
Long Island Sound	POR	9					0.062

[a] Individual fish with mercury concentrations below the detectable limit were excluded from the regression analyses.

Table 6. Statewide and region-specific regression statistics (a=intercept; b=slope) of the relations between $\log_{10}$ total length(mm) and $\log_{10}$ mercury concentration ($\mu g/g$ wet weight) of edible muscle tissue for largemouth bass (LMB) and yellow perch (YEP) collected from Connecticut water bodies during 1995.

Region	Species	N	a	b	r^2	P
Statewide	LMB	508	-6.724	2.484	0.34	0.0001
Northeast	LMB	89	-6.475	2.401	0.35	0.0001
Southeast	LMB	131	-4.122	1.527	0.20	0.0001
Central lowlands	LMB	78	-7.358	2.691	0.45	0.0001
Northwest	LMB	90	-6.182	2.264	0.29	0.0001
Southwest	LMB	92	-8.328	3.084	0.57	0.0001
CT River	LMB	28	-8.656	3.147	0.61	0.0001
Statewide	YEP	88	-6.286	2.331	0.41	0.0001
Statewide	BLG					N.S.

Table 7. Summary of current results of sediment samples analyzed for mercury (μg/g dry weight) from Connecticut water bodies (ND=sediment mercury levels were found to be below the detectable limit).

Location	Mean	CV	Range	Notes
Amos Lake	ND			
Aspinook Pond				No data
Ball Pond	0.500	9.580	0.411-0.552	
Bantam Lake	0.307	3.651	ND-0.342	
Bashan Lake	0.119	29.290	ND-0.125	1 of 3-ND
Batterson Park Pond				No data
Beach Pond	0.107	12.870	ND-0.114	2 of 3-ND
Billings Lake	ND			
Black Pond	0.406	10.974	ND-0.406	2 of 3-ND
Bolton Lake	0.240	3.534	0.215-0.279	
Candlewood Lake	0.188	13.617	0.145-0.222	
Canoe Brook Lake				No data
Cedar Swamp Pond	ND			
Coventry Lake	0.295	0.000	0.265-0.313	
Crystal Lake (Ellington)	0.172	18.725	0.127-0.220	
Crystal Lake (Middletown)	0.176	8.395	ND-0.177	1 of 3-ND
CT River, Enfield (Upper)	0.169	37.930	0.071-0.240	
CT River, Wethersfield Cove (Middle)	0.547	15.862	0.431-0.661	
CT River, Chapman's Pond (Lower)	ND			
Dodge Pond	2.398	3.587	2.294-2.501	
East Twin Lake	0.370	21.397	ND-0.408	1 of 3-ND
Gardner Lake	0.287	6.700	0.262-0.306	
Glasgo Pond	ND			
Hanover Pond	0.465	4.700	0.405-0.599	
Highland Lake	0.344	12.975	0.285-0.374	
Lower Hocknum River	0.165	30.303	0.095-0.243	
Housatonic Lake				No data
Lake Kenosia	2.260	3.470	1.552-3.608	
Lake of Isles	ND			
Mamanasco Lake	0.307	23.836	ND-0.307	2 of 3-ND
Mansfield Hollow Reservior	ND			
Mashapaug Pond	0.241	1.825	0.207-0.278	
Lake McDonough	ND			
Moodus Reservior	0.318	28.404	ND-0.373	1 of 3-ND
Mudge Pond	0.228	22.823	ND-0.228	2 of 3-ND
North Farms Reservior	0.485	20.379	0.408-0.541	
North Grosvenor Dale Pond	2.235	10.582	1.861-2.600	
Pachaug Pond	ND			

Table 7, continued. Summary of current results of sediment samples analyzed for mercury ($\mu g/g$ dry weight) from Connecticut water bodies (ND=sediment mercury levels were found to be below the detectable limit).

Location	Mean	CV	Range	Notes
Pattagansett Lake	0.339	11.927	0.333-0.346	
Powers Lake	ND			
Quaddick Reservior	0.283	0.000	ND-0.283	2 of 3-ND
Lake Quassapaug	0.249	7.623	0.198-0.288	
Rainbow Reservior	0.398	3.248	0.373-0.421	
Rogers Lake	0.403	6.967	0.385-0.412	
Lake Saltonstall	0.206	22.233	0.128-0.277	
Saugatuck Reservior	ND			
Silver Lake	0.296	5.393	ND-0.319	2 of 3 -ND
Taunton Lake	ND			
Tyler Lake	0.166	20.400	ND-0.166	2 of 3-ND
Union Pond	1.359	3.702	1.317-1.406	
Lake Waramaug	0.358	1.280	0.353-0.364	
Wauregan Reservior	0.262	17.152	ND-0.266	1 of 3-ND
Lake Winchester	1.158	8.021	ND-1.158	2 of 3-ND
Wononscopomuc Lake	0.367	14.274	0.184-0.655	
Wyassup Lake	ND			
Lake Zoar	0.689	8.403	0.553-0.751	

Table 8. pH measurments from Connecticut waterbodies taken at depths of 1 m below the surface, at mid-depth, and 1 m above the bottom using the Hydrolab Recorder multiprobe, and depth (m) of water body at sample location.

Location	Top	Mid	Bottom	Depth	Notes
Amos Lake	7.22	7.35	6.46	10.0	
Aspinook Pond	8.35	8.43	8.49	3.0	
Ball Pond	7.38	7.39	7.36	9.0	
Bantam Lake	7.14	7.13	7.04	4.0	
Bashan Lake	7.14	7.02	6.89	3.75	
Batterson Park Pond					Unable to monitor
Beach Pond	6.69	6.51	6.41	3.3	
Billings Lake	7.14	6.98	6.05	9.0	
Black Pond	7.44	7.41	7.09	6.2	
Bolton Lake	7.67	7.76	7.71	3.75	
Candlewood Lake	7.64	7.68	7.70	5.0	
Canoe Brook Lake	7.61	N/A	N/A	N/A	Monitored from shore
Cedar Swamp Pond	7.55	7.40	6.98	3.0	
Coventry Lake	7.43	7.20	6.78	11.0	
Crystal Lake (Ellington)	7.06	6.99	6.95	7.0	
Crystal Lake (Middletown)	7.45	7.41	7.38	3.75	
CT River, Chapman's Pond (Lower)	7.07	7.01	N/A	2.0	
CT River, Wethersfield Cove (Middle)	6.81	N/A	N/A	N/A	Measured at 5m
CT River, Enfield (Upper)				3.0	Data were corrupted
Dodge Pond	7.13	7.03	5.99	10.0	
East Twin Lake	8.26	8.33	8.37	5.5	Measured in rain
Gardner Lake	7.43	7.29	7.20	7.0	
Glasgo Pond	6.99	6.81	6.37	4.0	
Hanover Pond	7.93	N/A	N/A	2.0	
Highland Lake	7.35	7.36	7.37	5.0	
Hocknum River	6.72	6.76	N/A	3.0	
Housatonic Lake	7.45	7.45	N/A	N/A	Monitored from shore
Lake Kenosia	7.26	7.26	7.27	5.0	
Lake of Isles	6.92	N/A	N/A	1.8	
Mamanasco Lake	8.46	N/A	N/A	2.0	
Mansfield Hollow Reservior	7.58	7.66	7.53	3.5	
Mashapaug Pond	6.83	6.71	6.66	8.0	
Lake McDonough	7.16	7.08	7.03	5.0	
Moodus Reservior	7.11	N/A	N/A	2.0	
Mudge Pond	8.21	8.20	7.68	7.5	
North Farms Reservior	8.61	N/A	N/A	1.0	
North Grosvenor Dale Pond	6.74	6.68	6.65	4.0	
Pachaug Pond	7.14	7.09	6.91	3.5	

Table 8, continued. pH measurments from Connecticut waterbodies taken at depths of 1 m below the surface, at mid-depth, and 1 m above the bottom using the Hydrolab Recorder multiprobe, and depth (m) of water body at sample location.

Location	Top	Mid	Bottom	Depth	Notes
Pattagansett Lake	6.89	6.84	6.24	6.0	
Powers Lake	7.05	6.96	6.93	3.3	
Quaddick Reservior	7.22	7.07	6.91	4.5	
Lake Quassapaug					Data were corrupted
Rainbow Reservior	8.84	7.71	7.33	11.0	
Rogers Lake	7.08	6.17	5.93	11.0	
Lake Saltonstall	8.21	8.20	8.18	9.0	
Saugatuck Reservior	7.27	N/A	N/A	N/A	Monitored from shore
Silver Lake	7.40	7.48	7.52	3.0	
Taunton Lake	7.62	N/A	N/A	N/A	Monitored from shore
Tyler Lake	7.96	7.97	7.82	7.0	
Union Pond	7.16	6.86	6.81	3.75	
Lake Waramaug	7.52	7.13	6.91	8.0	
Wauregan Reservior	7.39	7.25	7.19	3.5	
Lake Winchester	7.36	7.18	7.13	4.0	
Wononscopomuc Lake	8.55	8.57	7.66	13.0	
Wyassup Lake	7.21	7.06	6.84	5.5	
Lake Zoar	7.49	7.48	7.48	7.0	

Table 9. Regression statistics (a=intercept; b=slope) of the relations between $\log_{10}$ total length(mm) and $\log_{10}$ mercury concentration (μg/g wet weight) of edible muscle tissue for individual largemouth bass (LMB) by pH group (<7.00, 7.00-7.49, 7.50-7.99, $\geq$8.00).

pH group	Species	*N*	*a*	*b*	r^2	*P*
pH < 7.00	LMB	48	-6.837	2.559	0.57	0.0001
pH 7.00-7.49	LMB	263	-6.383	2.379	0.37	0.0001
pH 7.50-7.99	LMB	84	-7.890	2.902	0.44	0.0001
pH $\geq$ 8.00	LMB	67	-4.823	1.696	0.18	0.0003

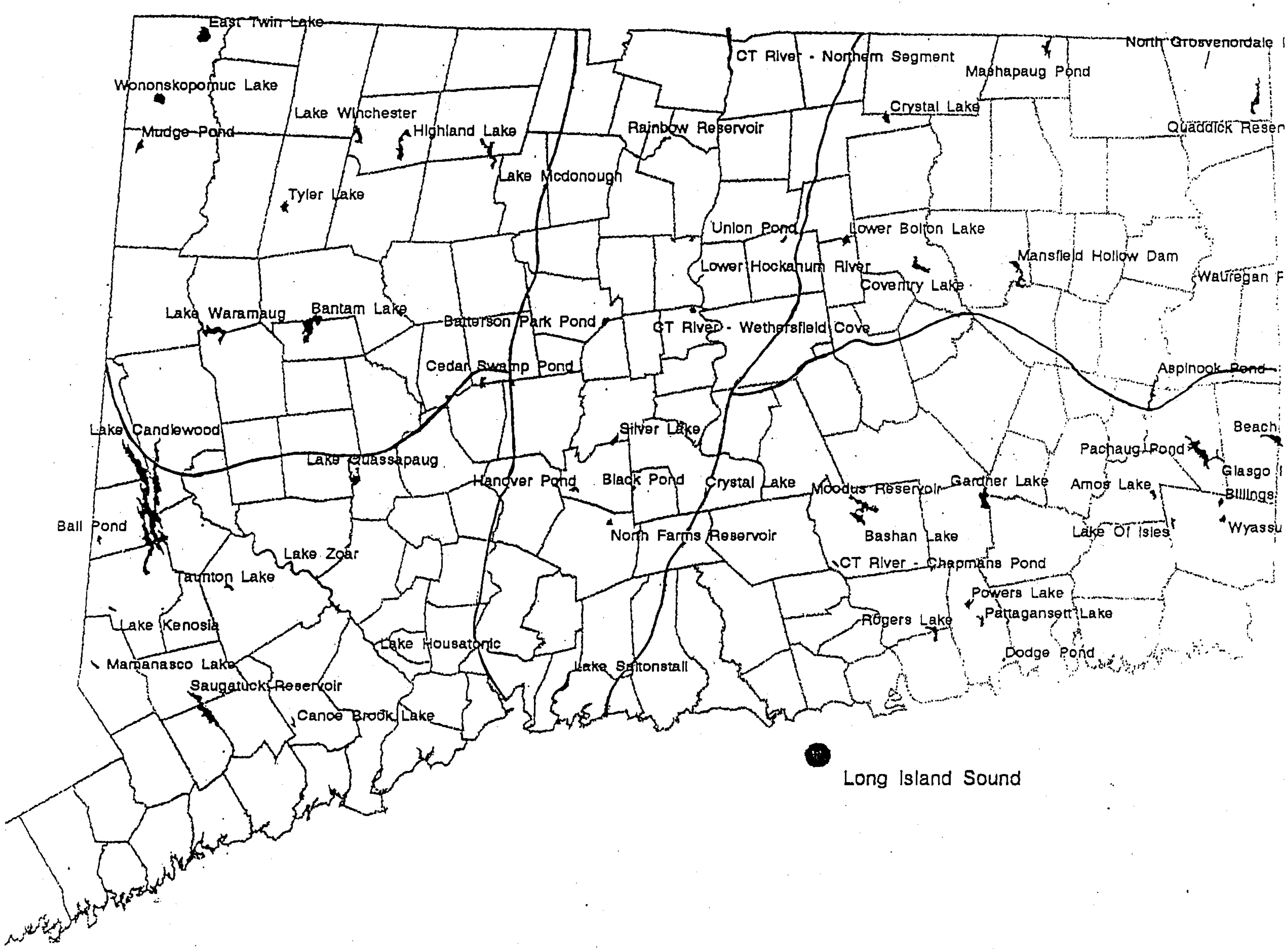

Figure 1. Map of Connecticut showing locations sampled during a preliminary assessment of mercury in fishes from Connecticut water bodies. Solid thick lines denote the five region delineations used in sample site selection and data analyses.

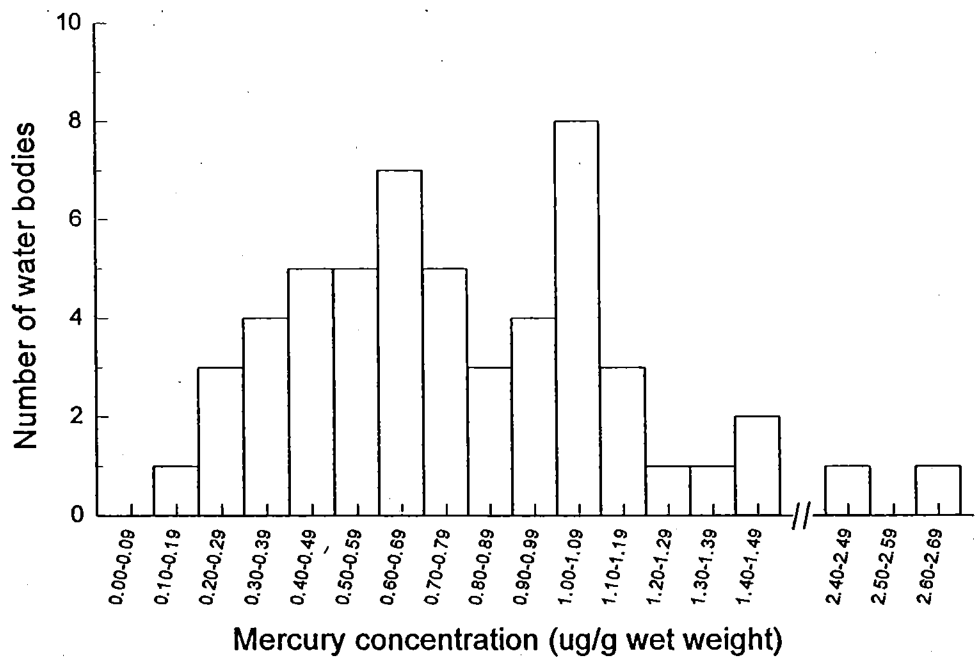

Figure 2. Frequency distribution of the maximum mercury concentration (ug/g wet weight) for individual largemouth bass collected from each location.

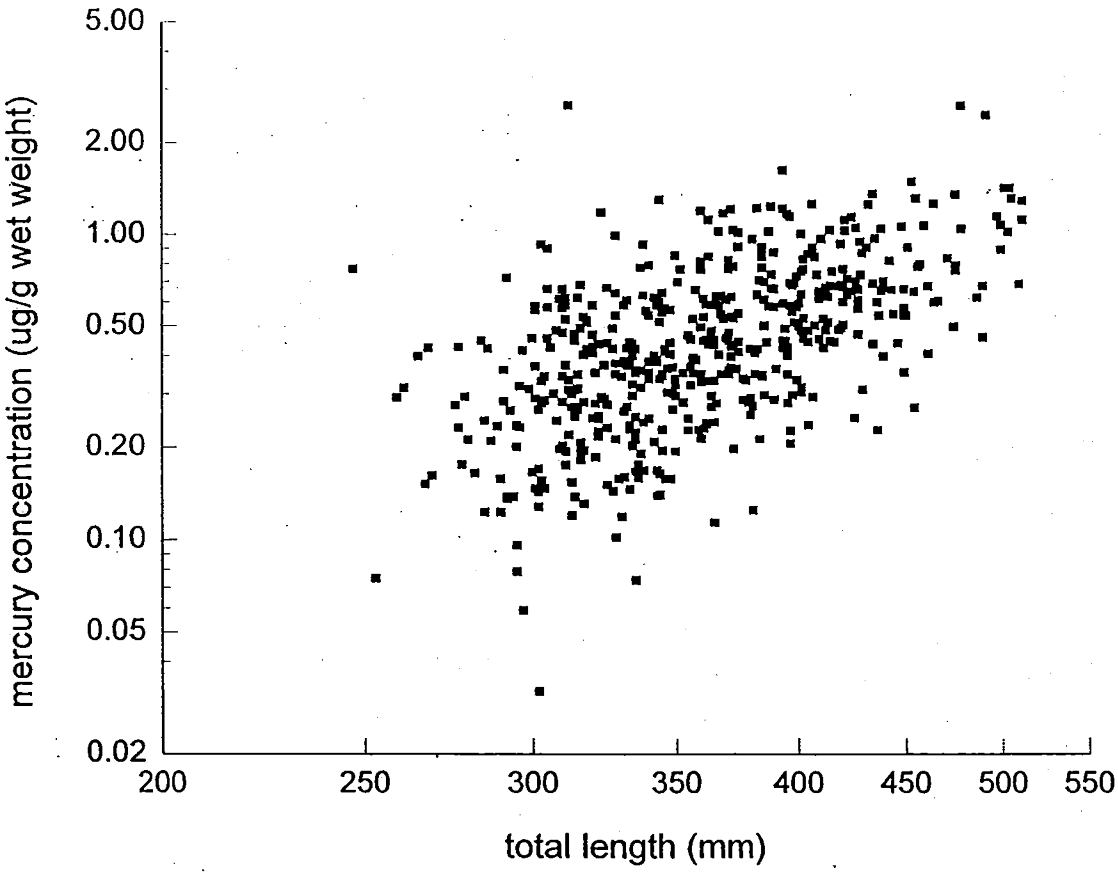

Figure 3. Relationship between mercury concentration (ug/g wet weight) and total length (mm) for all largemouth bass collected statewide. Regression statistics for the relation between log_{10}mercury concentration and log_{10}total length are listed in Table 6.

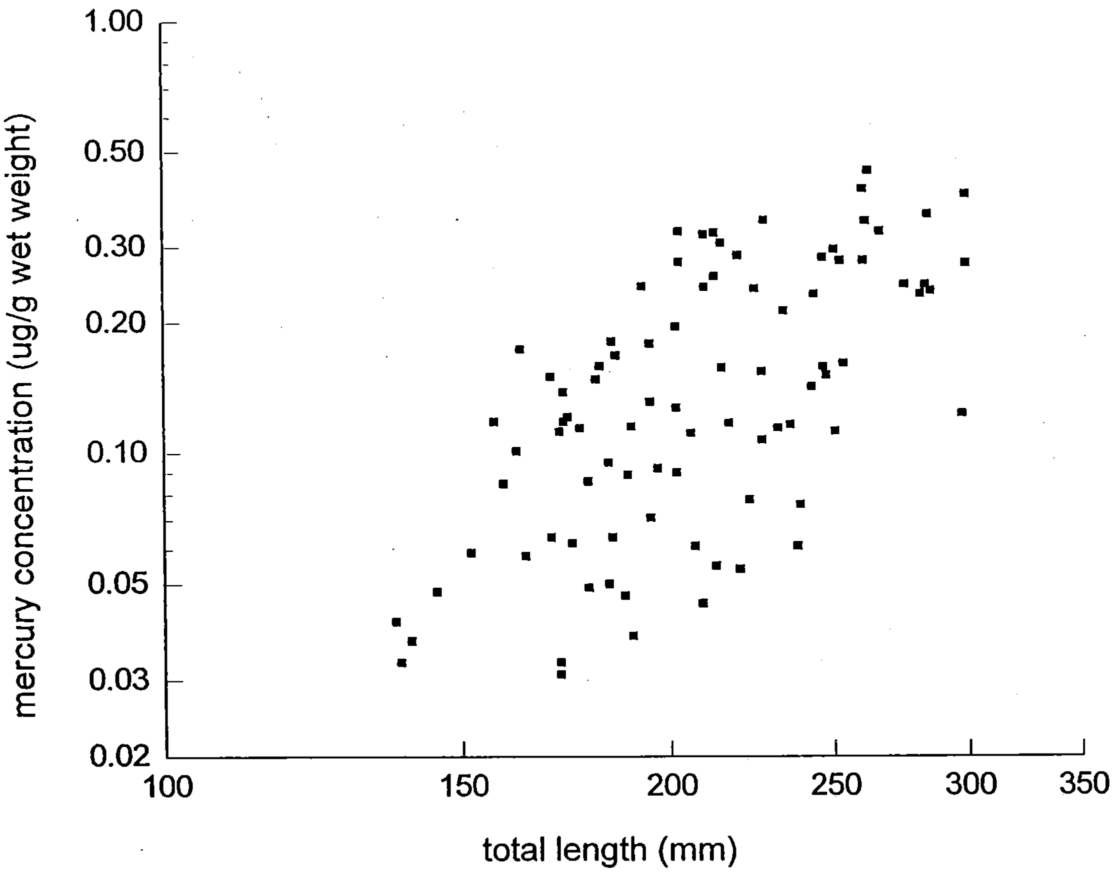

Figure 4. Relationship between mercury concentration (ug/g wet weight) and total length (mm) for all yellow perch collected statewide. Regression statistics for the relation between $\log_{10}$mercury concentration and $\log_{10}$total length are listed in Table 6.

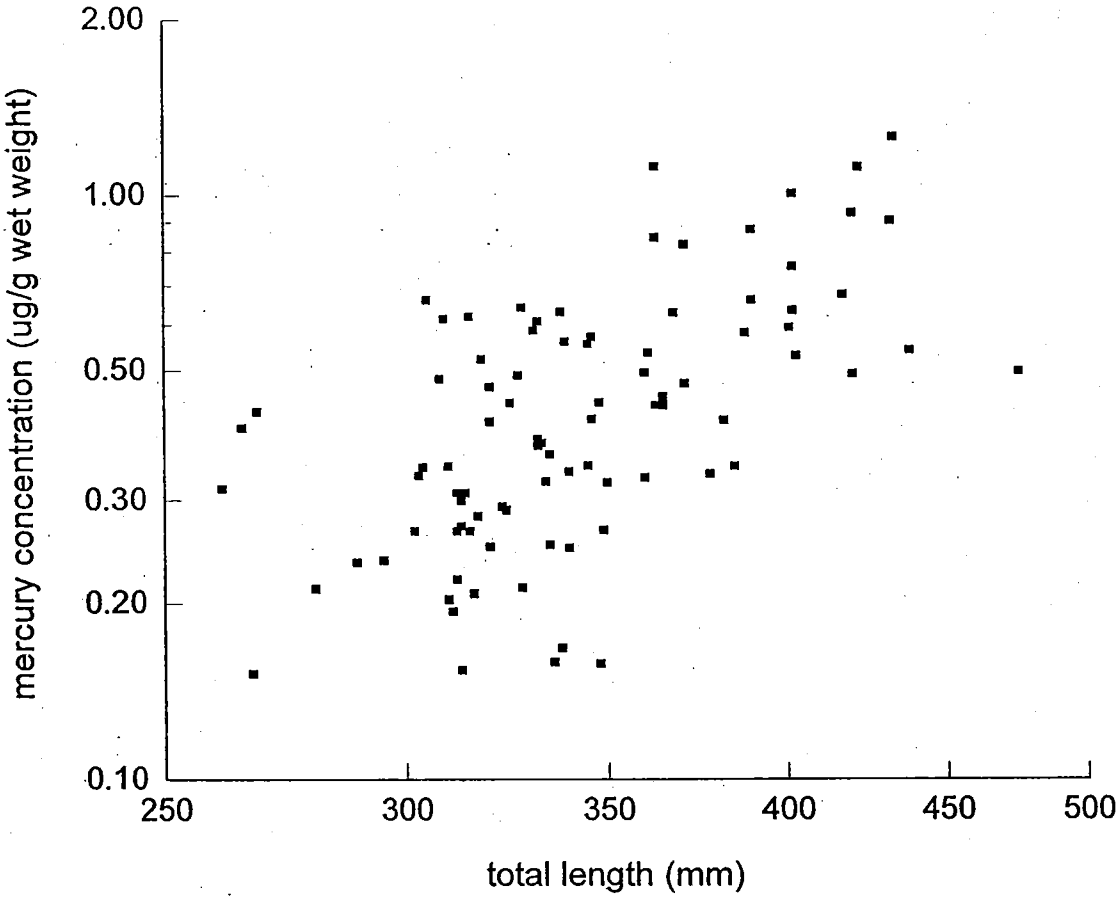

Figure 5. Relationship between mercury concentration (ug/g wet weight) and total length (mm) for largemouth bass collected from the northeast region of Connecticut. Regression statistics for the relation between $\log_{10}$mercury concentration and $\log_{10}$total length are listed in Table 6.

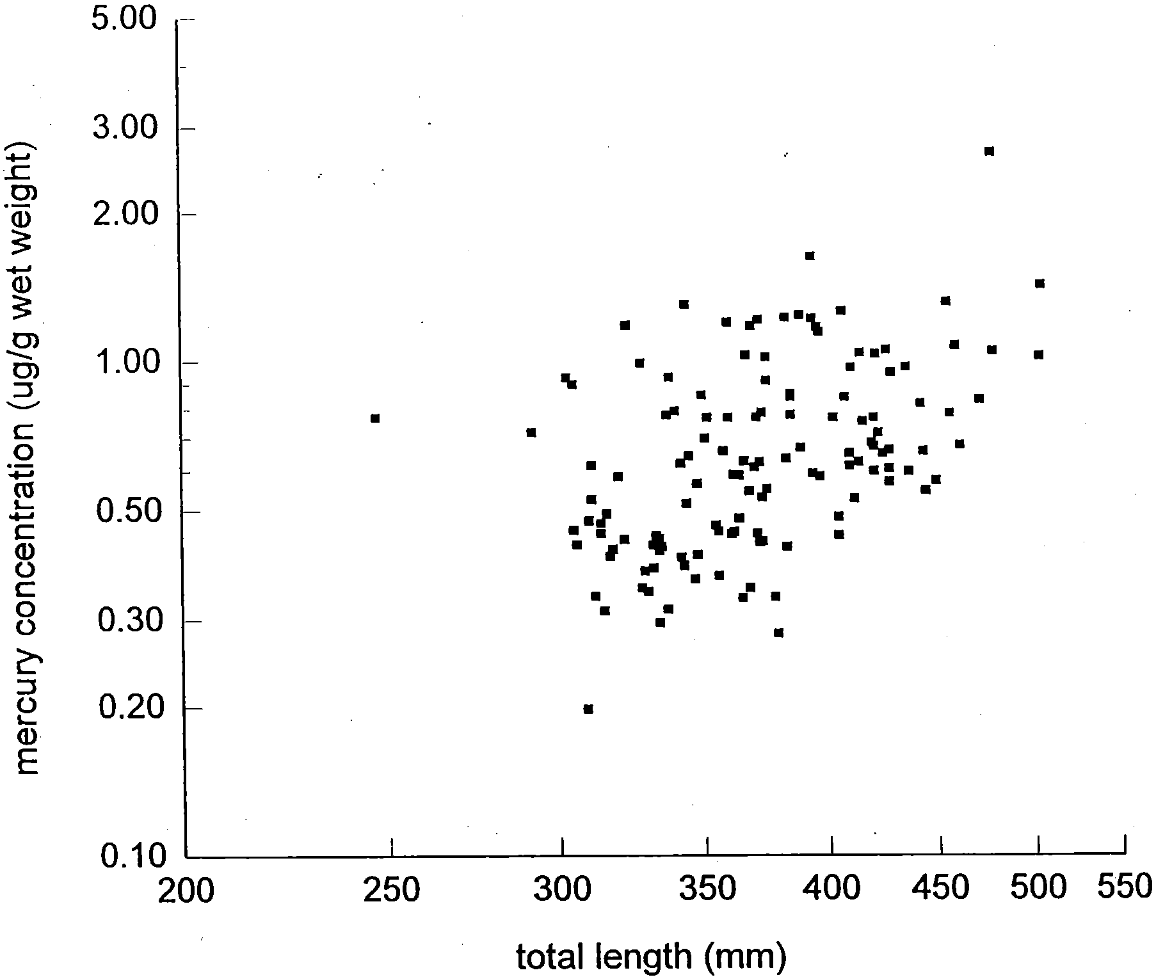

Figure 6. Relationship between mercury concentration (ug/g) wet weight and total length (mm) for largemouth bass collected from the southeast region of Connecticut. Regression statistics for the relation between $\log_{10}$mercury concentration and $\log_{10}$total length are listed in Table 6.

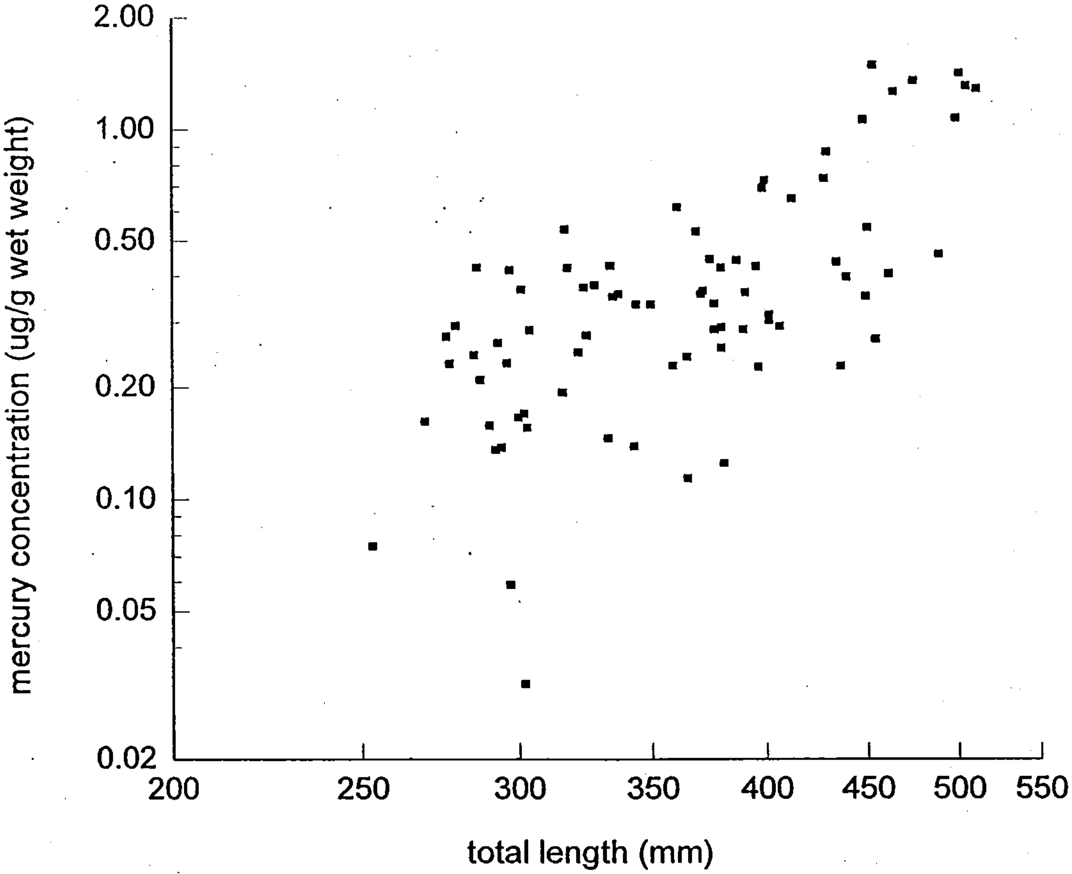

Figure 7. Relationship between mercury concentration (ug/g wet weight) and total length (mm) for largemouth bass collected from the central lowlands region of Connecticut. Regression statistics for the relation between $\log_{10}$mercury concentration and $\log_{10}$total length are listed in Table 6.

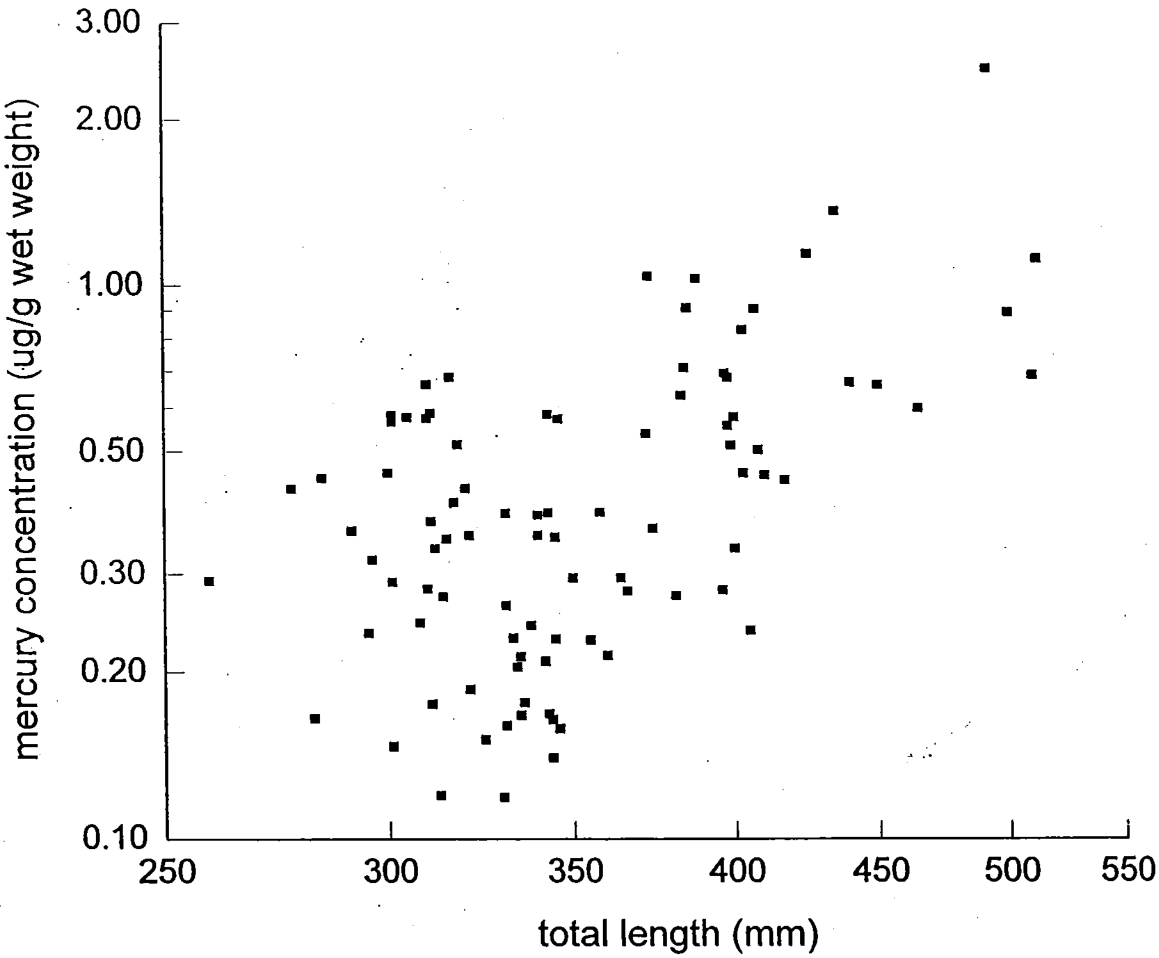

Figure 8. Relationship between mercury concentration (ug/g) wet weight and total length (mm) for largemouth bass collected from the northwest region of Connecticut. Regression statistics for the relation between $\log_{10}$mercury concentration and $\log_{10}$total length are listed in Table 6.

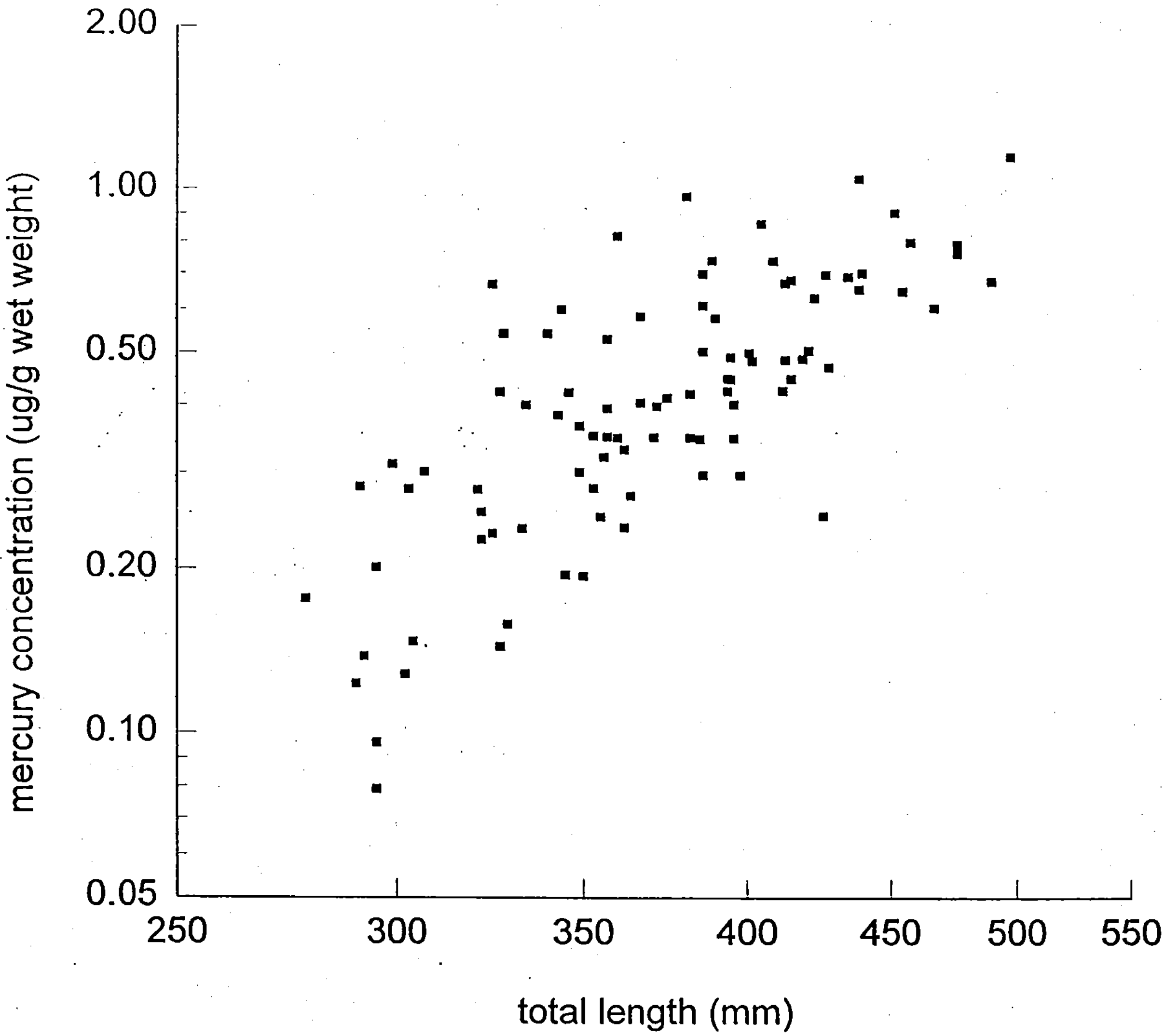

Figure 9. Relationship between mercury concentration (ug/g wet weight) and total length (mm) for largemouth bass collected from the southwest region of Connecticut. Regression statistics for the relation between $\log_{10}$mercury concentration and $\log_{10}$total length are listed in Table 6.

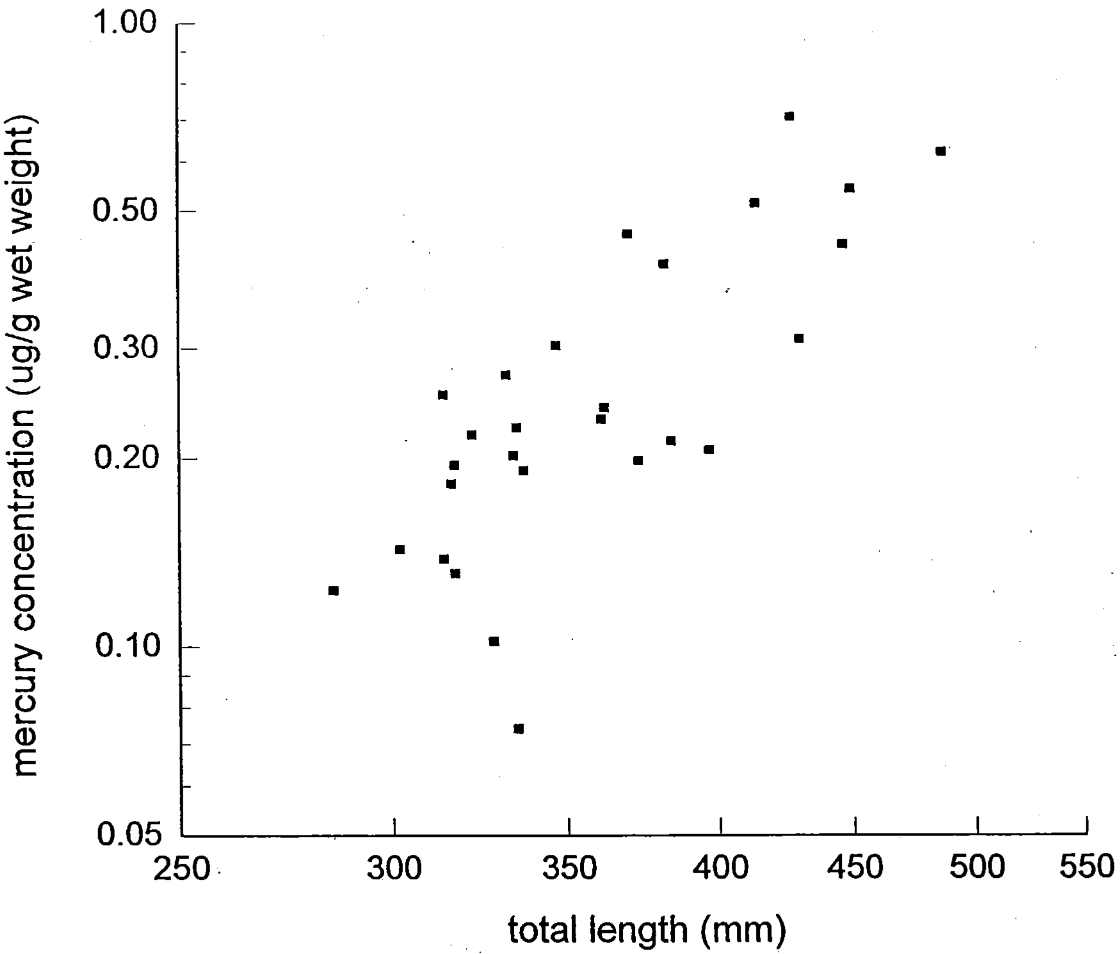

Figure 10. Relationship between mercury concentration (ug/g wet weight) and total length (mm) for largemouth bass collected from the Connecticut River, Connecticut. Regression statistics for the relation between $\log_{10}$mercury concentration and $\log_{10}$total length are listed in Table 6.

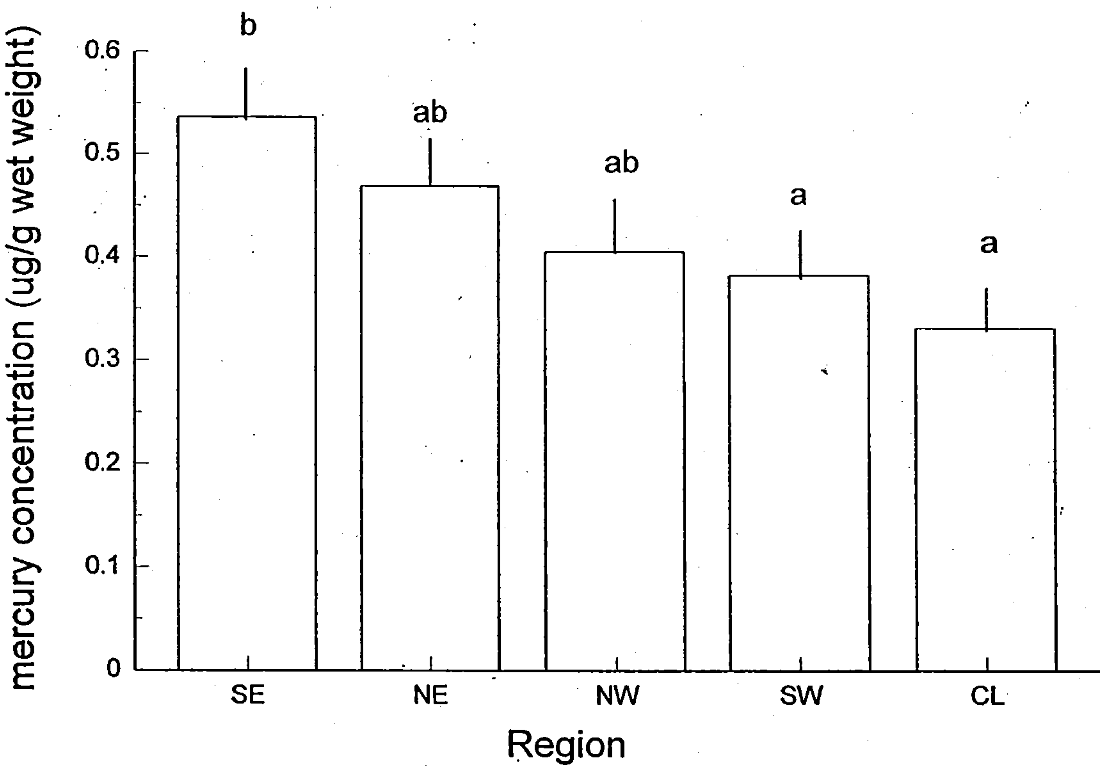

Figure 11. Regional comparison (SE=southeast, NE=northeast, NW=northwest, SW=southwest, CL=central lowlands) of largemouth bass mean adjusted mercury concentration (ug/g wet weight) from Connecticut water bodies. For each water body, mercury concentrations were adjusted to a total length of 356 mm; where no significant relation between length and mercury existed, the unadjusted mean mercury concentration was used in the analysis of variance. Means sharing the same letters are not significantly different ($P \geq 0.05$). Vertical lines indicate one standard error.

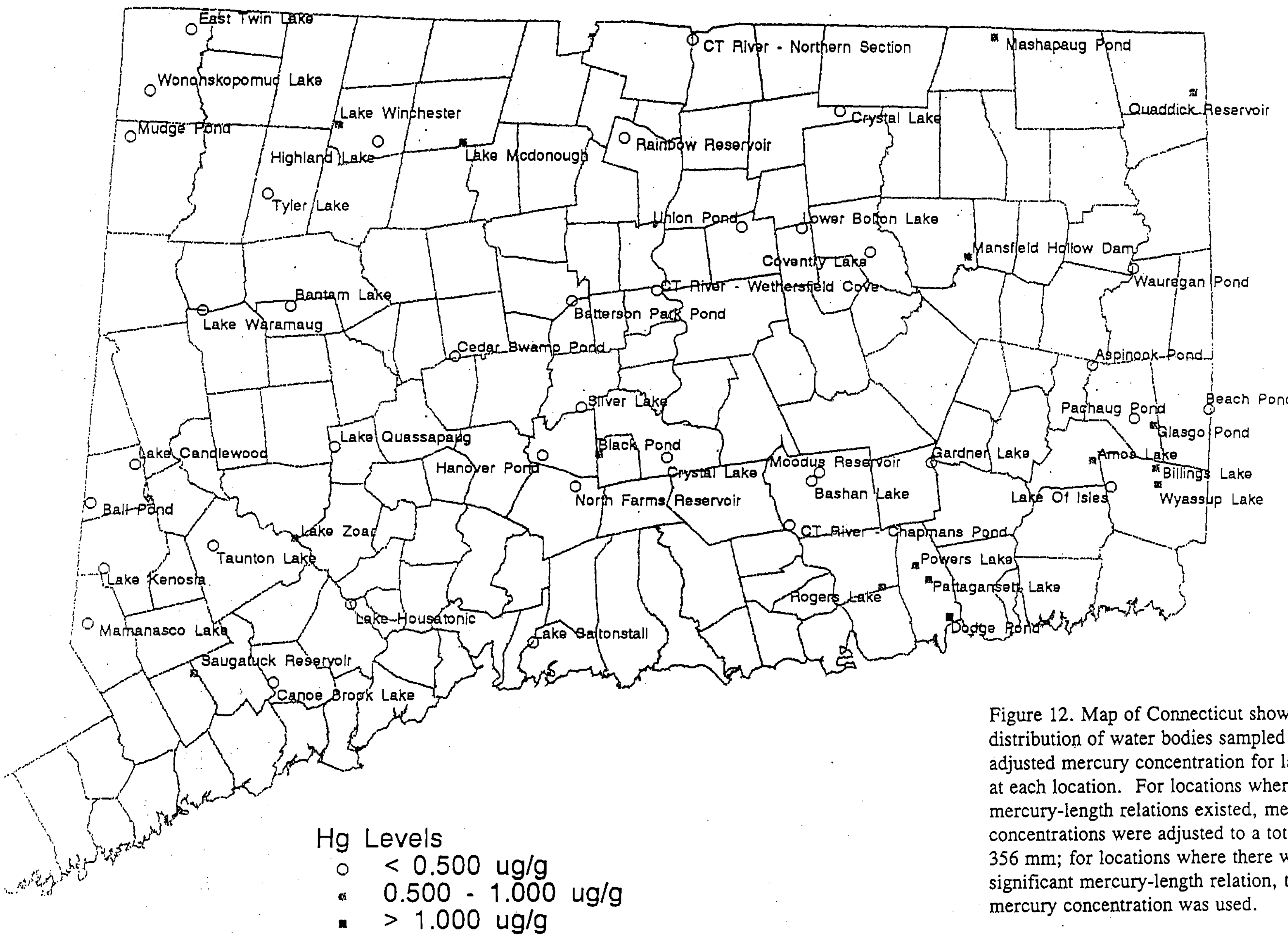

Figure 12. Map of Connecticut showing the distribution of water bodies sampled and the adjusted mercury concentration for largemouth bass at each location. For locations where significant mercury-length relations existed, mercury concentrations were adjusted to a total length of 356 mm; for locations where there was not a significant mercury-length relation, the mean mercury concentration was used.

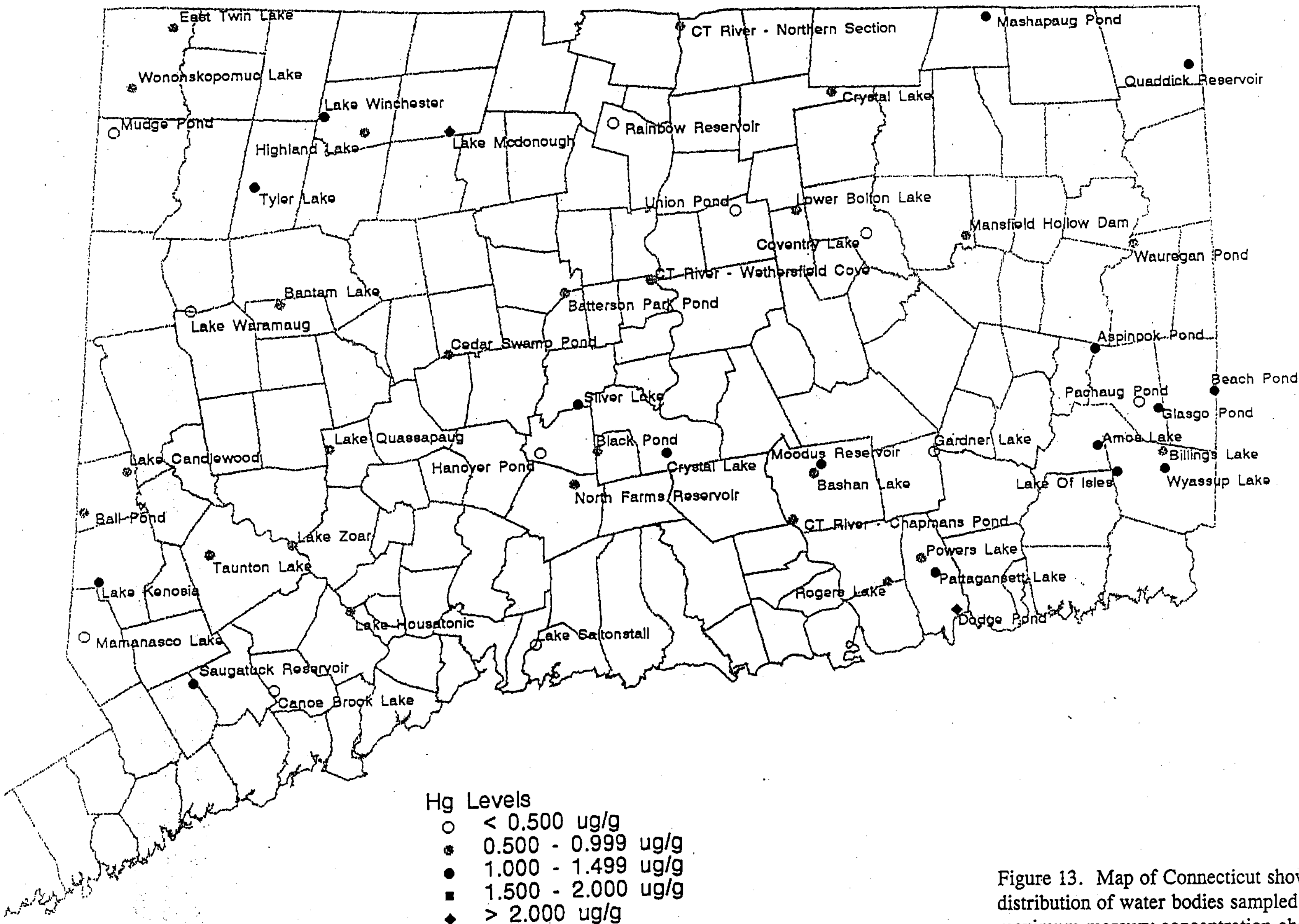

Figure 13. Map of Connecticut showing the distribution of water bodies sampled and the maximum mercury concentration observed for a largemouth bass at that location.

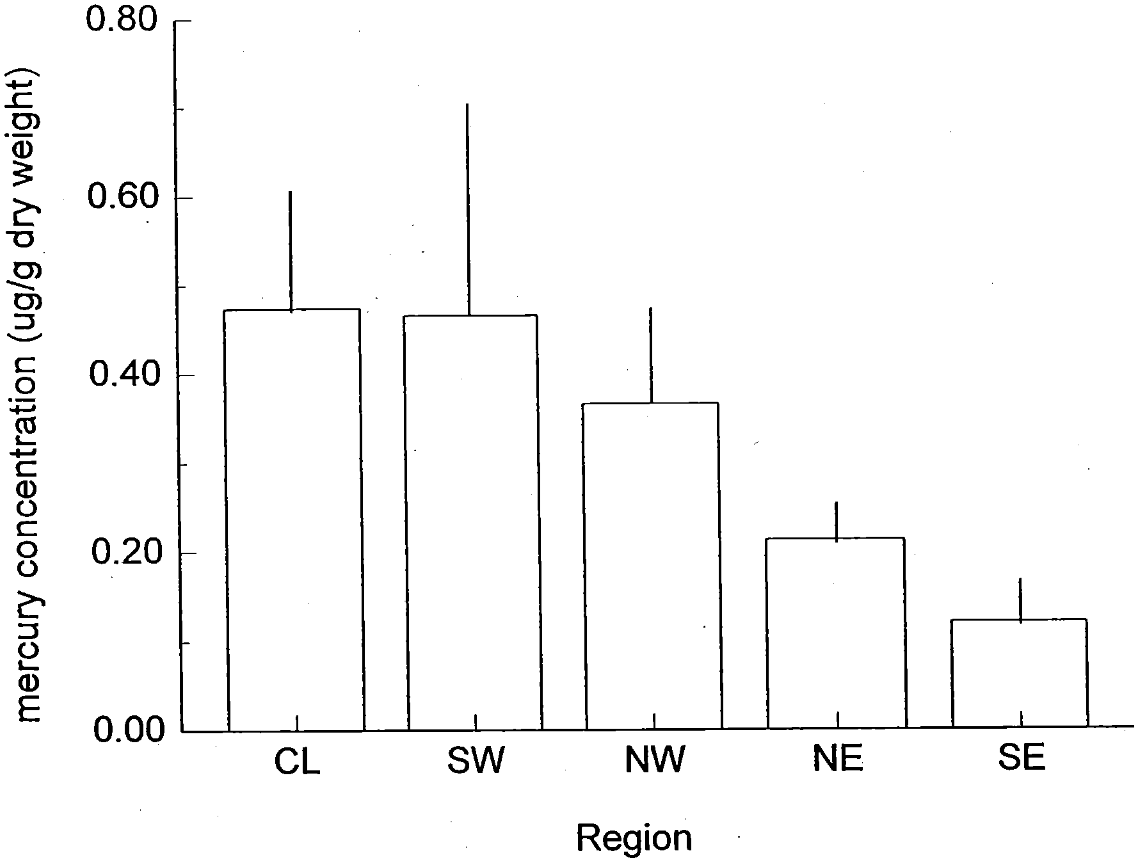

Figure 14. Regional comparison (SE=southeast, NE=northeast, NW=northwest, SW=southwest, CL=central lowlands) of mean mercury concentration (ug/g dry weight) in lake surficial sediments. Vertical lines indicate one standard error.

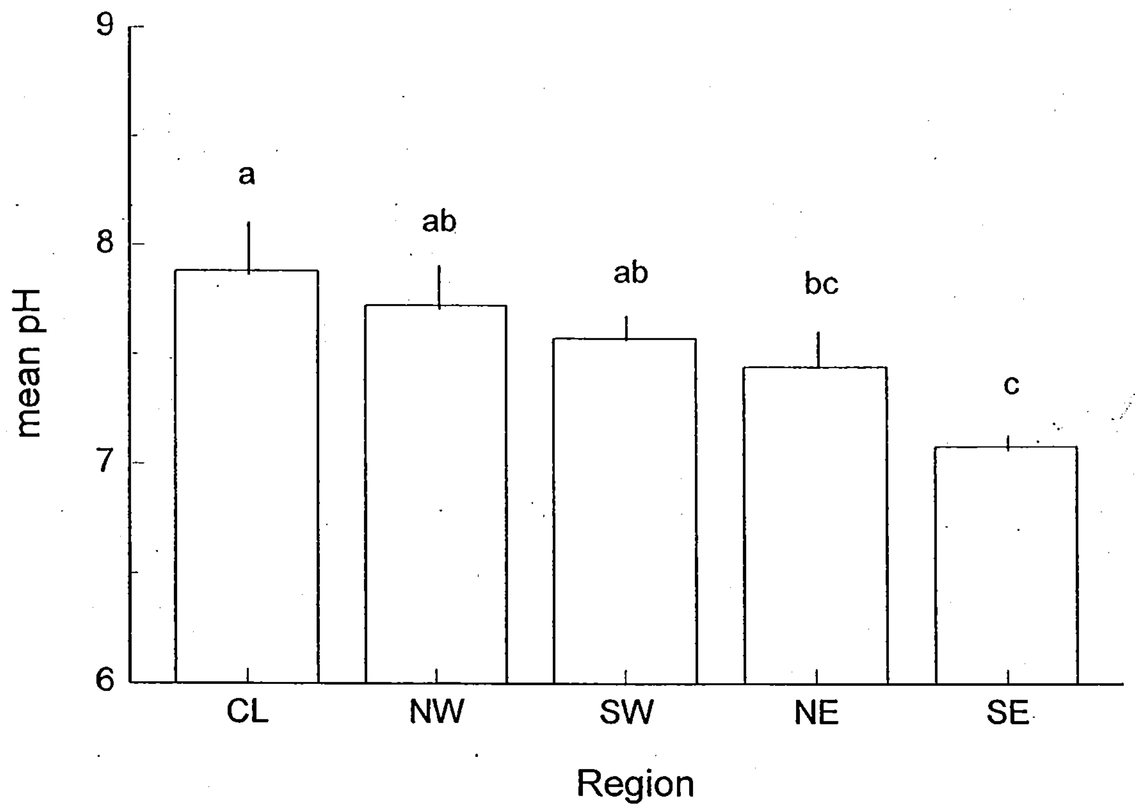

Figure 15. Regional comparison (SE=southeast, NE=northeast, NW=northwest, SW=southwest, CL=central lowlands) of lake pH measured at 1 m below the water surface. Means sharing the same letters are not significantly different ($P \leq 0.05$). Vertical lines indicate one standard error.

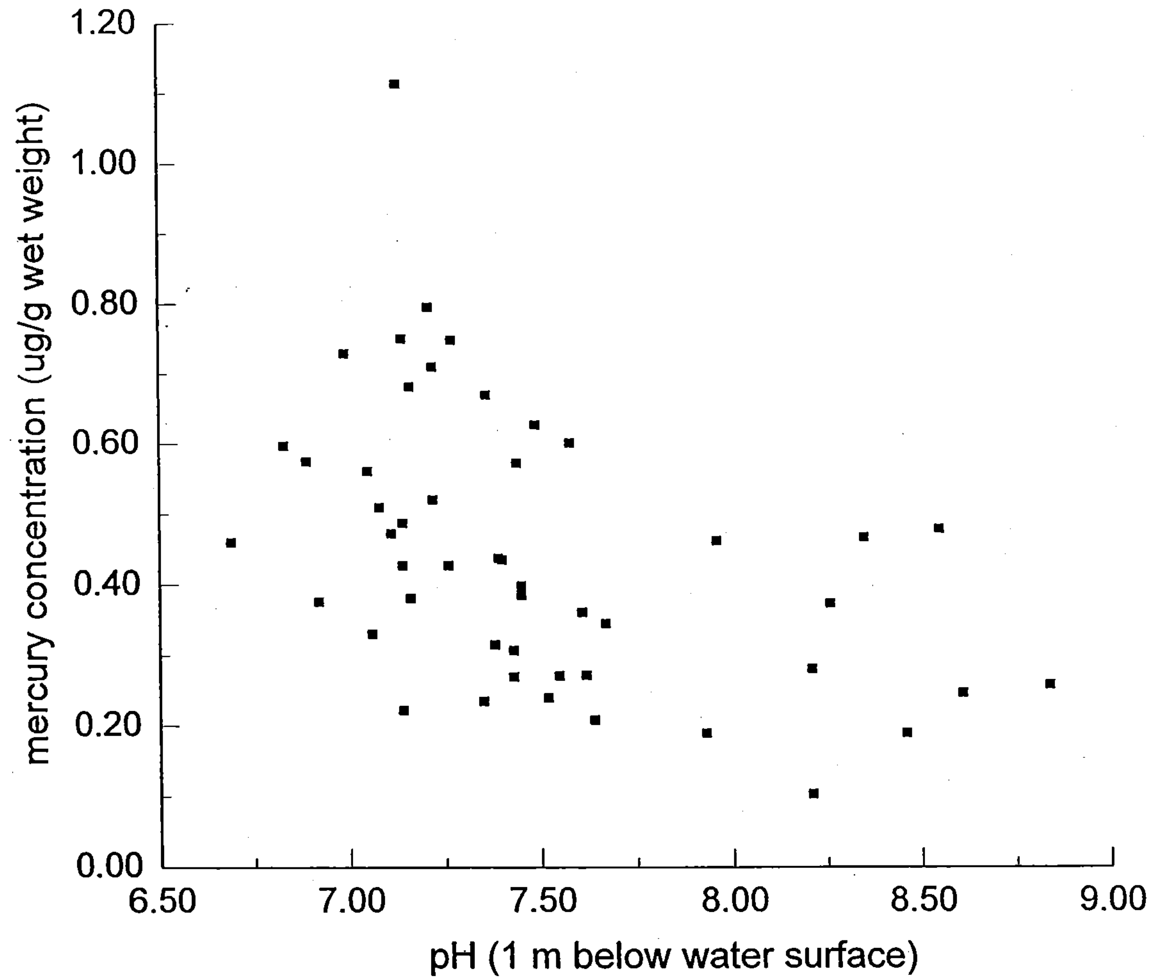

Figure 16. Relationship between largemouth bass mercury concentration (ug/g wet weight) and pH (measured at 1 m below the water surface) [$\log_{10}$mercury concentration (ug/g wet weight) = 2.744 - 3.591 x $\log_{10}$total length (mm); $P<0.001$, $r^2=0.25$]. Mercury values were adjusted to a largemouth bass total length of 356 mm, based on $\log_{10}$mercury concentration-$\log_{10}$total length regressions for each sampling location. Where no significant relation between mercury and length was observed, the unadjusted mean mercury concentration was used (see Table 4 for adjusted and mean mercury concentration values).

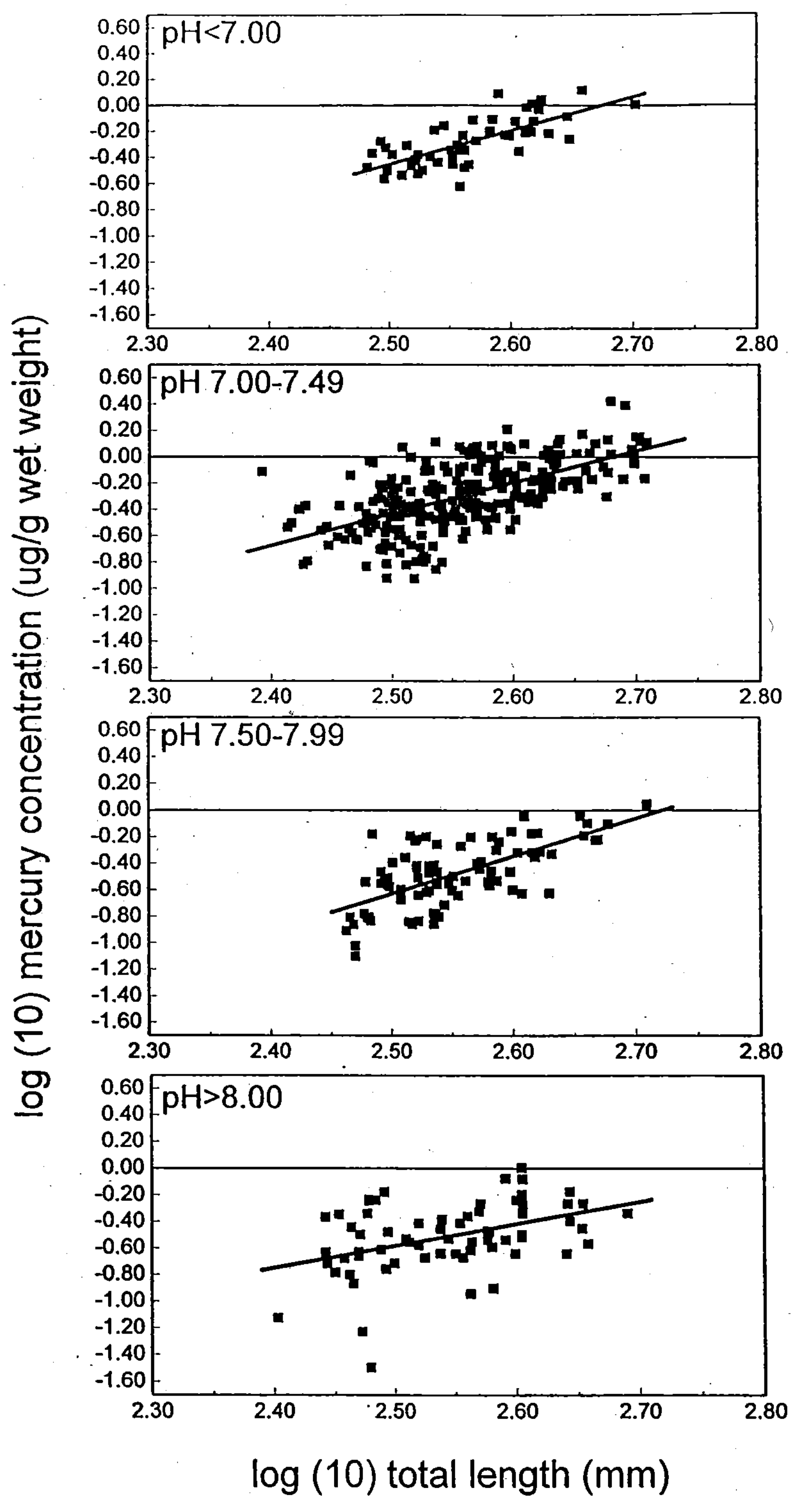

Figure 17. Relationship between $\log_{10}$mercury concentration (ug/g wet weight) and $\log_{10}$total length (mm) for individual largemouth by pH group (<7.00, 7.00-7.49, 7.50-7.99, $\geq$8.00). Statistics for these regressions are listed in Table 9.

Appendix 1. Total mercury concentration (µg/g wet weight) of edible muscle tissue for individual largemouth bass *Micropterus salmoides* (LMB) collected from Connecticut water bodies. [Method of fish collection: T = tournament, E = electrofishing; sex: M = male, F = female]. Units for length and weight are mm and g respectively.

	Date Collected					Collection				Total mercury concentration			
Site	M	D	Y	ID	Species	Method	Length	Weight	Sex	Rep 1	Rep 2	Rep 3	Mean
Amos Lake	6	3	95	1	LMB	T	422	1000	F	1.058		1.002	1.030
Amos Lake	6	3	95	2	LMB	T	333	428	M	0.455	0.439	0.439	0.444
Amos Lake	6	3	95	3	LMB	T	383	756	F	0.428	0.414	0.421	0.421
Amos Lake	6	3	95	4	LMB	T	344	574	F	0.519	0.528	0.502	0.516
Amos Lake	6	3	95	5	LMB	T	355	542	M	0.480	0.446	0.472	0.466
Amos Lake	6	3	95	6	LMB	T	362	608	M	0.580	0.580	0.608	0.589
Amos Lake	6	3	95	7	LMB	T	389	796	F	0.688	0.704	0.606	0.666
Amos Lake	6	3	95	8	LMB	T	408	956	M	0.833	0.826	0.871	0.843
Amos Lake	6	3	95	9	LMB	T	460	1350	F	1.035	1.072	1.101	1.069
Amos Lake	6	3	95	10	LMB	T	472	1600	M	0.857	0.816	0.826	0.833
Aspinook Lake	6	3	95	1	LMB	T	402	888	M	1.017	0.991	1.008	1.005
Aspinook Lake	6	3	95	2	LMB	T	346	550	M	0.429	0.413	0.398	0.413
Aspinook Lake	6	3	95	3	LMB	T	363	692	M	0.433	0.433	0.443	0.436
Aspinook Lake	6	3	95	4	LMB	T	402	828	M	0.629	0.644	0.629	0.634
Aspinook Lake	6	3	95	5	LMB	T	378	730	F	0.333	0.325	0.340	0.333
Aspinook Lake	6	3	95	6	LMB	T	323	464	F	0.293	0.293	0.293	0.293
Aspinook Lake	6	3	95	7	LMB	T	390	700	M	0.913	0.801	0.905	0.873
Aspinook Lake	6	3	95	8	LMB	T	371	732	F	0.467	0.491	0.467	0.475
Aspinook Lake	6	3	95	9	LMB	T	403	852	M	0.527	0.527	0.535	0.530
Aspinook Lake	6	3	95	10	LMB	T	438	1200	F	0.543	0.543	0.535	0.541
Ball Pond	7	11	95	1	LMB	E	490	2150	F	0.676	0.729	0.623	0.676
Ball Pond	7	11	95	2	LMB	E	371	895	M	0.352	0.344	0.352	0.349
Ball Pond	7	11	95	3	LMB	E	421	1250	F	0.500	0.483	0.528	0.504
Ball Pond	7	11	95	4	LMB	E	396	1018	F	0.394	0.401	0.408	0.401
Ball Pond	7	11	95	5	LMB	E	394	952	F	0.450	0.444	0.450	0.448
Ball Pond	7	11	95	6	LMB	E	360	820	M	0.350	0.343	0.350	0.348

Appendix 1, continued. Total mercury concentration (µg/g wet weight) of edible muscle tissue for individual largemouth bass *Micropterus salmoides* (LMB) collected from Connecticut water bodies. [Method of fish collection: T = tournament; E = electrofishing; sex: M = male, F = female]. Units for length and weight are mm and g respectively.

Site	Date Collected			ID	Species	Collection	Length	Weight	Sex	Total mercury concentration			
	M	D	Y			Method				Rep 1	Rep 2	Rep 3	Mean
Ball Pond	7	11	95	7	LMB	E	364	805	M	0.276	0.300	0.241	0.272
Ball Pond	7	11	95	8	LMB	E	349	625	F	0.299	0.299	0.306	0.301
Ball Pond	7	11	95	9	LMB	E	325	518	M	0.236	0.231	0.231	0.232
Ball Pond	7	11	95	10	LMB	E	353	643	F	0.344	0.366	0.344	0.351
Bantam Lake	7	30	95	1	LMB	E	335	478	M	0.169	0.162	0.169	0.167
Bantam Lake	7	30	95	2	LMB	E	342	548	F	0.190	0.211	0.226	0.209
Bantam Lake	7	30	95	3	LMB	E	331	528	F	0.149	0.175	0.156	0.160
Bantam Lake	7	30	95	4	LMB	E	321	460	F	0.183	0.183	0.190	0.186
Bantam Lake	7	30	95	5	LMB	E	344	554	M	0.126	0.147	0.147	0.140
Bantam Lake	7	30	95	6	LMB	E	417	830	F	0.441	0.454	0.434	0.443
Bantam Lake	7	30	95	7	LMB	E	400	946	M	0.348	0.335	0.315	0.333
Bantam Lake	7	30	95	8	LMB	E	410	1100	M	0.453	0.459	0.446	0.453
Bantam Lake	7	30	95	9	LMB	E	510	2050	F	0.651	0.690	0.714	0.685
Bantam Lake	7	30	95	10	LMB	E	500	1900	M	0.866	0.916	0.886	0.889
Bashan Lake	8	5	95	2	LMB	T	335	510	M	0.425	0.425	0.417	0.422
Bashan Lake	8	5	95	5	LMB	T	312	410	F	0.327	0.343	0.335	0.335
Bashan Lake	8	5	95	6	LMB	T	328	454	M	0.351	0.351	0.343	0.348
Bashan Lake	8	5	95	7	LMB	T	343	578	F	0.373	0.396	0.388	0.386
Bashan Lake	8	5	95	8	LMB	T	368	698	M	0.546	0.526	0.567	0.546
Bashan Lake	8	5	95	9	LMB	T	403	1020	M	0.753	0.745	0.803	0.767
Bashan Lake	8	5	95	10	LMB	T	436	1100	M	0.994	0.978	0.939	0.970
Batterson Park Pond	6	21	95	1	LMB	E	435	1320	F	0.428	0.428	0.454	0.437
Batterson Park Pond	6	21	95	2	LMB	E	462	1550	F	.	0.403	0.410	0.406
Batterson Park Pond	6	21	95	3	LMB	E	429	1225	M	0.761	0.731	0.716	0.736
Batterson Park Pond	6	21	95	4	LMB	E	407	1100	F	0.288	0.296	0.296	0.293

Appendix 1, continued. Total mercury concentration (μg/g wet weight) of edible muscle tissue for individual largemouth bass *Micropterus salmoides* (LMB) collected from Connecticut water bodies. [Method of fish collection: T = tournament; E = electrofishing; sex: M = male, F = female]. Units for length and weight are mm and g respectively.

	Date Collected					Collection				Total mercury concentration			
Site	M	D	Y	ID	Species	Method	Length	Weight	Sex	Rep 1	Rep 2	Rep 3	Mean
Batterson Park Pond	6	21	95	5	LMB	E	391	775	M	0.362	0.362	0.362	0.362
Batterson Park Pond	6	21	95	6	LMB	E	375	765	M	0.448	0.448	0.440	0.445
Batterson Park Pond	6	21	95	7	LMB	E	337	510	M	0.385	0.345	0.345	0.358
Batterson Park Pond	6	21	95	8	LMB	E	302	363	F	0.167	0.176	0.167	0.170
Beach Pond	6	24	95	1	LMB	T	334	532	M	0.406	0.406	0.430	0.414
Beach Pond	6	24	95	2	LMB	T	332	546	F	0.375	0.389	0.382	0.382
Beach Pond	6	24	95	3	LMB	T	318	430	F	0.427	0.396	0.427	0.417
Beach Pond	6	24	95	4	LMB	T	342	538	M	0.399	0.391	0.415	0.401
Beach Pond	6	24	95	5	LMB	T	361	656	F	0.442	0.442	0.458	0.448
Beach Pond	6	24	95	6	LMB	T	411	996	M	0.919	0.978	1.004	0.967
Beach Pond	6	24	95	7	LMB	T	394	850	F	0.585	0.592	0.600	0.592
Beach Pond	6	24	95	8	LMB	T	368	710	F	0.348	0.348	0.000	0.348
Beach Pond	6	24	95	9	LMB	T	405	988	F	0.433	0.449	0.449	0.444
Beach Pond	6	24	95	10	LMB	T	456	1400	M	1.297	1.341	1.303	1.314
Billings Lake	7	15	95	1	LMB	T	416	1100	F	0.748	0.754	0.760	0.754
Billings Lake	7	15	95	2	LMB	T	311	422	M	0.640	0.569	0.640	0.616
Billings Lake	7	15	95	3	LMB	T	352	542	F	0.740	0.809	0.754	0.768
Billings Lake	7	15	95	4	LMB	T	360	686	F	.	.	.	.
Billings Lake	7	15	95	5	LMB	T	358	636	F	0.632	0.694	0.650	0.658
Billings Lake	7	15	95	6	LMB	T	385	642	M	0.804	0.899	0.830	0.844
Billings Lake	7	15	95	7	LMB	T	421	1200	F	0.757	0.757	0.786	0.767
Billings Lake	7	15	95	8	LMB	T	420	1050	F	0.695	0.695	0.662	0.684
Billings Lake	7	15	95	9	LMB	T	429	1100	M	0.924	0.942	0.968	0.945
Billings Lake	7	15	95	10	LMB	T	423	1100	F	0.688	0.735	0.719	0.714
Bolton Lake	7	2	95	1	LMB	T	310	400	F	0.355	0.328	0.346	0.343

Appendix 1, continued. Total mercury concentration (µg/g wet weight) of edible muscle tissue for individual largemouth bass *Micropterus salmoides* (LMB) collected from Connecticut water bodies. -[Method of fish collection: T = tournament; E = electrofishing; sex: M = male, F = female]. Units for length and weight are mm and g respectively.

Site	Date Collected			ID	Species	Collection	Length	Weight	Sex	Total mercury concentration			
	M	D	Y			Method				Rep 1	Rep 2	Rep 3	Mean
Bolton Lake	7	2	95	2	LMB	T	315	400	F	0.274	0.258	0.266	0.266
Bolton Lake	7	2	95	3	LMB	T	332	492	M	0.374	0.353	0.388	0.372
Bolton Lake	7	2	95	4	LMB	T	345	568	M	0.347	0.347	0.338	0.344
Bolton Lake	7	2	95	5	LMB	T	332	388	F	0.385	0.376	0.385	0.382
Bolton Lake	7	2	95	6	LMB	T	312	345	M	0.317	0.309	0.302	0.309
Bolton Lake	7	2	95	7	LMB	T	340	536	M	0.333	0.341	0.333	0.336
Bolton Lake	7	2	95	8	LMB	T	314	385	F	0.317	0.302		0.309
Bolton Lake	7	2	95	9	LMB	T	340	540	F	0.270	0.232	0.247	0.249
Bolton Lake	7	2	95	10	LMB	T	361	594	M	0.533	0.526	0.548	0.536
Black Pond	8	9	95	102	LMB	E	430	1250	F	0.841	0.896		0.868
Black Pond	8	9	95	103	LMB	E	400	954	M	0.728	0.820	0.637	0.728
Black Pond	8	9	95	104	LMB	E	334	470	M	0.422	0.415	0.442	0.427
Black Pond	8	9	95	105	LMB	E	361	676	F	0.606	0.613	0.626	0.615
Black Pond	8	9	95	106	LMB	E	399	1225	F	0.678	0.698	0.704	0.693
Black Pond	8	9	95	108	LMB	E	318	442	M	0.410	0.437	0.417	0.422
Black Pond	8	9	95	109	LMB	E	297	344	F	0.430	0.414	0.406	0.416
Black Pond	8	9	95	110	LMB	E	317	418	F	0.550	0.499	0.559	0.536
Black Pond	8	9	95	111	LMB	E	279	304	F	0.284	0.313	0.284	0.294
Black Pond	8	9	95	112	LMB	E	286	330	M	0.430	0.423	0.416	0.423
Canoe Brook Lake	8	2	95	1	LMB	E	426	1170	F	0.250	0.242	0.257	0.250
Canoe Brook Lake	8	2	95	2	LMB	E	333	596	M	0.235	0.229	0.248	0.237
Canoe Brook Lake	8	2	95	3	LMB	E	398	1040	M	0.291	0.291	0.309	0.297
Canoe Brook Lake	8	2	95	4	LMB	E	345	684	F	0.189	0.208	0.189	0.195
Canoe Brook Lake	8	2	95	6	LMB	E	329	480	F	0.149	0.158	0.166	0.158
Canoe Brook Lake	8	2	95	7	LMB	E	295	344	M	0.106	0.091	0.091	0.096
Canoe Brook Lake	8	2	95	8	LMB	E	322	450	M	0.216	0.231	0.231	0.226

Appendix 1, continued. Total mercury concentration (μg/g wet weight) of edible muscle tissue for individual largemouth bass *Micropterus salmoides* (LMB) collected from Connecticut water bodies. [Method of fish collection: T = tournament; E = electrofishing; sex: M = male, F = female]. Units for length and weight are mm and g respectively.

	Date Collected					Collection				Total mercury concentration			
Site	M	D	Y	ID	Species	Method	Length	Weight	Sex	Rep 1	Rep 2	Rep 3	Mean
Canoe Brook Lake	8	2	95	9	LMB	E	302	364	F	0.131	0.131	0.124	0.128
Canoe Brook Lake	8	2	95	10	LMB	E	292	356	M	0.138	0.138	0.138	0.138
Candlewood Lake	7	16	95	1	LMB	T	452	1500	M	0.948	0.906	0.856	0.904
Candlewood Lake	7	16	95	3	LMB	T	476	1675	F	0.756	0.826	0.791	0.791
Candlewood Lake	7	16	95	4	LMB	T	419	1250	M	0.492	0.500	0.469	0.487
Candlewood Lake	7	16	95	5	LMB	T	467	1700	F	0.599	0.607	0.607	0.604
Candlewood Lake	7	16	95	6	LMB	T	386	684	M	0.505	0.489	0.513	0.502
Candlewood Lake	7	16	95	8	LMB	T	372	820	M	0.430	0.390	0.374	0.398
Candlewood Lake	7	16	95	9	LMB	T	428	1075	F	0.468	0.481	0.462	0.470
Cedar Swamp Pond	8	28	95	1	LMB	E	350	588	F	0.194	0.194	0.194	0.194
Cedar Swamp Pond	8	28	95	2	LMB	E	375	750	M	0.429	0.407	0.400	0.412
Cedar Swamp Pond	8	28	95	3	LMB	E	353	620	F	0.272	0.279	0.292	0.281
Cedar Swamp Pond	8	28	95	4	LMB	E	295	372	M	0.079	0.084	0.073	0.079
Cedar Swamp Pond	8	28	95	5	LMB	E	458	1475	F	0.791	0.791	0.808	0.797
Cedar Swamp Pond	8	28	95	6	LMB	E	402	1040	F	0.525	0.460	0.460	0.482
Cedar Swamp Pond	8	28	95	7	LMB	E	415	908	M	0.440	0.460	0.440	0.447
Cedar Swamp Pond	8	28	95	8	LMB	E	382	875	M	0.354	0.342	0.348	0.348
Cedar Swamp Pond	8	28	95	9	LMB	E	343	505	F	0.375	0.387	0.387	0.383
Cedar Swamp Pond	8	28	95	10	LMB	E	290	345	.	0.116	0.130	0.123	0.123
Coventry Lake	6	18	95	2	LMB	T	338	500	F	0.158	0.170	0.176	0.168
Coventry Lake	6	18	95	3	LMB	T	313	355	M	0.161	0.154	0.148	0.154
Coventry Lake	6	18	95	4	LMB	T	328	390	M	0.218	0.211	0.211	0.213
Coventry Lake	6	18	95	5	LMB	T	335	448	F	0.389	0.353	0.339	0.360
Coventry Lake	6	18	95	6	LMB	T	349	520	M	0.257	0.265	0.280	0.267
Coventry Lake	6	18	95	7	LMB	T	311	390	M	0.197	0.184	0.203	0.194

Appendix 1, continued. Total mercury concentration (µg/g wet weight) of edible muscle tissue for individual largemouth bass *Micropterus salmoides* (LMB) collected from Connecticut water bodies. [Method of fish collection: T = tournament; E = electrofishing; sex: M = male, F = female]. Units for length and weight are mm and g respectively.

Site	Date Collected			ID	Species	Collection	Length	Weight	Sex	Total mercury concentration			
	M	D	Y			Method				Rep 1	Rep 2	Rep 3	Mean
Coventry Lake	6	18	95	8	LMB	T	348	580	F	0.158	0.146	0.171	0.158
Coventry Lake	6	18	95	9	LMB	T	385	885	F	0.337	0.343	0.350	0.343
Coventry Lake	6	18	95	10	LMB	T	382	740	M	0.383	0.445	0.404	0.411
Crystal Lake (Ellington)	10	15	95	1	LMB	T	320	448	.	0.250	0.261	0.239	0.250
Crystal Lake (Ellington)	10	15	95	2	LMB	T	365	708	F	0.442	0.431	0.431	0.435
Crystal Lake (Ellington)	10	15	95	3	LMB	T	312	428	F	0.220	0.220	0.220	0.220
Crystal Lake (Ellington)	10	15	95	4	LMB	T	334	536	M	0.317	0.300	0.353	0.323
Crystal Lake (Ellington)	10	15	95	5	LMB	T	320	428	F	0.463	0.481	0.463	0.469
Crystal Lake (Ellington)	10	15	95	6	LMB	T	317	516	F	0.276	0.295	0.276	0.282
Crystal Lake (Ellington)	10	15	95	7	LMB	T	336	588	M	0.144	0.181	0.153	0.159
Crystal Lake (Ellington)	10	15	95	8	LMB	T	312	424	F	0.253	0.253	0.290	0.266
Crystal Lake (Ellington)	10	15	95	9	LMB	T	401	998	F	0.593	0.582	0.604	0.593
Crystal Lake (Ellington)	10	15	95	10	LMB	T	420	1100	F	0.479	0.521	0.479	0.493
Crystal Lake (Ellington)	10	15	95	11	LMB	E	280	254	F	0.215	0.206	0.215	0.212
Crystal Lake (Ellington)	10	15	95	12	LMB	E	360	844	F	0.328	0.328	0.328	0.328
Crystal Lake (Ellington)	10	15	95	13	LMB	E	267	246	F	0.142	0.152	0.162	0.152
Crystal Lake (Ellington)	10	15	95	14	LMB	E	350	668	F	0.313	0.322	0.330	0.322
Crystal Lake (Ellington)	10	15	95	15	LMB	E	289	304	M	0.235	0.235	0.235	0.235
Crystal Lake (Ellington)	10	15	95	16	LMB	E	475	1700	F	0.507	0.497	0.487	0.497
Crystal Lake (Ellington)	10	15	95	17	LMB	E	335	528	F	0.260	0.249	0.249	0.252
Crystal Lake (Ellington)	10	15	95	18	LMB	E	316	386	M	0.232	0.212	0.181	0.208
Crystal Lake (Ellington)	10	15	95	19	LMB	E	295	300	M	0.251	0.230	0.230	0.237
Crystal Lake (Ellington)	10	15	95	20	LMB	E	310	400	.	0.190	0.209	0.209	0.203
Crystal Lake (Middletown)	6	20	95	1	LMB	E	369	555	M	0.515	0.532	0.541	0.529
Crystal Lake (Middletown)	6	20	95	2	LMB	E	500	1900	F	1.103	1.084	1.030	1.072
Crystal Lake (Middletown)	6	20	95	3	LMB	E	372	650	F	0.379	0.356	0.364	0.366

Appendix 1, continued. Total mercury concentration (µg/g wet weight) of edible muscle tissue for individual largemouth bass *Micropterus salmoides* (LMB) collected from Connecticut water bodies. [Method of fish collection: T = tournament; E = electrofishing; sex: M = male, F = female]. Units for length and weight are mm and g respectively.

	Date Collected					Collection				Total mercury concentration			
Site	M	D	Y	ID	Species	Method	Length	Weight	Sex	Rep 1	Rep 2	Rep 3	Mean
Crystal Lake (Middletown)	6	20	95	4	LMB	E	335	645	M	0.361	0.352	0.343	0.352
Crystal Lake (Middletown)	6	20	95	5	LMB	E	285	310	F	0.264	0.254	0.215	0.245
Crystal Lake (Middletown)	6	20	95	6	LMB	E	371	650	F	0.353	0.362	0.362	0.359
Crystal Lake (Middletown)	6	20	95	7	LMB	E	413	745	M	0.645	0.651	0.651	0.649
Crystal Lake (Middletown)	6	20	95	8	LMB	E	396	715	F	0.426	0.418	0.434	0.426
Crystal Lake (Middletown)	6	20	95	9	LMB	E	344	460	M	.	0.336	0.336	0.336
Crystal Lake (Middletown)	6	20	95	10	LMB	E	328	460	F	0.367	0.380	0.387	0.378
Connecticut River - Middle	9	21	95	1	LMB	E	487	1860	F	0.616	0.673	0.566	0.619
Connecticut River - Middle	9	21	95	4	LMB	E	430	1150	F	0.327	0.310	0.294	0.310
Connecticut River - Middle	9	21	95	5	LMB	E	317	520	F	0.134	0.134	0.126	0.131
Connecticut River - Middle	9	21	95	6	LMB	E	335	568	F	0.071	0.080	0.071	0.074
Connecticut River - Middle	9	21	95	7	LMB	E	328	440	F	0.102	0.102	0.102	0.102
Connecticut River - Middle	9	21	95	8	LMB	E	314	428	M	0.144	0.136	0.136	0.138
Connecticut River - Middle	9	21	95	9	LMB	E	302	418	M	0.145	0.138	0.145	0.143
Connecticut River - Middle	9	21	95	10	LMB	E	285	392	F	0.107	0.123	0.138	0.123
Connecticut River - Upper	9	28	95	1	LMB	E	362	778	M	0.258	0.233	0.233	0.241
Connecticut River - Upper	9	28	95	2	LMB	E	450	1500	M	0.538	0.538	0.545	0.541
Connecticut River - Upper	9	28	95	3	LMB	E	334	558	M	0.189	0.204	0.211	0.202
Connecticut River - Upper	9	28	95	4	LMB	E	384	844	M	0.219	0.202	0.219	0.213
Connecticut River - Upper	9	28	95	5	LMB	E	332	592	M	0.263	0.277	0.277	0.272
Connecticut River - Upper	9	28	95	6	LMB	E	370	778	M	0.463	0.463	0.447	0.458
Connecticut River - Upper	9	28	95	7	LMB	E	322	550	M	0.208	0.215	0.230	0.218
Connecticut River - Upper	9	28	95	8	LMB	E	335	572	M	0.214	0.214	0.244	0.224
Connecticut River - Upper	9	28	95	9	LMB	E	317	492	M	0.214	0.182	0.189	0.195
Connecticut River - Upper	9	28	95	10	LMB	E	337	510	F	0.185	0.193	0.193	0.191

Appendix 1, continued. Total mercury concentration (µg/g wet weight) of edible muscle tissue for individual largemouth bass *Micropterus salmoides* (LMB) collected from Connecticut water bodies. [Method of fish collection: T = tournament; E = electrofishing; sex: M = male, F = female]. Units for length and weight are mm and g respectively.

	Date Collected					Collection				Total mercury concentration			
Site	M	D	Y	ID	Species	Method	Length	Weight	Sex	Rep 1	Rep 2	Rep 3	Mean
Connecticut River - Lower	10	10	95	1	LMB	E	347	792	M	0.307	0.300	0.300	0.303
Connecticut River - Lower	10	10	95	2	LMB	E	382	1022	F	0.431	0.400	0.400	0.410
Connecticut River - Lower	10	10	95	3	LMB	E	361	806	M	0.213	0.239	0.239	0.231
Connecticut River - Lower	10	10	95	4	LMB	E	397	1031	F	0.204	0.204	0.211	0.206
Connecticut River - Lower	10	10	95	5	LMB	E	447	1500	F	0.431	0.431	0.457	0.440
Connecticut River - Lower	10	10	95	6	LMB	E	427	1350	M	0.701	0.720	0.695	0.705
Connecticut River - Lower	10	10	95	7	LMB	E	414	1250	M	0.513	0.494	0.532	0.513
Connecticut River - Lower	10	10	95	8	LMB	E	314	560	M	0.239	0.275	0.246	0.253
Connecticut River - Lower	10	10	95	9	LMB	E	316	536	M	0.187	0.187	0.173	0.182
Connecticut River - Lower	10	10	95	10	LMB	E	373	836	M	0.189	0.200	0.206	0.198
Dodge Pond	6	26	95	1	LMB	E	394	772	M	1.540	1.683	1.648	1.623
Dodge Pond	6	26	95	2	LMB	E	397	992	F	1.216	1.094	1.121	1.144
Dodge Pond	6	26	95	3	LMB	E	372	685	F	1.240	1.199	1.190	1.209
Dodge Pond	6	26	95	4	LMB	E	328	472	M	0.939	1.016	1.016	0.990
Dodge Pond	6	26	95	5	LMB	E	360	675	M	1.197	1.210	1.177	1.195
Dodge Pond	6	26	95	6	LMB	E	305	365	M	0.880	0.887	0.927	0.898
Dodge Pond	6	26	95	7	LMB	E	407	890	M	1.245	1.232	1.296	1.258
Dodge Pond	6	26	95	8	LMB	E	323	405	M	1.216	1.192	1.137	1.182
Dodge Pond	6	26	95	9	LMB	E	344	600	F	1.279	1.323	.	1.301
Dodge Pond	6	26	95	10	LMB	E	383	765	F	1.216	1.229	.	1.222
Dodge Pond	11	12	95	101	LMB	E	479	1750	*	2.490	2.705	2.739	2.645
Dodge Pond	11	12	95	102	LMB	E	375	844	*	1.032	1.041	0.976	1.016
Dodge Pond	11	12	95	103	LMB	E	394	924	*	1.228	1.237	1.184	1.216
Dodge Pond	11	12	95	104	LMB	E	427	1030	M	1.103	1.025	1.025	1.051
Dodge Pond	11	12	95	105	LMB	E	375	872	*	0.906	0.914	0.914	0.911
Dodge Pond	11	12	95	106	LMB	E	338	614	M	0.901	0.944	0.936	0.927

Appendix 1, continued. Total mercury concentration (μg/g wet weight) of edible muscle tissue for individual largemouth bass *Micropterus salmoides* (LMB) collected from Connecticut water bodies. [Method of fish collection: T = tournament; E = electrofishing; sex: M = male, F = female]. Units for length and weight are mm and g respectively.

Site	Date Collected			ID	Species	Collection	Length	Weight	Sex	Total mercury concentration			
	M	D	Y			Method				Rep 1	Rep 2	Rep 3	Mean
Dodge Pond	11	12	95	107	LMB	E	369	700	M	1.157	1.223	1.148	1.176
Dodge Pond	11	12	95	108	LMB	E	303	440	M	0.973	0.876	0.929	0.926
Dodge Pond	11	12	95	109	LMB	E	292	340	*	0.709	0.687	0.762	0.719
Dodge Pond	11	12	95	110	LMB	E	247	196	F	0.767	0.749	0.794	0.770
East Twin Lake	6	18	95	1	LMB	T	403	950	M	0.439	0.475	0.454	0.456
East Twin Lake	6	18	95	2	LMB	T	403	924	F	0.802	0.811	0.871	0.828
East Twin Lake	6	18	95	3	LMB	T	312	400	M	0.349	0.333	0.318	0.333
East Twin Lake	6	18	95	4	LMB	T	366	620	F	0.274	0.290	0.274	0.279
East Twin Lake	6	18	95	5	LMB	T	372	736	M	0.543	0.506	0.565	0.538
East Twin Lake	6	18	95	6	LMB	T	345	518	F	0.342	0.356	0.349	0.349
East Twin Lake	6	18	95	7	LMB	T	360	634	F	0.216	0.216	0.208	0.214
East Twin Lake	6	18	95	8	LMB	T	398	795	F	0.550	0.573	0.550	0.557
East Twin Lake	6	18	95	9	LMB	T	400	825	F	0.577	0.577	0.577	0.577
East Twin Lake	6	18	95	10	LMB	T	440	1130	M	0.661	0.669	0.669	0.666
Gardner Lake	10	8	95	2	LMB	T	378	816	F	0.330	0.362	0.307	0.333
Gardner Lake	10	8	95	4	LMB	T	379	880	F	0.272	0.279	0.292	0.281
Glasgo Pond	9	24	95	1	LMB	T	383	806	M	0.647	0.609	0.647	0.634
Glasgo Pond	9	24	95	2	LMB	T	364	700	F	0.571	0.557	0.633	0.587
Glasgo Pond	9	24	95	3	LMB	T	385	774	F	0.803	0.768	0.759	0.777
Glasgo Pond	9	24	95	4	LMB	T	389	880	M	1.157	1.226	1.321	1.235
Glasgo Pond	9	24	95	5	LMB	T	373	708	F	0.534	0.534	0.524	0.531
Glasgo Pond	9	24	95	6	LMB	T	345	632	M	0.643	0.643	0.643	0.643
Glasgo Pond	9	24	95	7	LMB	T	351	568	F	0.706	0.667	0.722	0.698
Hanover Pond	7	12	95	1	LMB	E	359	654	M	0.220	0.233	0.233	0.229

Appendix 1, continued. Total mercury concentration (µg/g wet weight) of edible muscle tissue for individual largemouth bass *Micropterus salmoides* (LMB) collected from Connecticut water bodies. [Method of fish collection: T = tournament; E = electrofishing; sex: M = male, F = female]. Units for length and weight are mm and g respectively.

Site	Date Collected			ID	Species	Collection	Length	Weight	Sex	Total mercury concentration			
	M	D	Y			Method				Rep 1	Rep 2	Rep 3	Mean
Hanover Pond	7	12	95	2	LMB	E	303	425	M	0.153	0.145	0.170	0.156
Hanover Pond	7	12	95	3	LMB	E	322	545	M	0.246	0.254	0.246	0.249
Hanover Pond	7	12	95	4	LMB	E	294	345	M	0.146	0.138	0.131	0.138
Hanover Pond	7	12	95	5	LMB	E	380	740	M	0.299	0.287	0.287	0.291
Hanover Pond	7	12	95	6	LMB	E	333	608	F	0.141	0.157	0.141	0.146
Hanover Pond	7	12	95	7	LMB	E	300	488	F	0.156	0.164	0.179	0.166
Hanover Pond	7	12	95	8	LMB	E	343	590	M	0.142	0.142	0.135	0.139
Highland Lake	6	25	95	1	LMB	T	334	560	F	0.197	0.197	0.219	0.204
Highland Lake	6	25	95	2	LMB	T	301	435	M	0.183	0.133	0.125	0.147
Highland Lake	6	25	95	3	LMB	T	330	440	M	0.119	0.119	0.119	0.119
Highland Lake	6	25	95	4	LMB	T	450	1400	F	0.664	0.671	0.642	0.659
Highland Lake	6	25	95	5	LMB	T	408	1050	F	0.523	0.489	0.498	0.503
Highland Lake	6	25	95	6	LMB	T	399	1050	M	0.513	0.498	0.528	0.513
Highland Lake	6	25	95	7	LMB	T	325	500	F	0.149	0.149	0.155	0.151
Highland Lake	6	25	95	8	LMB	T	396	958	F	0.277	0.285	0.277	0.280
Highland Lake	6	25	95	9	LMB	T	313	410	M	0.122	0.116	0.122	0.120
Highland Lake	6	25	95	10	LMB	T	336	605	F	0.176	0.176	0.176	0.176
Housatonic Lake	6	11	95	1	LMB	T	321	482	M	0.323	0.253	0.263	0.279
Housatonic Lake	6	11	95	2	LMB	T	346	554	M	0.382	0.432	0.452	0.422
Housatonic Lake	6	11	95	3	LMB	T	307	452	F	0.319	0.283	0.301	0.301
Housatonic Lake	6	11	95	4	LMB	T	327	468	M	0.406	0.423	0.441	0.423
Housatonic Lake	6	11	95	5	LMB	T	315	424	M				
Housatonic Lake	6	11	95	6	LMB	T	349	540	M	0.389	0.326	0.382	0.366
Housatonic Lake	6	11	95	7	LMB	T	357	632	M	0.313	0.388	0.350	0.350
Housatonic Lake	6	11	95	8	LMB	T	367	670	M	0.396	0.413	0.404	0.404
Housatonic Lake	6	11	95	9	LMB	T	385	832	F	0.355	0.346	0.337	0.346

Appendix 1, continued. Total mercury concentration (μg/g wet weight) of edible muscle tissue for individual largemouth bass *Micropterus salmoides* (LMB) collected from Connecticut water bodies. [Method of fish collection: T = tournament; E = electrofishing; sex: M = male, F = female]. Units for length and weight are mm and g respectively.

	Date Collected					Collection				Total mercury concentration			
Site	M	D	Y	ID	Species	Method	Length	Weight	Sex	Rep 1	Rep 2	Rep 3	Mean
Housatonic Lake	6	11	95	10	LMB	T	390	724	M	0.606	0.555	0.572	0.578
Lake Kenosia	7	11	95	1	LMB	E	291	300	F	0.281	0.287	0.281	0.283
Lake Kenosia	7	11	95	2	LMB	E	299	298	F	0.292	0.305	0.335	0.311
Lake Kenosia	7	11	95	3	LMB	E	476	1635	F	0.741	0.790	0.753	0.761
Lake Kenosia	7	11	95	4	LMB	E	401	972	F	0.499	0.487	0.511	0.499
Lake Kenosia	7	11	95	5	LMB	E	328	440	M	0.538	0.538	0.550	0.542
Lake Kenosia	7	11	95	6	LMB	E	357	619	M	0.374	0.403	0.403	0.394
Lake Kenosia	7	11	95	7	LMB	E	362	695	M	0.229	0.242	0.242	0.238
Lake Kenosia	7	11	95	8	LMB	E	498	1960	F	1.172	1.081	1.178	1.143
Lake Kenosia	7	11	95	9	LMB	E	423	1170	M	0.612	0.653	0.626	0.630
Lake Kenosia	7	11	95	10	LMB	E	334	460	M	0.424	0.394	0.382	0.400
Lake of Isles	8	29	95	1	LMB	E	504	2000	F	1.042	1.042	0.970	1.018
Lake of Isles	8	29	95	2	LMB	E	445	1260	F	0.540	0.540	0.561	0.547
Lake of Isles	8	29	95	3	LMB	E	428	1160	M	0.591	0.623	0.604	0.606
Lake of Isles	8	29	95	4	LMB	E	414	988	M	0.626	0.613	0.633	0.624
Lake of Isles	8	29	95	5	LMB	E	337	522	F	0.317	0.317	0.310	0.315
Lake of Isles	8	29	95	6	LMB	E	365	752	F	0.348	0.334	0.313	0.332
Lake of Isles	8	29	95	7	LMB	E	347	602	M	0.338	0.376	0.376	0.363
Lake of Isles	8	29	95	8	LMB	E	330	405	F	0.325	0.359		0.342
Lake of Isles	8	29	95	9	LMB	E	334	510	M	0.322	0.287	0.280	0.296
Lake of Isles	8	29	95	10	LMB	E	315	395	M	0.305	0.298	0.335	0.313
Mamanasco Lake	8	30	95	1	LMB	E	319	455	F				
Mamanasco Lake	8	30	95	3	LMB	E	295	340	M	0.196	0.196	0.210	0.201
Mamanasco Lake	8	30	95	5	LMB	E	278	280	F	0.180	0.174	0.174	0.176

Appendix 1, continued. Total mercury concentration (µg/g wet weight) of edible muscle tissue for individual largemouth bass *Micropterus salmoides* (LMB) collected from Connecticut water bodies. [Method of fish collection: T = tournament; E = electrofishing; sex: M = male, F = female]. Units for length and weight are mm and g respectively.

	Date Collected					Collection				Total mercury concentration			
Site	M	D	Y	ID	Species	Method	Length	Weight	Sex	Rep 1	Rep 2	Rep 3	Mean
Mansfield Hollow Reservoir	6	17	95	1	LMB	T	328	438	M	0.638		0.646	0.642
Mansfield Hollow Reservoir	6	17	95	2	LMB	T	338	450	M	0.662	0.615	0.615	0.631
Mansfield Hollow Reservoir	6	17	95	3	LMB	T	325	430	M	0.437	0.429	0.455	0.440
Mansfield Hollow Reservoir	6	17	95	4	LMB	T	331	440	F	0.597	0.546	0.616	0.586
Mansfield Hollow Reservoir	6	17	95	5	LMB	T	305	352	M	0.636	0.653	0.697	0.662
Mansfield Hollow Reservoir	6	17	95	6	LMB	T	332	415	M	0.583	0.613	0.627	0.608
Mansfield Hollow Reservoir	6	17	95	7	LMB	T	388	805	M	0.600	0.572	0.572	0.581
Mansfield Hollow Reservoir	6	17	95	8	LMB	T	368	582	M	0.583	0.634	0.669	0.629
Mansfield Hollow Reservoir	6	17	95	9	LMB	T	345	560	M	0.561	0.547	0.561	0.556
Mansfield Hollow Reservoir	6	17	95	10	LMB	T	417	965	F	0.673	0.658	0.694	0.675
Mashapaug Pond	7	2	95	1	LMB	T	313	420	F	0.293	0.260	0.260	0.271
Mashapaug Pond	7	2	95	2	LMB	T	303	380	F	0.305	0.338	0.352	0.331
Mashapaug Pond	7	2	95	3	LMB	T	327	472	M	0.508	0.466	0.499	0.491
Mashapaug Pond	7	2	95	4	LMB	T	333	488	M	0.376	0.401	0.351	0.376
Mashapaug Pond	7	2	95	5	LMB	T	324	448	F	0.271	0.307	0.289	0.289
Mashapaug Pond	7	2	95	6	LMB	T	360	580	F	0.496	0.510	0.481	0.496
Mashapaug Pond	7	2	95	7	LMB	T	365	638	F	0.447	0.459	0.447	0.451
Mashapaug Pond	7	2	95	8	LMB	T	402	944	M	0.736	0.790	0.736	0.754
Mashapaug Pond	7	2	95	9	LMB	T	420	1050	F	0.923	0.931	0.940	0.931
Mashapaug Pond	7	2	95	10	LMB	T	422	1050	M	1.121	1.102	1.121	1.115
Lake McDonough	7	2	95	1	LMB	T	310	430	M	0.570	0.570	0.583	0.574
Lake McDonough	7	2	95	2	LMB	T	346	618	F	0.556	0.598	0.563	0.573
Lake McDonough	7	2	95	3	LMB	T	343	558	F	0.592	0.580	0.580	0.584
Lake McDonough	7	2	95	4	LMB	T	340	555	F	0.354	0.333	0.368	0.352
Lake McDonough	7	2	95	5	LMB	T	373	760	M	1.006	1.042	1.061	1.036
Lake McDonough	7	2	95	8	LMB	T	425	1225	F	1.133	1.164	1.118	1.138

Appendix 1, continued. Total mercury concentration (μg/g wet weight) of edible muscle tissue for individual largemouth bass *Micropterus salmoides* (LMB) collected from Connecticut water bodies. [Method of fish collection: T = tournament; E = electrofishing; sex: M = male, F = female]. Units for length and weight are mm and g respectively.

	Date Collected					Collection				Total mercury concentration			
Site	M	D	Y	ID	Species	Method	Length	Weight	Sex	Rep 1	Rep 2	Rep 3	Mean
Lake McDonough	7	2	95	9	LMB	T	435	1150	F	1.353	1.339	1.387	1.360
Lake McDonough	7	2	95	10	LMB	T	492	1825	F	2.531	2.413	2.441	2.462
Lake McDonough	10	16	95	104	LMB	E	398	918	F	0.695	0.658	0.686	0.680
Lake McDonough	10	16	95	105	LMB	E	259	200	M	0.299	0.280	0.299	0.292
Moodus Reservoir	6	4	95	1	LMB	T	437	1250	M	0.640	0.577	0.577	0.598
Moodus Reservoir	6	4	95	2	LMB	T	372	732	M	0.627	0.618	0.627	0.624
Moodus Reservoir	6	4	95	3	LMB	T	421	1050	M	0.654	0.671	0.688	0.671
Moodus Reservoir	6	4	95	4	LMB	T	412	1060	M	0.523	0.523	0.533	0.527
Moodus Reservoir	6	4	95	5	LMB	T	428	1050	M	0.573	0.553	0.583	0.570
Moodus Reservoir	6	4	95	6	LMB	T	428	1100	M	0.673	0.653	0.653	0.660
Moodus Reservoir	6	4	95	7	LMB	T	421	1050	F	0.606	0.586	0.606	0.599
Moodus Reservoir	6	4	95	8	LMB	T	457	1460	M	0.750	0.785	0.810	0.782
Moodus Reservoir	6	4	95	9	LMB	T	462	1400	F	0.658	0.700	0.668	0.675
Moodus Reservoir	6	4	95	10	LMB	T	479	1550	.	1.069	1.060	0.996	1.042
Mudge Pond	8	21	95	1	LMB	E	358	535	M	0.355	0.382	0.428	0.388
Mudge Pond	8	21	95	2	LMB	E	335	598	M	0.210	0.210	0.220	0.213
Mudge Pond	8	21	95	3	LMB	E	345	620	F	0.229	0.229	0.229	0.229
Mudge Pond	8	21	95	4	LMB	E	308	410	M	0.285	0.225	0.225	0.245
Mudge Pond	8	21	95	5	LMB	E	311	390	F	0.175	0.175	0.175	0.175
Mudge Pond	8	21	95	6	LMB	E	355	620	M	0.226	0.233	0.226	0.228
Mudge Pond	8	21	95	7	LMB	E	331	450	F	0.265	0.279	0.244	0.263
Mudge Pond	8	21	95	8	LMB	E	350	632	F	0.329	0.274	0.282	0.295
Mudge Pond	8	21	95	9	LMB	E	295	352	M	0.227	0.227	0.252	0.235
Mudge Pond	8	21	95	10	LMB	E	282	280	M	0.145	0.192	0.160	0.165
North Farms Reservoir	6	28	95	1	LMB	E	451	1550	F	0.539	0.547	0.539	0.542

Appendix 1, continued. Total mercury concentration (μg/g wet weight) of edible muscle tissue for individual largemouth bass *Micropterus salmoides* (LMB) collected from Connecticut water bodies. [Method of fish collection: T = tournament; E = electrofishing; sex: M = male, F = female]. Units for length and weight are mm and g respectively.

	Date Collected					Collection				Total mercury concentration			
Site	M	D	Y	ID	Species	Method	Length	Weight	Sex	Rep 1	Rep 2	Rep 3	Mean
North Farms Reservoir	6	28	95	2	LMB	E	390	780	M	0.290	0.297	0.275	0.287
North Farms Reservoir	6	28	95	3	LMB	E	316	435	F	0.181	0.181	0.219	0.194
North Farms Reservoir	6	28	95	4	LMB	E	402	970	F	0.286	0.310	0.318	0.304
North Farms Reservoir	6	28	95	5	LMB	E	325	490	M	0.264	0.272	0.294	0.277
North Farms Reservoir	6	28	95	6	LMB	E	377	680	M	0.339	0.325	0.347	0.337
North Farms Reservoir	6	28	95	7	LMB	E	402	1100	F	0.309	0.318	0.318	0.315
North Farms Reservoir	6	28	95	8	LMB	E	380	882	M	0.263	0.256	0.248	0.256
North Farms Reservoir	6	28	95	9	LMB	E	253	210	M	0.095	0.057	0.072	0.075
North Farms Reservoir	6	28	95	10	LMB	E	292	310	M	0.141	0.141	0.127	0.136
Pachaug Pond	7	22	95	1	LMB	T	348	565	F	0.401	0.416	0.401	0.406
Pachaug Pond	7	22	95	2	LMB	T	362	724	F	0.446	0.459	0.452	0.452
Pachaug Pond	7	22	95	3	LMB	T	317	462	F	0.389	0.419	0.404	0.404
Pachaug Pond	7	22	95	4	LMB	T	356	590	F	0.381	0.349	0.373	0.368
Pachaug Pond	7	22	95	5	LMB	T	364	644	F	0.497	0.477	0.470	0.481
Pachaug Pond	7	22	95	6	LMB	T	371	728	M	0.429	0.443	0.473	0.448
Pachaug Pond	7	22	95	7	LMB	T	373	804	F	0.423	0.448	0.429	0.433
Pattagansett Lake	7	23	95	1	LMB	T	311	436	M	0.529	0.545	0.505	0.526
Pattagansett Lake	7	23	95	2	LMB	T	306	408	F	0.424	0.436	0.418	0.426
Pattagansett Lake	7	23	95	3	LMB	T	314	368	M	0.478	0.458	0.478	0.471
Pattagansett Lake	7	23	95	4	LMB	T	356	590	F	0.431	0.464	0.464	0.453
Pattagansett Lake	7	23	95	5	LMB	T	371	650	M	0.731	0.821	0.755	0.769
Pattagansett Lake	7	23	95	6	LMB	T	415	1100	M	1.082	1.051	0.975	1.036
Pattagansett Lake	7	23	95	7	LMB	T	397	992	F	0.573	0.590	0.590	0.584
Pattagansett Lake	7	23	95	8	LMB	T	410	908	M	0.620	0.584	0.638	0.614
Pattagansett Lake	7	23	95	9	LMB	T	443	1100	M	0.833	0.816	0.805	0.818
Pattagansett Lake	7	23	95	10	LMB	T	410	944	F	0.641	0.641	0.668	0.650

Appendix 1, continued. Total mercury concentration (µg/g wet weight) of edible muscle tissue for individual largemouth bass *Micropterus salmoides* (LMB) collected from Connecticut water bodies. [Method of fish collection: T = tournament; E = electrofishing; sex: M = male, F = female]. Units for length and weight are mm and g respectively.

	Date Collected					Collection				Total mercury concentration			
Site	M	D	Y	ID	Species	Method	Length	Weight	Sex	Rep 1	Rep 2	Rep 3	Mean
Powers Lake	8	12	95	1	LMB	T	360	612	F	0.757	0.789	0.757	0.767
Powers Lake	8	12	95	2	LMB	T	348	560	M	0.551	0.571	0.571	0.565
Powers Lake	8	12	95	3	LMB	T	316	404	F	0.488	0.502	0.488	0.492
Powers Lake	8	12	95	4	LMB	T	342	488	M	0.619	0.619	0.627	0.621
Powers Lake	8	12	95	5	LMB	T	310	366	M	0.499	0.437	0.492	0.476
Powers Lake	8	12	95	6	LMB	T	332	506	M	0.420	0.420	0.436	0.425
Powers Lake	8	12	95	7	LMB	T	322	432	F	0.429	0.453	0.429	0.437
Powers Lake	8	12	95	8	LMB	T	305	362	M	0.454	0.460	0.454	0.456
Powers Lake	8	12	95	9	LMB	T	334	480	F	0.455	0.436	0.423	0.438
Powers Lake	8	12	95	10	LMB	T	425	1120	F	0.646	0.667	0.640	0.651
Quaddick Reservoir	8	26	95	1	LMB	T	309	384	F	0.645	0.617	0.581	0.614
Quaddick Reservoir	8	26	95	2	LMB	T	363	630	M	1.133	1.126	1.094	1.118
Quaddick Reservoir	8	26	95	3	LMB	T	363	578	M	0.837	0.837	0.864	0.846
Quaddick Reservoir	8	26	95	4	LMB	T	315	364	M	0.634	0.574	0.651	0.620
Quaddick Reservoir	8	26	95	5	LMB	T	346	526	F	0.603	0.564	0.548	0.572
Quaddick Reservoir	8	26	95	6	LMB	T	304	390	M	0.351	0.351	0.324	0.342
Quaddick Reservoir	8	26	95	7	LMB	T	320	414	M	0.392	0.421	0.414	0.409
Quaddick Reservoir	8	26	95	8	LMB	T	371	844	M	0.807	0.793	0.869	0.823
Quaddick Reservoir	8	26	95	9	LMB	T	432	1070	F	0.877	0.924	0.909	0.903
Quaddick Reservoir	8	26	95	10	LMB	T	433	1026	M	1.222	1.137	1.408	1.255
Lake Quassapaug	8	30	95	1	LMB	E	435	1320	M	0.696	0.682	0.689	0.689
Lake Quassapaug	8	30	95	2	LMB	E	395	920	M	0.481	0.495	0.495	0.490
Lake Quassapaug	8	30	95	3	LMB	E	395	885	F	0.463	0.450	0.426	0.446
Lake Quassapaug	8	30	95	4	LMB	E	412	1050	F	0.425	0.433	0.417	0.425
Lake Quassapaug	8	30	95	5	LMB	E	357	660	M	0.536	0.544	0.506	0.529
Lake Quassapaug	8	30	95	6	LMB	E	409	920	M	0.753	0.740	0.719	0.737

Appendix 1, continued. Total mercury concentration (µg/g wet weight) of edible muscle tissue for individual largemouth bass *Micropterus salmoides* (LMB) collected from Connecticut water bodies. [Method of fish collection: T = tournament; E = electrofishing; sex: M = male, F = female]. Units for length and weight are mm and g respectively.

Site	Date Collected M	D	Y	ID	Species	Collection Method	Length	Weight	Sex	Total mercury concentration Rep 1	Rep 2	Rep 3	Mean
Lake Quassapaug	8	30	95	7	LMB	E	440	1110	M	0.692	0.704	0.704	0.700
Lake Quassapaug	8	30	95	8	LMB	E	382	825	F	0.415	0.434	0.408	0.419
Lake Quassapaug	8	30	95	9	LMB	E	394	870	M	0.429	0.429	0.415	0.424
Lake Quassapaug	8	30	95	10	LMB	E	303	335	M	0.275	0.275	0.289	0.280
Rainbow Reservoir	8	1	95	1	LMB	E	377	860	F	0.294	0.301	0.265	0.287
Rainbow Reservoir	8	1	95	3	LMB	E	277	278	M	0.221	0.221	0.253	0.232
Rainbow Reservoir	8	1	95	4	LMB	E	287	328	F	0.222	0.198	0.210	0.210
Rainbow Reservoir	8	1	95	5	LMB	E	290	332	M	0.161	0.153	0.161	0.158
Rainbow Reservoir	8	1	95	16	LMB	E	365	742	M	0.414	0.373	0.422	0.403
Rogers Lake	9	10	95	1	LMB	T	366	606	M	0.609	0.621	0.650	0.627
Rogers Lake	9	10	95	2	LMB	T	372	616	.	0.428	0.428	0.434	0.430
Rogers Lake	9	10	95	3	LMB	T	320	398	M	0.592	0.587	0.577	0.585
Rogers Lake	9	10	95	4	LMB	T	309	430	M	0.177	0.206	0.210	0.198
Rogers Lake	9	10	95	5	LMB	T	329	426	.	0.366	0.399	0.366	0.377
Rogers Lake	9	10	95	6	LMB	T	405	906	F	0.462	0.503	0.488	0.484
Rogers Lake	9	10	95	7	LMB	T	375	718	F	0.585	0.483	0.585	0.551
Rogers Lake	9	10	95	8	LMB	T	370	690	M	0.581	0.619	0.629	0.610
Rogers Lake	9	10	95	9	LMB	T	444	1300	F	0.634	0.653	0.684	0.657
Rogers Lake	9	10	95	10	LMB	T	450	1270	F	0.592	0.568	0.560	0.573
Lake Saltonstall	8	16	95	1	LMB	E	365	752	F	0.123	0.112	0.107	0.114
Lake Saltonstall	8	16	95	2	LMB	E	437	1400	F	0.215	0.221	0.248	0.228
Lake Saltonstall	8	16	95	3	LMB	E	490	1900	M	0.471	0.450	0.455	0.459
Lake Saltonstall	8	16	95	4	LMB	E	440	1400	M	0.407	0.386	0.400	0.398
Lake Saltonstall	8	16	95	5	LMB	E	297	320	M	0.040	0.061	0.077	0.059
Lake Saltonstall	8	16	95	6	LMB	E	302	354	M	0.036	0.027	0.032	0.032

Appendix 1, continued. Total mercury concentration (μg/g wet weight) of edible muscle tissue for individual largemouth bass *Micropterus salmoides* (LMB) collected from Connecticut water bodies. [Method of fish collection: T = tournament; E = electrofishing; sex: M = male, F = female]. Units for length and weight are mm and g respectively.

	Date Collected					Collection				Total mercury concentration			
Site	M	D	Y	ID	Species	Method	Length	Weight	Sex	Rep 1	Rep 2	Rep 3	Mean
Lake Saltonstall	8	16	95	7	LMB	E	450	1600	M	0.359	0.341	0.359	0.353
Lake Saltonstall	8	16	95	8	LMB	E	381	956	M	0.129	0.125	0.120	0.125
Lake Saltonstall	8	16	95	9	LMB	E	397	980	F	0.213	0.229	0.239	0.227
Lake Saltonstall	8	16	95	10	LMB	E	455	1650	M	0.257	0.288	0.266	0.270
Saugatuck Reservoir	8	14	95	1	LMB	E	405	990	M	0.878	0.822	0.886	0.862
Saugatuck Reservoir	8	14	95	2	LMB	E	427	1250	M	0.679	0.707	0.698	0.695
Saugatuck Reservoir	8	14	95	3	LMB	E	415	1034	F	0.683	0.677	0.677	0.679
Saugatuck Reservoir	8	14	95	4	LMB	E	389	800	F	0.716	0.728	0.774	0.739
Saugatuck Reservoir	8	14	95	5	LMB	E	340	600	M	0.542	0.553	0.531	0.542
Saugatuck Reservoir	8	14	95	6	LMB	E	386	810	M	0.703	0.687	0.703	0.698
Saugatuck Reservoir	8	14	95	7	LMB	E	360	558	M	0.823	0.812	0.818	0.818
Saugatuck Reservoir	8	14	95	8	LMB	E	439	1400	M	0.643	0.647	0.671	0.653
Saugatuck Reservoir	8	14	95	9	LMB	E	439	1650	F	1.021	1.116	0.993	1.043
Saugatuck Reservoir	8	14	95	9	LMB	E	435	1004	F				
Silver Lake	7	6	95	1	LMB	E	512	2060	F	1.306	1.273	1.281	1.287
Silver Lake	7	6	95	2	LMB	E	454	1460	M	1.422	1.512	1.530	1.488
Silver Lake	7	6	95	3	LMB	E	502	1960	M	1.389	1.432	1.432	1.418
Silver Lake	7	6	95	4	LMB	E	506	2410	F	1.279	1.261	1.387	1.309
Silver Lake	7	6	95	5	LMB	E	449	1460	F	1.028	1.072	1.084	1.061
Silver Lake	7	6	95	6	LMB	E	476	1710	M	1.341	1.388	1.321	1.350
Silver Lake	7	6	95	7	LMB	E	465	1760	F	1.268	1.243	1.275	1.262
Silver Lake	7	6	95	8	LMB	E	380	876	F	0.439	0.413	0.413	0.422
Silver Lake	7	6	95	9	LMB	E	269	298	M	0.170	0.170	0.146	0.162
Taunton Lake	7	25	95	1	LMB	E	386	836	M	0.309	0.287	0.294	0.297
Taunton Lake	7	25	95	2	LMB	E	413	1000	F	0.485	0.485	0.485	0.485

Appendix 1, continued. Total mercury concentration (µg/g wet weight) of edible muscle tissue for individual largemouth bass *Micropterus salmoides* (LMB) collected from Connecticut water bodies. [Method of fish collection: T = tournament; E = electrofishing; sex: M = male, F = female]. Units for length and weight are mm and g respectively.

	Date Collected					Collection				Total mercury concentration			
Site	M	D	Y	ID	Species	Method	Length	Weight	Sex	Rep 1	Rep 2	Rep 3	Mean
Taunton Lake	7	25	95	3	LMB	E	355	640	F	0.272	0.249	0.226	0.249
Taunton Lake	7	25	95	4	LMB	E	413	1150	M	0.670	0.701	0.639	0.670
Taunton Lake	7	25	95	5	LMB	E	356	674	M	0.337	0.329	0.298	0.321
Taunton Lake	7	25	95	6	LMB	E	396	920	F	0.356	0.343	0.343	0.347
Taunton Lake	7	25	95	7	LMB	E	304	402	F	0.158	0.152	0.132	0.147
Taunton Lake	7	25	95	8	LMB	E	327	474	M	0.135	0.152	0.144	0.144
Taunton Lake	7	25	95	9	LMB	E	322	456	F	0.254	0.281	0.226	0.254
Taunton Lake	7	25	95	10	LMB	E	455	1450	F	0.660	0.641	0.641	0.648
Tyler Lake	8	22	95	101	LMB	E	340	598	M	0.385	0.379	0.385	0.383
Tyler Lake	8	22	95	102	LMB	E	407	820	F	0.902	0.886	0.927	0.905
Tyler Lake	8	22	95	103	LMB	E	317	455	M	0.420	0.380	0.412	0.404
Tyler Lake	8	22	95	104	LMB	E	397	790	F	0.692	0.699	0.685	0.692
Tyler Lake	8	22	95	105	LMB	E	301	378	M	0.304	0.304	0.263	0.290
Tyler Lake	8	22	95	106	LMB	E	310	378	M	0.284	0.277	0.284	0.282
Tyler Lake	8	22	95	107	LMB	E	343	564	F	0.397	0.387	0.378	0.387
Tyler Lake	8	22	95	108	LMB	E	383	948	M	0.633	0.633	0.626	0.631
Tyler Lake	8	22	95	109	LMB	E	465	1625	F	0.578	0.571	0.642	0.597
Tyler Lake	8	22	95	110	LMB	E	512	2400	F	1.133	1.133	1.077	1.114
Union Pond	7	26	95	1	LMB	E	387	1000	F	0.475	0.453	0.402	0.443
Union Pond	7	26	95	2	LMB	E	293	362	M	0.260	0.270	0.260	0.264
Union Pond	7	26	95	3	LMB	E	350	726	F	0.317	0.351	0.340	0.336
Union Pond	7	26	95	4	LMB	E	304	418	F	0.303	0.288	0.266	0.286
Union Pond	7	26	95	5	LMB	E	276	294	F	0.288	0.275	0.262	0.275
Union Pond	7	26	95	6	LMB	E	340	604	F	0.437	0.394	0.428	0.420
Union Pond	7	26	95	7	LMB	E	324	480	M	0.371	0.378	0.371	0.373
Union Pond	7	26	95	8	LMB	E	301	490	M	0.370	0.365	0.370	0.369

Appendix 1, continued. Total mercury concentration (μg/g wet weight) of edible muscle tissue for individual largemouth bass *Micropterus salmoides* (LMB) collected from Connecticut water bodies. [Method of fish collection: T = tournament; E = electrofishing; sex: M = male, F = female]. Units for length and weight are mm and g respectively.

	Date Collected					Collection				Total mercury concentration			
Site	M	D	Y	ID	Species	Method	Length	Weight	Sex	Rep 1	Rep 2	Rep 3	Mean
Union Pond	7	26	95	9	LMB	E	296	496	M	0.239	0.221	0.239	0.233
Lake Waramaug	10	7	95	1	LMB	T	344	524	F	0.168	0.161	.	0.164
Lake Waramaug	10	7	95	2	LMB	T	338	452	F	0.261	0.233	0.233	0.242
Lake Waramaug	10	7	95	3	LMB	T	364	650	F	0.285	0.314	0.285	0.295
Lake Waramaug	10	7	95	4	LMB	T	333	506	F	0.238	0.221	0.230	0.230
Lake Waramaug	10	7	95	5	LMB	T	346	496	F	.	0.151	0.166	0.158
Lake Waramaug	10	7	95	6	LMB	T	314	356	F	0.268	0.261	0.291	0.273
Lake Waramaug	10	7	95	7	LMB	T	374	662	F	0.357	0.328	0.400	0.362
Lake Waramaug	10	7	95	8	LMB	T	343	580	F	0.185	0.163	0.155	0.168
Lake Waramaug	10	7	95	9	LMB	T	381	728	M	0.270	0.239	0.313	0.274
Lake Waramaug	10	7	95	10	LMB	T	405	970	F	0.247	0.247	0.216	0.237
Wauregan Reservoir	8	10	95	1	LMB	E	313	390	M	0.286	0.307	0.307	0.300
Wauregan Reservoir	8	10	95	2	LMB	E	265	225	F	0.407	0.407	0.383	0.399
Wauregan Reservoir	8	10	95	3	LMB	E	348	588	F	0.447	0.454	0.422	0.441
Wauregan Reservoir	8	10	95	4	LMB	E	390	825	M	0.656	0.664	0.664	0.661
Wauregan Reservoir	8	10	95	5	LMB	E	308	315	F	0.464	0.471	0.516	0.484
Wauregan Reservoir	8	10	95	6	LMB	E	339	530	F	0.556	0.571	0.556	0.561
Wauregan Reservoir	8	10	95	7	LMB	E	318	390	M	0.515	0.515	0.539	0.523
Wauregan Reservoir	8	10	95	8	LMB	E	302	345	F	0.268	0.275	0.255	0.266
Wauregan Reservoir	8	10	95	9	LMB	E	268	230	M	.	0.417	0.433	0.425
Wauregan Reservoir	8	10	95	10	LMB	E	261	200	M	0.303	0.316	0.322	0.314
Lake Winchester	6	10	95	1	LMB	T	388	756	F	1.069	0.996	1.012	1.026
Lake Winchester	6	10	95	2	LMB	T	320	398	F	0.424	0.424	0.438	0.429
Lake Winchester	6	10	95	3	LMB	T	315	378	M	0.342	0.335	0.363	0.347
Lake Winchester	6	10	95	4	LMB	T	316	370	M	0.688	0.661	0.697	0.682

Appendix 1, continued. Total mercury concentration (µg/g wet weight) of edible muscle tissue for individual largemouth bass *Micropterus salmoides* (LMB) collected from Connecticut water bodies. [Method of fish collection: T = tournament; E = electrofishing; sex: M = male, F = female]. Units for length and weight are mm and g respectively.

	Date Collected					Collection				Total mercury concentration			
Site	M	D	Y	ID	Species	Method	Length	Weight	Sex	Rep 1	Rep 2	Rep 3	Mean
Lake Winchester	6	10	95	5	LMB	T	318	372	M	0.502	0.525	0.517	0.515
Lake Winchester	6	10	95	6	LMB	T	311	356	M	0.401	0.355	0.362	0.373
Lake Winchester	6	10	95	7	LMB	T	321	472	M	0.349	0.349	0.358	0.352
Lake Winchester	6	10	95	8	LMB	T	311	348	M	0.574	0.610	0.574	0.586
Lake Winchester	6	10	95	9	LMB	T	384	752	M	0.693	0.710	0.719	0.708
Lake Winchester	6	10	95	10	LMB	T	385	756	M	0.980	0.891	0.852	0.908
Wononscopomuc Lake	7	19	95	11	LMB	E	277	231	M	0.417	0.434	0.434	0.428
Wononscopomuc Lake	7	19	95	12	LMB	E	310	292	.	0.679	0.652	0.652	0.661
Wononscopomuc Lake	7	19	95	13	LMB	E	300	312	M	0.481	0.437	0.454	0.457
Wononscopomuc Lake	7	19	95	14	LMB	E	284	274	M	0.436	0.436	0.471	0.448
Wononscopomuc Lake	7	19	95	15	LMB	E	331	461	F	0.390	0.370	0.396	0.386
Wononscopomuc Lake	7	19	95	17	LMB	E	301	302	F	0.589	0.581	0.573	0.581
Wononscopomuc Lake	7	19	95	19	LMB	E	291	290	M	0.379	0.339	0.359	0.359
Wononscopomuc Lake	7	19	95	20	LMB	E	305	328	M	0.585	0.554	0.591	0.576
Wononscopomuc Lake	7	19	95	21	LMB	E	301	372	F	0.580	0.543	0.574	0.566
Wononscopomuc Lake	7	19	95	27	LMB	E	296	342	F	0.330	0.306	0.318	0.318
Wyassup Lake	7	9	95	2	LMB	T	314	444	M	0.439	0.445	0.463	0.449
Wyassup Lake	7	9	95	3	LMB	T	340	468	F	0.727	0.827	0.822	0.792
Wyassup Lake	7	9	95	4	LMB	T	367	586	M	1.035	1.042	1.002	1.026
Wyassup Lake	7	9	95	5	LMB	T	350	560	F	0.829	0.862	0.862	0.851
Wyassup Lake	7	9	95	6	LMB	T	337	502	M	0.740	0.801	0.794	0.778
Wyassup Lake	7	9	95	7	LMB	T	385	780	F	0.874	0.844	0.851	0.856
Wyassup Lake	7	9	95	8	LMB	T	373	740	F	0.826	0.729	0.802	0.785
Wyassup Lake	7	9	95	9	LMB	T	396	850	F	1.123	1.153	1.229	1.168
Wyassup Lake	7	9	95	10	LMB	T	505	2150	F	1.434	1.422	1.397	1.418

Appendix 1, continued. Total mercury concentration (µg/g wet weight) of edible muscle tissue for individual largemouth bass *Micropterus salmoides* (LMB) collected from Connecticut water bodies. [Method of fish collection: T = tournament; E = electrofishing; sex: M = male, F = female]. Units for length and weight are mm and g respectively.

	Date Collected					Collection				Total mercury concentration			
Site	M	D	Y	ID	Species	Method	Length	Weight	Sex	Rep 1	Rep 2	Rep 3	Mean
Lake Zoar	7	29	95	2	LMB	E	381	810	M	0.977	0.994	0.933	0.968
Lake Zoar	7	29	95	5	LMB	E	362	856	M	0.342	0.331	0.319	0.331
Lake Zoar	7	29	95	7	LMB	E	386	814	F	0.617	0.617	0.596	0.610
Lake Zoar	7	29	95	8	LMB	E	325	446	M	0.656	0.669	0.675	0.667
Lake Zoar	7	29	95	9	LMB	E	367	620	M	0.596	0.576	0.576	0.583
Lake Zoar	7	29	95	10	LMB	E	344	530	M	0.590	0.613	0.598	0.600

* Fish necropsied by Connecticut DEP- Bureau of Water Management

Appendix 2. Total mercury concentration (µg/g wet weight) of edible muscle tissue for individual smallmouth bass *Micropterus dolomieu* (SMB), bluegills *Lepomis macrochirus* (BLG), and yellow perch *Perca flavescens* (YEP) collected from Connecticut water bodies [Method of fish collection: T = tournament, E = electrofishing, W = trawl; sex: M = male, F = female]. Units for length and weight are mm and g, respectively.

	Date Collected					Collection				Total mercury concentration			
Site	M	D	Y	ID	Species	Method	Length	Weight	Sex	Rep 1	Rep 2	Rep 3	Mean
Bashan Lake	8	5	95	1	SMB	T	403	796	F	1.341	1.214	1.200	1.252
Bashan Lake	8	5	95	3	SMB	T	393	862	F	0.774	0.781	0.759	0.771
Bashan Lake	8	5	95	4	SMB	T	338	514	F	0.748	0.748	0.766	0.754
Candlewood Lake	7	16	95	10	SMB	T	323	410	F	0.256	0.237	0.256	0.250
Candlewood Lake	7	16	95	11	SMB	T	401	888	F	0.312	0.284	0.298	0.298
Candlewood Lake	7	16	95	12	SMB	T	414	1034	M	0.255	0.247	0.273	0.258
Canoe Brook Lake	8	2	95	5	SMB	E	419	1002	F	0.327	0.307	0.340	0.325
Canoe Brook Lake	8	2	95	11	YEP	E	298	386	F	0.117	0.129	0.125	0.123
Canoe Brook Lake	8	2	95	12	YEP	E	238	132	F	0.060	0.060	0.064	0.061
Canoe Brook Lake	8	2	95	13	YEP	E	220	100	M	0.056	0.052	0.056	0.054
Canoe Brook Lake	8	2	95	14	YEP	E	140	24	M	0.034	0.038	0.038	0.037
Canoe Brook Lake	8	2	95	15	YEP	E	213	96	M	0.051	0.055	0.058	0.055
Canoe Brook Lake	8	2	95	16	YEP	E	195	74	M	0.071	0.071	0.071	0.071
Canoe Brook Lake	8	2	95	17	YEP	E	172	50	F	0.025	0.042	0.025	0.031
Canoe Brook Lake	8	2	95	18	YEP	E	227	112	M	0.108	0.104	0.108	0.107
Coventry Lake	6	18	95	1	SMB	T	306	365	F	0.215	0.246	0.240	0.234
Connecticut River - Middle	9	21	95	2	SMB	E	453	1060	M	0.540	0.566	0.540	0.549
Connecticut River - Middle	9	21	95	3	SMB	E	455	1160	F	0.401	0.376	0.376	0.384
Gardner Lake	10	8	95	1	SMB	T	355	588	M	0.398	0.398	0.407	0.401
Gardner Lake	10	8	95	3	SMB	T	372	696	F	0.366	0.385	0.366	0.372
Gardner Lake	10	8	95	5	SMB	T	421	1050	F	0.489	0.502	0.502	0.497
Hockanum River	11	21	95	1	YEP	E	206	108	F	0.104	0.125	0.104	0.111
Hockanum River	11	21	95	2	YEP	E	203	90	M	ND	ND	ND	ND

Appendix 2, continued. Total mercury concentration (ug/g) of muscle tissue for individual smallmouth bass *Micropterus dolomieu* (SMB), bluegills *Lepomis macrochirus* (BLG) and yellow perch *Perca flavescens* (YEP) collected from Connecticut water bodies [Method of fish collection: T = tournament, E = electrofishing; W = trawl; sex: M = male, F = female]. Units for length and weight are mm and g, respectively.

	Date Collected					Collection				Total mercury concentration			
Site	M	D	Y	ID	Species	Method	Length	Weight	Sex	Rep 1	Rep 2	Rep 3	Mean
Hockanum River	11	21	95	3	YEP	E	197	92	F	0.098	0.081	0.098	0.092
Hockanum River	11	21	95	4	YEP	E	185	78	M	0.064	0.064	0.064	0.064
Hockanum River	11	21	95	5	YEP	E	223	140	F	0.075	0.067	0.090	0.078
Lake Kenosia	7	11	95	11	YEP	E	184	68	M	0.051	0.047	0.051	0.050
Lake Kenosia	7	11	95	12	YEP	E	174	58	M	0.117	0.125	0.121	0.121
Lake Kenosia	7	11	95	13	YEP	E	175	60	M	0.073	0.057	0.057	0.062
Lake Kenosia	7	11	95	14	YEP	E	179	58	F	0.043	0.051	0.054	0.049
Lake Kenosia	7	11	95	15	YEP	E	159	44	M	0.088	0.085	0.081	0.085
Lake Kenosia	7	11	95	16	YEP	E	188	184	M	0.049	0.049	0.041	0.047
Lake Kenosia	7	11	95	17	YEP	E	172	49	M	0.024	0.039	0.036	0.033
Lake Kenosia	7	11	95	18	YEP	E	145	31	F	0.049	0.049	0.045	0.048
Lake Kenosia	7	11	95	19	YEP	E	170	44	M	0.064	0.060	0.068	0.064
Lake Kenosia	7	11	95	20	YEP	E	137	22	M	0.040	0.040	0.044	0.041
Lake McDonough	7	2	95	6	SMB	T	364	628	F	0.691	0.643	0.673	0.669
Lake McDonough	7	2	95	7	SMB	T	390	788	F	1.001	1.001	1.060	1.020
Lake McDonough	10	16	95	102	SMB	E	483	1500	F	2.311	2.289	2.356	2.319
Mudge Pond	8	21	95	11	YEP	E	247	174	F	0.148	0.168	0.156	0.158
Mudge Pond	8	21	95	12	YEP	E	253	170	M	0.299	0.267	0.267	0.278
Mudge Pond	8	21	95	13	YEP	E	243	140	F	0.128	0.156	ND	0.142
Mudge Pond	8	21	95	14	YEP	E	239	154	F	0.076	0.079	0.072	0.076
Mudge Pond	8	21	95	15	YEP	E	209	110	F	0.043	0.053	0.038	0.045
Mudge Pond	8	21	95	16	YEP	E	232	120	F	0.113	0.113	0.116	0.114
Mudge Pond	8	21	95	17	YEP	E	251	168	F	0.110	0.117	0.110	0.112
Mudge Pond	8	21	95	18	YEP	E	190	62	F	0.032	0.037	0.047	0.038
Mudge Pond	8	21	95	19	YEP	E	164	44	M	0.056	0.064	0.056	0.058
Mudge Pond	8	21	95	20	YEP	E	138	26	F	0.036	0.032	0.032	0.033

Appendix 2, continued. Total mercury concentration (ug/g) of muscle tissue for individual smallmouth bass *Micropterus dolomieu* (SMB), bluegills *Lepomis macrochirus* (BLG) and yellow perch *Perca flavescens* (YEP) collected from Connecticut water bodies [Method of fish collection: T = tournament, E = electrofishing; W = trawl; sex: M = male, F = female]. Units for length and weight are mm and g, respectively.

	Date Collected					Collection				Total mercury concentration			
Site	M	D	Y	ID	Species	Method	Length	Weight	Sex	Rep 1	Rep 2	Rep 3	Mean
North Farms Reservoir	6	28	95	11	BLG	E	153	60	M	0.123	0.116	0.130	0.123
North Farms Reservoir	6	28	95	12	BLG	E	127	38	M	0.068	0.060	0.060	0.063
North Farms Reservoir	6	28	95	13	BLG	E	145	62	F	0.068	0.063	0.063	0.065
North Farms Reservoir	6	28	95	14	BLG	E	149	52	M	0.125	0.121	0.145	0.130
North Farms Reservoir	6	28	95	15	BLG	E	142	58	F	0.141	0.137	0.137	0.138
North Farms Reservoir	6	28	95	16	BLG	E	145	54	M	0.139	0.139	0.143	0.140
North Farms Reservoir	6	28	95	17	BLG	E	132	40	M	0.061	0.065	0.065	0.063
North Farms Reservoir	6	28	95	18	BLG	E	165	82	M	0.083	0.087	0.078	0.083
North Farms Reservoir	6	28	95	19	BLG	E	146	58	M	0.120	0.116	0.116	0.117
North Farms Reservoir	6	28	95	20	BLG	E	130	40	M	0.064	0.060	0.064	0.063
North Grosvenor Dale Pond	11	9	96	1	YEP	E	254	208	F	.	0.169	0.152	0.161
North Grosvenor Dale Pond	11	9	96	2	YEP	E	184	66	F	0.085	0.100	0.100	0.095
North Grosvenor Dale Pond	11	9	96	3	YEP	E	202	100	F	0.095	0.103	0.073	0.090
North Grosvenor Dale Pond	11	9	96	4	YEP	E	170	62	M	0.150	0.150	0.150	0.150
North Grosvenor Dale Pond	11	9	96	5	YEP	E	217	128	F	0.105	0.120	0.127	0.117
North Grosvenor Dale Pond	11	9	96	6	YEP	E	215	116	F	0.159	0.159	0.152	0.157
North Grosvenor Dale Pond	11	9	96	7	YEP	E	207	108	F	0.061	0.053	0.069	0.061
Rainbow Reservoir	8	1	95	2	SMB	E	402	810	F	0.303	0.276	0.290	0.290
Rainbow Reservoir	8	1	95	6	YEP	E	157	52	F	0.113	0.118	0.122	0.118
Rainbow Reservoir	8	1	95	7	YEP	E	163	50	M	0.176	0.176	0.171	0.174
Rainbow Reservoir	8	1	95	8	YEP	E	190	74	F	0.110	0.118	0.118	0.115
Rainbow Reservoir	8	1	95	9	YEP	E	189	76	F	0.093	0.085	0.089	0.089
Rainbow Reservoir	8	1	95	10	YEP	E	152	40	F	0.059	0.055	0.064	0.059
Rainbow Reservoir	8	1	95	11	YEP	E	179	69	F	0.090	0.086	0.082	0.086
Rainbow Reservoir	8	1	95	12	YEP	E	162	48	F	0.103	0.099	0.099	0.101
Rainbow Reservoir	8	1	95	13	YEP	E	172	59	F	0.121	0.117	0.099	0.112
Rainbow Reservoir	8	1	95	14	YEP	E	173	60	F	0.142	0.138	0.133	0.138
Rainbow Reservoir	8	1	95	15	YEP	E	177	68	F	0.106	0.121	0.116	0.114

Appendix 2, continued. Total mercury concentration (ug/g) of muscle tissue for individual smallmouth bass *Micropterus dolomieu* (SMB), bluegills *Lepomis macrochirus* (BLG) and yellow perch *Perca flavescens* (YEP) collected from Connecticut water bodies [Method of fish collection: T = tournament, E = electrofishing; W = trawl; sex: M = male, F = female]. Units for length and weight are mm and g, respectively.

	Date Collected					Collection				Total mercury concentration			
Site	M	D	Y	ID	Species	Method	Length	Weight	Sex	Rep 1	Rep 2	Rep 3	Mean
Lake Saltonstall	8	16	95	11	BLG	E	158	76	F	ND	ND	ND	ND
Lake Saltonstall	8	16	95	12	BLG	E	175	102	F	0.118	0.118	0.118	0.118
Lake Saltonstall	8	16	95	13	BLG	E	170	92	M	0.022	0.055	0.035	0.037
Lake Saltonstall	8	16	95	14	BLG	E	168	100	M	ND	ND	ND	ND
Lake Saltonstall	8	16	95	15	BLG	E	171	102	M	ND	ND	ND	ND
Lake Saltonstall	8	16	95	16	BLG	E	164	88	F	ND	ND	ND	ND
Lake Saltonstall	8	16	95	17	BLG	E	154	76	F	ND	ND	ND	ND
Lake Saltonstall	8	16	95	18	BLG	E	173	116	M	ND	ND	ND	ND
Lake Saltonstall	8	16	95	19	BLG	E	168	88	F	ND	ND	ND	ND
Lake Saltonstall	8	16	95	20	BLG	E	166	98	M	ND	ND	ND	ND
Taunton Lake	7	25	25	11	YEP	E	225	122	M	0.251	0.239	0.231	0.240
Taunton Lake	7	25	25	12	YEP	E	284	262	F	0.235	0.256	0.243	0.245
Taunton Lake	7	25	25	13	YEP	E	236	150	M	0.121	0.113	0.113	0.116
Taunton Lake	7	25	25	14	YEP	E	282	272	F	0.233	0.228	0.237	0.233
Taunton Lake	7	25	25	15	YEP	E	247	160	M	0.289	0.267	0.294	0.283
Taunton Lake	7	25	25	16	YEP	E	300	252	F	0.280	0.267	0.275	0.274
Taunton Lake	7	25	25	17	YEP	E	261	182	M	0.282	0.278	0.273	0.278
Taunton Lake	7	25	25	18	YEP	E	276	238	M	0.249	0.241	0.245	0.245
Taunton Lake	7	25	25	19	YEP	E	283	266	.	.	.	.	.
Taunton Lake	7	25	25	20	YEP	E	286	232	F	0.232	0.251	0.228	0.237
Tyler Lake	8	22	95	111	YEP	E	213	84	F	0.350	0.323	0.295	0.323
Tyler Lake	8	22	95	112	YEP	E	195	83	F	0.184	0.169	0.184	0.179
Tyler Lake	8	22	95	113	YEP	E	182	62	F	0.159	0.159	0.159	0.159
Tyler Lake	8	22	95	114	YEP	E	181	70	M	0.153	0.145	0.145	0.148
Tyler Lake	8	22	95	115	YEP	E	186	80	M	0.166	0.166	0.170	0.168
Tyler Lake	8	22	95	116	YEP	E	202	90	F	0.192	0.201	0.196	0.196

Appendix 2, continued. Total mercury concentration (ug/g) of muscle tissue for individual smallmouth bass *Micropterus dolomieu* (SMB), bluegills *Lepomis macrochirus* (BLG) and yellow perch *Perca flavescens* (YEP) collected from Connecticut water bodies [Method of fish collection: T = tournament, E = electrofishing; W = trawl; sex: M = male, F = female]. Units for length and weight are mm and g, respectively.

	Date Collected					Collection				Total mercury concentration			
Site	M	D	Y	ID	Species	Method	Length	Weight	Sex	Rep 1	Rep 2	Rep 3	Mean
Tyler Lake	8	22	95	117	YEP	E	173	60	F	0.131	0.112	0.112	0.118
Tyler Lake	8	22	95	118	YEP	E	203	84	F	0.262	0.287	0.279	0.276
Tyler Lake	8	22	95	119	YEP	E	195	82	F	0.127	0.131	0.136	0.131
Tyler Lake	8	22	95	120	YEP	E	210	80	F	0.333	0.323	0.303	0.320
Wauregan Reservior	8	10	95	11	YEP	E	244	165	F	0.234	0.238	0.227	0.233
Wauregan Reservior	8	10	95	12	YEP	E	185	74	F	0.170	0.186	0.186	0.181
Wauregan Reservior	8	10	95	13	YEP	E	193	80	F	0.243	0.236	0.250	0.243
Wauregan Reservior	8	10	95	14	YEP	E	248	195	F	0.154	0.149	0.149	0.151
Wauregan Reservior	8	10	95	15	YEP	E	215	95	F	0.293	0.293	0.331	0.306
Wauregan Reservior	8	10	95	16	YEP	E	227	140	F	0.155	0.151	0.155	0.154
Wauregan Reservior	8	10	95	17	YEP	E	213	110	F	0.246	0.265	0.256	0.256
Wauregan Reservior	8	10	95	18	YEP	E	202	110	F	0.128	0.128	0.124	0.127
Wauregan Reservior	8	10	95	19	YEP	E	203	90	F	0.314	0.332	0.328	0.325
Wauregan Reservior	8	10	95	20	YEP	E	210	105	F	0.254	0.236	0.236	0.242
Wononscopomuc Lake	7	19	95	22	YEP	E	261	176	F	0.398	0.413	.	0.408
Wononscopomuc Lake	7	19	95	23	YEP	E	285	256	F	0.352	0.361	0.356	0.356
Wononscopomuc Lake	7	19	95	24	YEP	E	300	258	F	0.397	0.397	0.393	0.396
Wononscopomuc Lake	7	19	95	25	YEP	E	263	192	F	0.455	0.455	0.441	0.450
Wononscopomuc Lake	7	19	95	26	YEP	E	262	178	F	0.352	0.336	.	0.344
Wononscopomuc Lake	7	19	95	29	YEP	E	228	102	F	0.353	0.346	0.338	0.346
Wononscopomuc Lake	7	19	95	30	YEP	E	267	164	F	0.312	0.323	0.342	0.325
Wononscopomuc Lake	7	19	95	31	YEP	E	220	96	M	0.299	0.271	0.288	0.286
Wononscopomuc Lake	7	19	95	32	YEP	E	234	130	M	0.211	0.215	.	0.213
Wononscopomuc Lake	7	19	95	33	YEP	E	251	144	M	0.319	0.279	0.287	0.295
Wyassup Lake	7	9	95	1	SMB	T	313	340	F	0.729	0.683	0.637	0.683

Appendix 2, continued. Total mercury concentration (ug/g) of muscle tissue for individual smallmouth bass *Micropterus dolomieu* (SMB), bluegills *Lepomis macrochirus* (BLG) and yellow perch *Perca flavescens* (YEP) collected from Connecticut water bodies [Method of fish collection: T = tournament, E = electrofishing; W = trawl; sex: M = male, F = female]. Units for length and weight are mm and g, respectively.

	Date Collected					Collection				Total mercury concentration			
Site	M	D	Y	ID	Species	Method	Length	Weight	Sex	Rep 1	Rep 2	Rep 3	Mean
Lake Zoar	7	29	95	1	SMB	E	423	836	M	0.995	0.961	1.028	0.995
Lake Zoar	7	29	95	3	SMB	E	310	350	M	0.662	0.655	0.626	0.648
Lake Zoar	7	29	95	4	SMB	E	383	900	F	0.849	0.888	0.855	0.864
Lake Zoar	7	29	95	6	SMB	E	377	776	F	0.448	0.448	0.440	0.446
Long Island Sound	10	13	95	1	BLA	W	435	1750	M	0.099	0.106	0.138	0.114
Long Island Sound	10	13	95	2	BLA	W	404	1550	F	0.111	0.125	0.140	0.125
Long Island Sound	10	13	95	3	BLA	W	347	870	F	0.143	0.107	0.107	0.119
Long Island Sound	10	13	95	4	BLA	W	446	1900	F	0.225	0.186	0.2117	0.210
Long Island Sound	10	13	95	5	BLA	W	390	1350	.	0.123	0.130	0.101	0.118
Long Island Sound	10	13	95	6	BLA	W	472	2500	F	0.238	0.251	0.187	0.225
Long Island Sound	10	13	95	7	BLA	W	420	1950	M	0.154	0.103	0.141	0.133
Long Island Sound	10	13	95	9	BLU	W	560	1650	F	0.181	0.308	0.248	0.246
Long Island Sound	10	13	95	10	BLU	W	535	1600	.	0.320	0.313	0.237	0.290
Long Island Sound	10	13	95	11	BLU	W	532	1870	.	0.232	0.160	0.131	0.175
Long Island Sound	10	13	95	12	BLU	W	535	2080	.	0.232	0.193	0.187	0.204
Long Island Sound	10	13	95	13	BLU	W	490	1550	.	0.228	0.236	0.213	0.225
Long Island Sound	10	13	95	19	BLU	W	400	830	.	0.134	0.127	0.134	0.132
Long Island Sound	10	13	95	20	BLU	W	375	690	.	0.118	0.140	0.118	0.125
Long Island Sound	10	13	95	21	BLU	W	400	866	.	0.225	0.217	0.217	0.220
Long Island Sound	10	13	95	15	POR	W	194	140	.	0.099	0.085	.	0.092
Long Island Sound	10	13	95	16	POR	W	189	170	.	0.164	0.042	0.067	0.091
Long Island Sound	10	13	95	17	POR	W	199	140	.	0.079	0.106	0.079	0.088
Long Island Sound	10	13	95	18	POR	W	191	128	.	0.041	0.063	0.041	0.048
Long Island Sound	10	13	95	22	POR	W	208	178	.	0.033	0.043	0.061	0.046
Long Island Sound	10	13	95	23	POR	W	203	158	.	0.072	0.053	0.063	0.063
Long Island Sound	10	13	95	24	POR	W	205	160	.	0.061	0.037	0.045	0.047

Appendix 2, continued. Total mercury concentration (ug/g) of muscle tissue for individual smallmouth bass *Micropterus dolomieu* (SMB), bluegills *Lepomis macrochirus* (BLG) and yellow perch *Perca flavescens* (YEP) collected from Connecticut water bodies [Method of fish collection: T = tournament, E = electrofishing; W = trawl; sex: M = male, F = female]. Units for length and weight are mm and g, respectively.

	Date Collected					Collection				Total mercury concentration			
Site	M	D	Y	ID	Species	Method	Length	Weight	Sex	Rep 1	Rep 2	Rep 3	Mean
Long Island Sound	10	13	95	25	POR	W	195	144	.	ND	ND	ND	ND
Long Island Sound	10	13	95	26	POR	W	205	138	.	0.034	0.034	0.034	0.034
Long Island Sound	10	13	95	27	POR	W	193	138	.	0.048	0.055	0.055	0.053

Appendix 3. Sediment samples analyzed for mercury (μg/g dry weight) from Connecticut water bodies during a preliminary assessment of mercury in fishes. The mean and coefficient of variation (CV) are based upon three repetitions for each sample.

Location	Sample #	Sample Mean	CV (%)	Notes
Amos Lake	1	ND		
	2	ND		
	3	ND		
Aspinook Pond				No Sediment Collected
Ball Pond	1	0.552	0	
	2	0.466	8.444	
	3	0.48	4.099	
Bantam Lake	1	0.333	5.476	
	2	0.342	5.476	
	3	0.246	0	
Bashan Lake	1	0.125	20.86	
	2	0.113	37.72	
	3	ND		
Batterson Park Pond				No Sediment Collected
Beach Pond	1	ND		
	2	0.114	11.86	
	3	0.1	13.88	
Billing Lake	1	ND		
	2	ND		
	3	ND		
Black Pond	1	ND		
	2	N/A		Laboratory Accident
	3	0.406	10.97	
Bolton Lake	1	0.27	4.906	
	2	0.215	0	
	3	0.235	5.696	
Candlewood Lake	1	0.189	4.584	
	2			Laboratory Accident
	3	0.188	17.13	
Canoe Brook Lake				No Sediment Collected
Cedar Swamp Pond	1	ND		
	2	ND		
	3	ND		
Coventry Lake	1	0.265	0	
	2	0.306	0	
	3	0.313	0	

Appendix 3, continued. Sediment samples analyzed for mercury (μg/g dry weight) from Connecticut water bodies during a preliminary assessment of mercury in fishes. The mean and coefficient of variation (CV) are based upon three repetitions for each sample.

Location	Sample #	Sample Mean	CV (%)	Notes
Crystal Lake (Ellington)	1	0.22	11.01	
	2	0.168	11.84	
	3	0.127	33.33	
Crystal Lake (Middletown)	1	0.174	5.815	
	2	0.177	10.97	
	3	ND		
CT River, Enfield (Upper)	1	0.098	25.2	
	2	0.199	14.71	
	3	0.21	20.31	
CT River, Wethersfield Cove (Middle)	1	0.547	12.51	
	2	0.615	5.682	
	3	0.445	0	
CT River, Chapman's Pond (Lower)	1	ND		
	2	ND		
	3	ND		
Dodge Pond	1	2.501	4.658	
	2	2.294	1.831	
	3	2.399	4.271	
East Twin Lake	1	0.48	4.936	Sampled in two locations
	2	0.259	37.86	
	3	N/A		
Gardner Lake	1	0.306	5.81	
	2	0.293	4.99	
	3	0.262	9.229	
Glasgo Pond	1	ND		
	2	ND		
	3	ND		
Hanover Pond	1	0.405	3.488	
	2	0.509	1.585	
	3	0.481	9.028	
Highland Lake	1	0.372	10.54	
	2	0.285	33.05	
	3	0.374	5.881	
Lower Hocknum River	1	0.108	8.572	
	2	0.217	11.02	
	3	0.169	0	

Appendix 3, continued. Sediment samples analyzed for mercury (μg/g dry weight) from Connecticut water bodies during a preliminary assessment of mercury in fishes. The mean and coefficient of variation (CV) are based upon three repetitions for each sample.

Location	Sample #	Sample Mean	CV (%)	Notes
Housatonic Lake				No Sediment Collected
Lake Kenosia	1	3.608	2.672	Sampled in two locations
	2	1.62	0	
	3	1.552	7.739	
Lake of Isles	1	ND		
	2	ND		
	3	ND		
Mamanasco Lake	1	ND		
	2	ND		
	3	0.307	23.84	
Mansfield Hollow Reservior	1	ND		
	2	ND		
	3	ND		
Mashapaug Pond	1	0.239	5.476	
	2	0.207	0.000	
	3	0.278	0.000	
Lake McDonough	1	ND		
	2	ND		
	3	ND		
Moodus Reservior	1	0.373	25.325	
	2	0.262	31.482	
	3	ND		
Mudge Pond	1	0.228	22.823	
	2	ND		
	3	ND		
North Farms Reservior	1	0.505	38.938	
	2	0.408	8.212	
	3	0.541	13.987	
North Grosvenor Dale Pond	1	2.024	5.583	
	2	2.362	4.424	
	3	2.319	9.920	
Pachaug Pond	1	ND		
	2	ND		
	3	ND		
Pattagansett Lake	1	0.346	5.714	
	2	0.333	13.48	
	3	0.338	16.58	

Appendix 3, continued. Sediment samples analyzed for mercury (μg/g dry weight) from Connecticut water bodies during a preliminary assessment of mercury in fishes. The mean and coefficient of variation (CV) are based upon three repetitions for each sample.

Location	Sample #	Sample Mean	CV (%)	Notes
Powers Lake	1	0.284	7.543	
	2	ND		
	3	0.328	6.502	
Quaddick Reservior	1	ND		
	2	ND		
	3	0.283	0	
Lake Quassapaug	1	0.262	9.214	
	2	0.288	8.152	
	3	0.198	5.503	
Rainbow Reservior	1	0.421	2.816	
	2	0.401	2.237	
	3	0.373	4.691	
Rogers Lake	1	0.385	16.58	
	2	0.412	4.318	
	3	0.411	0	
Lake Saltonstall	1	0.228	15.01	
	2	0.202	19.85	
	3	0.187	23.61	
Saugatuck Reservior	ND			
	ND			
	ND			
Silver Lake	1	ND		
	2	0.296	5.393	
	3	ND		
Taunton Lake	1	ND		
	2	ND		
	3	ND		
Tyler Lake	1	0.166	20.4	
	2	ND		
	3	ND		
Union Pond	1	1.317	4.443	
	2	1.353	2.381	
	3	1.406	4.281	
Lake Waramaug	1	0.353	3.84	
	2	0.364	0	
	3	0.358	0	

Appendix 3, continued. Sediment samples analyzed for mercury (μg/g dry weight) from Connecticut water bodies during a preliminary assessment of mercury in fishes. The mean and coefficient of variation (CV) are based upon three repetitions for each sample.

Location	Sample #	Sample Mean	CV (%)	Notes
Wauregan Reservior	1	0.266	16.76	
	2	0.258	17.55	
	3	ND		
Lake Winchester	1	1.158	8.021	Unable to get 3 samples
	2	N/A		
	3	N/A		
Wononscopomuc Lake	1	0.263	37.92	
	2	0.184	0	
	3	0.655	4.906	
Wyassup Lake	1	ND		
	2	ND		
	3	ND		
Lake Zoar	1	0.71	2.698	
	2	0.682	2.672	
	3	0.674	12.82	

Appendix 4. Summary of water quality parameters analyzed by the Hydrolab Recorder multiprobe at three depths from Connecticut water bodies during a preliminary assessment of mercury in Connecticut fishes (Temp= temperature; SpCond= specific conductance).

Location	Date	Time	Temp C	pH	SpCond mS/cm	Salin ppt	Redox mV	Depth m	Notes
Amos Lake	9/8/95	124440	22.87	7.28	0.123	0.1	396	1.2	
	9/8/95	124540	22.83	7.35	0.125	0.1	395	5.1	
	9/8/95	124640	10.84	6.46	0.132	0.1	342	9.1	
Aspinook Pond	9/8/95	141320	22.07	8.35	0.176	0.1	373	1.2	
	9/8/95	141400	22.03	8.43	0.176	0.1	372	1.7	
	9/8/95	141440	21.96	8.49	0.177	0.1	371	2.2	
Ball Pond	11/9/95	144000	10.06	7.38	0.294	0.1	342	1.0	
	11/9/95	144040	9.98	7.39	0.295	0.1	341	4.5	
	11/9/95	144140	9.94	7.37	0.295	0.1	342	7.9	
Bantam Lake	10/13/9	124400	16.97	7.14	0.136	0.1	365	1.0	
	10/13/9	124440	16.52	7.13	0.136	0.1	366	1.9	
	10/13/9	124540	16.13	7.04	0.136	0.1	367	2.9	
Bashan Lake	9/15/95	114040	21.34	7.14	0.050	0.0	348	1.2	
	9/15/95	114120	21.34	7.02	0.050	0.0	350	2.0	
	9/15/95	114240	21.32	6.89	0.050	0.0	352	2.9	
Batterson Park Pond	Unable to get water quality data								
Beach Pond	9/8/95	111320	23.16	6.69	0.047	0.0	395	1.1	
	9/8/95	111400	23.16	6.51	0.047	0.0	398	2.0	
	9/8/95	111500	23.16	6.41	0.048	0.0	400	3.0	
Besek Lake	9/19/95	114820	19.24	7.73	0.150	0.1	356	1.2	
	9/19/95	114940	18.94	7.61	0.150	0.1	357	2.9	
	9/19/95	115040	18.87	7.64	0.151	0.1	358	4.2	

Appendix 4, continued. Summary of water quality parameters analyzed by the Hydrolab Recorder multiprobe at three depths from Connecticut water bodies during a preliminary assessment of mercury in Connecticut fishes (Temp= temperature; SpCond= specific conductance).

Location	Date	Time	Temp C	pH	SpCond mS/cm	Salinit ppt	Redox mV	Depth m	Notes
Billings Lake	8/24/95	134900	25.44	7.14	0.038	0.0	390	1.1	
	8/24/95	135000	24.61	6.98	0.038	0.0	388	4.5	
	8/24/95	135100	12.07	6.19	0.039	0.0	400	7.9	
Black Pond	9/19/95	102620	19.08	7.44	0.193	0.1	398	1.2	
	9/19/95	102700	18.93	7.42	0.193	0.1	397	3.2	
	9/19/95	102820	18.51	7.09	0.197	0.1	398	5.2	
Bolton Lake	8/15/95	153230	26.84	7.67	0.093	0.0	351	0.9	
	8/15/95	153300	26.61	7.76	0.093	0.0	351	1.9	
	8/15/95	153330	26.04	7.70	0.093	0.0	352	2.6	
Candlewood Lake	11/9/95	165120	11.39	7.64	0.193	0.1	339	1.1	
	11/9/95	165200	11.40	7.68	0.194	0.1	339	2.7	
	11/9/95	165300	11.40	7.70	0.194	0.1	340	3.6	
Canoe Brook Lake	11/10/9	121600	7.76	7.61	0.074	0.0	334	0.6	Measured at 1 meter
	11/10/9	121620	7.76	7.61	0.074	0.0	334	0.6	
	11/10/9	121640	7.78	7.61	0.074	0.0	334	0.6	
Cedar Swamp Pond	8/28/95	195110	22.12	7.55	0.173	0.1	423	0.9	
	8/28/95	195240	22.07	7.40	0.173	0.1	422	1.9	
	8/28/95	195450	21.31	6.99	0.172	0.1	422	2.6	
Coventry Lake	8/15/95	123930	26.44	7.43	0.115	0.0	384	1.0	
	8/15/95	124100	25.39	7.40	0.115	0.0	383	5.3	
	8/15/95	124330	12.46	6.78	0.164	0.1	179	10.2	

Appendix 4, continued. Summary of water quality parameters analyzed by the Hydrolab Recorder multiprobe at three depths from Connecticut water bodies during a preliminary assessment of mercury in Connecticut fishes (Temp= temperature; SpCond= specific conductance).

Location	Date	Time	Temp C	pH	SpCond mS/cm	Salinit ppt	Redox mV	Depth m	Notes
Crystal Lake-	10/20/9	133420	15.19	7.06	0.101	0.0	347	1.2	
Ellington	10/20/9	133540	15.13	6.99	0.102	0.0	349	3.8	
	10/20/9	133720	15.08	6.95	0.102	0.0	352	6.1	
Crystal Lake-	9/19/95	131620	19.70	7.45	0.122	0.1	363	1.3	
Middletown	9/19/95	131820	19.22	7.38	0.123	0.1	362	2.7	
	9/19/95	131920	19.24	7.38	0.123	0.1	362	3.3	
CT River- Enfield	11/3/95	114300	11.38	6.81	0.118	0.0	372	5.1	
	11/3/95	114320	11.53	6.81	0.118	0.0	372	5.1	
	11/3/95	114340	11.42	6.80	0.116	0.0	373	5.1	
CT River-	Data corrupted from the Hydrolab								
Wethersfield Cove									
CT River-	10/27/9	141020	13.50	7.07	0.103	0.0	350	1.0	
Chapman's Pond	10/27/9	141200	13.47	7.00	0.103	0.0	355	2.2	
Dodge Pond	9/5/95	105040	23.30	7.13	0.085	0.0	419	1.2	
	9/5/95	105140	19.84	7.03	0.083	0.0	419	5.3	
	9/5/95	105240	7.92	5.99	0.085	0.0	347	9.3	
East Twin Lake	9/13/95	80100	20.29	8.26	0.193	0.1	396	1.0	
	9/13/95	80200	20.29	8.33	0.195	0.1	393	2.8	
	9/13/95	80320	20.29	8.37	0.196	0.1	393	4.5	
Gardner Lake	9/15/95	131120	20.97	7.43	0.063	0.0	354	1.2	
	9/15/95	131220	20.95	7.29	0.064	0.0	354	3.6	
	9/15/95	131340	20.92	7.20	0.064	0.0	355	5.7	

Appendix 4, continued. Summary of water quality parameters analyzed by the Hydrolab Recorder multiprobe at three depths from Connecticut water bodies during a preliminary assessment of mercury in Connecticut fishes (Temp= temperature; SpCond= specific conductance).

Location	Date	Time	Temp C	pH	SpCond mS/cm	Salinit ppt	Redox mV	Depth m	Notes
Glasgo Pond	8/23/95	114030	24.32	6.99	0.063	0.0	468	1.2	
	8/23/95	114130	24.01	6.81	0.063	0.0	461	2.2	
	8/23/95	114230	22.30	6.37	0.065	0.0	438	3.2	
North Grovenor Dale	11/17/9	155420	5.19	6.74	0.114	0.0	366	1.2	
Pond	11/17/9	155640	5.13	6.68	0.115	0.0	369	2.1	
	11/17/9	155840	5.08	6.65	0.115	0.0	371	3.2	
Hannover Pond	9/29/95	121700	16.10	7.84	0.269	0.1	378	1.3	
	9/29/95	121720	16.11	7.89	0.270	0.1	377	1.3	
	9/29/95	121740	16.15	7.93	0.270	0.1	377	1.3	
Highland Lake	9/12/95	140620	20.90	7.35	0.112	0.0	389	1.0	
	9/12/95	140700	20.88	7.36	0.116	0.0	387	2.4	
	9/12/95	140840	20.83	7.37	0.117	0.0	387	3.9	
Lower Hocknum	11/21/9	181120	7.70	6.72	0.318	0.2	385	1.1	
	11/21/9	181140	7.70	6.73	0.318	0.2	386	2.5	
Housatonic Lake	11/10/9	132940	9.21	7.45	0.191	0.1	336	1.3	
	11/10/9	133100	9.22	7.45	0.192	0.1	338	2.4	
Lake Kenosia	11/9/95	133220	8.08	7.26	0.294	0.1	348	1.2	
	11/9/95	133000	8.06	7.28	0.295	0.1	345	2.4	
	11/9/95	133120	8.06	7.26	0.294	0.1	347	3.9	
Lake of Isles	8/31/95	124800	22.73	6.94	0.041	0.0	391	1.1	Only 2m deep
Lake Mamanasco	11/9/95	115620	6.42	8.48	0.306	0.1	338	1.0	Only 2m deep

Appendix 4, continued. Summary of water quality parameters analyzed by the Hydrolab Recorder multiprobe at three depths from Connecticut water bodies during a preliminary assessment of mercury in Connecticut fishes (Temp= temperature; SpCond= specific conductance).

Location	Date	Time	Temp C	pH	SpCond mS/cm	Salinit ppt	Redox mV	Depth m	Notes
Mansfield Hollow	8/22/95	144800	25.80	7.58	0.088	0.0	385	1.1	
Reservior	8/22/95	144830	25.80	7.66	0.088	0.0	383	1.9	
	8/22/95	144900	25.52	7.53	0.087	0.0	383	2.6	
Lake Mashapaug	10/20/9	110000	14.78	6.83	0.082	0.0	358	1.1	
	10/20/9	110400	14.74	6.70	0.082	0.0	366	4.1	
	10/20/9	110540	14.66	6.66	0.082	0.0	369	6.8	
Lake McDonough	9/12/95	120540	21.68	7.16	0.043	0.0	389	1.2	
	9/12/95	120640	21.59	7.08	0.043	0.0	389	2.6	
	9/12/95	120800	21.46	7.03	0.043	0.0	390	4.2	
Moodus Reservior	9/15/95	102320	20.17	7.10	0.048	0.0	344	1.3	
Mudge Pond	9/13/95	122120	20.47	8.21	0.279	0.1	390	1.0	
	9/13/95	122200	20.38	8.20	0.281	0.1	389	3.9	
	9/13/95	122300	18.63	7.68	0.295	0.1	392	6.6	
North Farms Reservior	9/29/95	133440	17.60	8.61	0.170	0.1	370	0.8	
Pachaug Pond	8/22/95	111210	25.61	7.14	0.061	0.0	378	1.1	
	8/22/95	111240	25.39	7.09	0.061	0.0	377	2.0	
	8/22/95	111410	25.11	6.91	0.062	0.0	379	2.9	
Pattagansett Lake	9/5/95	123640	23.36	6.89	0.062	0.0	370	1.3	
	9/5/95	123720	23.01	6.84	0.062	0.0	370	2.7	
	9/5/95	123840	20.38	6.24	0.063	0.0	377	5.3	

Appendix 4, continued. Summary of water quality parameters analyzed by the Hydrolab Recorder multiprobe at three depths from Connecticut water bodies during a preliminary assessment of mercury in Connecticut fishes (Temp= temperature; SpCond= specific conductance).

Location	Date	Time	Temp C	pH	SpCond mS/cm	Salinit ppt	Redox mV	Depth m	Notes
Powers Lake	9/5/95	154000	24.28	7.05	0.033	0.0	365	1.1	
	9/5/95	154020	23.74	7.00	0.033	0.0	366	2.1	
	9/5/95	154120	23.66	6.93	0.033	0.0	367	3.1	
Quaddick Reservior	9/22/95	141140	19.05	7.22	0.047	0.0	359	1.1	
	9/22/95	141220	19.03	7.07	0.047	0.0	361	2.5	
	9/22/95	141340	18.79	6.91	0.047	0.0	362	3.6	
Lake Quassapaug	Corrupted Data from the Hydrolab								
Rainbow Reservior	10/3/95	113420	17.43	8.84	0.159	0.1	360	1.1	
	10/3/95	113540	15.88	7.71	0.157	0.1	365	5.6	
	10/3/95	113720	15.36	7.33	0.161	0.1	369	10.1	
Rogers Lake	9/5/95	141240	23.61	7.08	0.061	0.0	374	1.3	
	9/5/95	141340	18.94	6.17	0.059	0.0	380	5.7	
	9/5/95	141440	8.73	5.93	0.058	0.0	380	10.1	
Lake Saltonstall	10/27/9	120100	15.77	8.21	0.282	0.1	355	1.2	
	10/27/9	120300	15.55	8.19	0.284	0.1	356	4.7	
	10/27/9	120500	15.40	8.18	0.283	0.1	356	8.2	
Saugatuck Reservior	11/9/95	102540	11.50	7.27	0.160	0.1	336	0.5	
Silver Lake	9/29/95	104100	17.71	7.40	0.223	0.1	359	1.3	
	9/29/95	104140	17.66	7.48	0.223	0.1	360	1.9	
	9/29/95	104320	17.68	7.52	0.223	0.1	362	2.3	
Taunton Lake	11/10/9	91640	1.04	7.63	0.214	0.1	340	0.4	

Appendix 4, continued. Summary of water quality parameters analyzed by the Hydrolab Recorder multiprobe at three depths from Connecticut water bodies during a preliminary assessment of mercury in Connecticut fishes (Temp= temperature; SpCond= specific conductance).

Location	Date	Time	Temp C	pH	SpCond mS/cm	Salinit ppt	Redox mV	Depth m	Notes
Tyler Lake	9/13/95	141120	19.17	7.96	0.11	0	360	0.7	
	9/13/95	141200	19.15	7.97	0.111	0	359	3.3	
	9/13/95	141340	19.03	7.82	0.112	0	360	5.7	
Union Pond	10/3/95	135120	16.38	7.16	0.304	0.1	378	1.2	
	10/3/95	135220	15.49	6.86	0.317	0.2	381	2	
	10/3/95	135420	15.08	6.81	0.315	0.2	382	2.7	
Lake Waramaug	10/13/9	112720	17.66	7.52	0.108	0	362	1	
	10/13/9	112840	16.87	7.13	0.108	0	365	4	
	10/13/9	113040	16.62	6.91	0.109	0	368	6.9	
Wauregan Reservior	9/22/95	113040	19.79	7.39	0.111	0	344	1.2	
	9/22/95	113120	19.77	7.25	0.111	0	345	1.8	
	9/22/95	113200	19.75	7.19	0.112	0	346	2.6	
Lake WInchester	9/12/95	171620	19.79	7.36	0.044	0	370	0.8	
	9/12/95	171720	19.75	7.18	0.044	0	372	1.8	
	9/12/95	171800	19.7	7.13	0.044	0	372	2.8	
Wononskopomuc	9/13/95	101420	20.67	8.55	0.235	0.1	390	1.2	
	9/13/95	101540	20.22	8.57	0.237	0.1	389	6.5	
	9/13/95	101640	7.88	7.66	0.284	0.1	397	11.2	
Wyassup Lake	8/24/95	112330	25.18	7.21	0.046	0	392	1	
	8/24/95	112430	24.81	7.06	0.046	0	390	2.7	
	8/24/95	112530	24.39	6.84	0.046	0	391	4.5	

Appendix 4, continued. Summary of water quality parameters analyzed by the Hydrolab Recorder multiprobe at three depths from Connecticut water bodies during a preliminary assessment of mercury in Connecticut fishes (Temp= temperature; SpCond= specific conductance).

Location	Date	Time	Temp C	pH	SpCond mS/cm	Salinit ppt	Depth mV	Depth m	Notes
Lake Zoar	11/10/9	101620	8.8	7.49	0.199	0.1	341	1.4	
	11/10/9	101700	8.73	7.47	0.199	0.1	342	3.8	
	11/10/9	101820	8.75	7.48	0.199	0.1	343	6.4	

Appendix 5. Summary of chemical water quality paramters analyzed at three depths (1-m below surface, mid-, and 1-m above the lake bottom) by the Environmental Research Institute. Results are reported in mg/l.

Location	#[a]	DATE	NOX	NH3	TDN	DIP	TDP	ALK	COND	DOC	TSS	PP	PC	PN
	Detection Limit		0.002	0.002	0.040	0.002	0.002	2	2.0	0.5	1	0.001	0.010	0.010
Amos Lake	1	9/8/95	0.004	0.005	0.252	0.002	0.007	20	144.4	9.1	2	0.006	1.204	0.477
	2	9/8/95	0.009	ND[b]	0.292	0.003	ND	21	137.6	9.5	1	0.007	1.300	0.404
	3	9/8/95	0.006	0.295	0.557	0.004	0.012	27	154.8	11.6	10	0.031	3.115	0.711
Aspinook Pond	1	9/8/95	0.008	ND	0.433	0.004	0.017	36	232.0	15.1	19	0.080	3.369	0.850
	2	9/8/95	0.002	ND	0.413	0.003	0.015	38	227.0	14.9	20	0.085	3.181	0.808
	3	9/8/95	ND	ND	0.395	0.006	0.028	38	220.0	14.6	127	0.274	7.182	1.227
Ball Pond	1	11/9/95	0.018	0.130	0.535	0.006	0.011	58	301.0	22.2	ND	0.021	1.132	0.177
	2	11/9/95	0.018	0.131	0.566	0.004	0.013	64	307.0	22.9	ND	0.017	1.023	0.397
	3	11/9/95	0.022	0.127	0.429	0.004	0.016	52	308.0	22.0	6	0.070	8.853	1.230
Bantam Lake	1	10/13/95	0.037	0.002	0.339	0.003	0.020	43	276.0	14.8	6	0.030	1.312	0.265
	2	10/13/95	0.041	0.003	0.323	0.004	0.022	38	287.0	14.6	2	0.035	1.148	0.284
	3	10/13/95	0.044	0.010	0.248	0.004	0.021	39	272.0	14.8	3	0.023	1.133	0.208
Bashan Lake	1	9/15/95	ND	0.011	0.370	0.010	0.021	3	61.0	4.0	ND	0.010	0.664	0.062
	2	9/15/95	ND	0.019	0.391	0.008	0.023	4	59.3	4.3	ND	0.014	0.748	0.116
	3	9/15/95	ND	0.008	0.327	0.007	0.023	7	52.2	4.0	ND	0.016	0.726	0.038
Batterson Park Pond	Unable to get water quality data													
Beach Pond	1	9/8/95	0.004	ND	0.256	0.002	0.021	3	63.1	4.0	3	0.006	1.408	0.454
	2	9/8/95	0.008	0.002	0.236	ND	0.020	3	62.8	4.2	ND	0.004	1.078	0.527
	3	9/8/95	0.003	ND	0.199	0.002	0.020	ND	58.7	3.8	3	0.005	1.368	0.527
Billings Lake	1	8/24/95	ND	0.006	0.436	ND	0.006	4	43.4	5.2	2	0.005	0.829	0.154
	2	8/24/95	0.008	0.005	0.469	ND	0.006	5	46.8	5.4	2	0.013	1.162	0.103
	3	8/24/95	ND	ND	0.046	0.003	0.005	6	47.2	4.7	8	0.008	1.023	0.134
Black Pond	1	9/19/95	0.005	0.016	0.517	0.032	0.024	61	214.0	19.0	6	0.013	1.211	0.147
	2	9/19/95	ND	0.012	0.398	0.035	0.027	59	217.0	19.2	6	0.016	1.200	0.186
	3	9/19/95	0.010	0.048	0.415	0.042	0.025	61	240.0	19.9	5	0.024	1.490	0.182

[a] actual depths can be refrenced from Appendix 6.
[b] ND= below detection limit

Appendix 5, continued. Summary of chemical water quality parameters analyzed at three depths (1-m below surface, mid-, and 1-m above the lake bottom) by the Environmental Research Institute. Results are reported in mg/l.

Location	#	DATE	NOX	NH3	TDN	DIP	TDP	ALK	COND	DOC	TSS	PP	PC	PN
Bolton Lake	1	8/15/95	0.003	0.009	0.238	ND	0.017	14	80.0	7.4	1	0.010	0.945	0.106
	2	8/15/95	ND	ND	0.225	ND	0.013	12	84.6	7.3	ND	0.010	1.171	0.098
	3	8/15/95	0.010	0.020	0.217	0.007	0.012	13	79.4	7.8	1	0.015	0.834	0.095
Candlewood Lake	1	11/9/95	0.040	0.058	0.315	0.003	0.008	55	209.0	19.1	ND	0.020	1.455	0.343
	2	11/9/95	0.040	0.055	0.332	0.003	0.006	52	214.0	18.9	ND	0.020	1.209	0.478
	3	11/9/95	0.038	0.046	0.319	0.003	0.009	62	210.0	17.2	ND	0.030	1.133	0.208
Canoe Brook Lake	1	11/10/95	0.281	0.015	0.497	0.003	0.025	ND	192.0	8.5	43	0.064	5.281	0.711
	2	11/10/95	0.282	0.012	0.470	0.003	0.016	9	188.0	8.2	45	0.062	5.490	0.642
Cedar Swamp Pond	1	8/28/95	ND	0.002	0.275	ND	0.008	18	178.1	8.6	8	0.011	1.918	0.156
	2	8/28/95	0.002	0.005	0.289	ND	0.007	20	178.7	8.8	7	0.014	1.901	0.189
	3	8/28/95	0.003	0.002	0.191	ND	0.010	21	177.1	8.6	18	0.025	7.558	0.583
Coventry Lake	1	8/15/95	0.014	0.015	0.407	0.002	0.008	19	104.3	7.7	1	0.016	0.544	0.073
	2	8/15/95	0.003	0.005	0.219	ND	0.006	18	106.7	12.0	1	0.013	0.644	0.073
	3	8/15/95	ND	0.410	0.743	ND	0.008	37	133.8	7.4	9	0.072	3.658	0.552
Crystal Lake- Middletown	1	9/19/95	0.037	0.044	0.570	ND	0.011	42	135.6	15.0	5	0.016	1.184	0.104
	2	9/19/95	0.030	0.046	0.599	0.002	0.007	44	171.1	14.8	2	0.019	1.141	0.093
	3	9/19/95	0.028	0.047	0.556	0.004	0.006	41	120.1	14.8	3	0.017	1.161	0.128
Crystal Lake- Ellington	1	10/20/95	0.033	0.027	0.175	0.010	0.006	LA[c]	108.6	4.2	3	0.007	0.583	0.075
	2	10/20/95	0.020	0.026	0.171	0.012	0.009	LA	106.1	4.2	1	0.019	0.691	0.236
	3	10/20/95	0.023	0.018	0.247	0.012	0.014	LA	93.7	4.2	ND	0.012	LA	LA
CT River- Enfield	1	11/3/95	0.170	0.116	0.631	0.013	0.036	9	157.7	11.7	4	0.028	1.292	0.169
	2	11/3/95	0.221	0.121	0.628	0.013	0.037	11	191.0	11.9	2	0.033	1.237	0.142
	3	11/3/95	0.285	0.126	0.700	0.015	0.029	7	212.0	11.8	5	0.031	1.329	0.165
CT River- Wethersfield	1	11/3/95	0.304	0.123	0.672	0.043	0.055	7	153.1	12.0	5	0.021	0.882	0.242
	2	11/3/95	0.302	0.121	0.670	0.043	0.057	17	153.1	12.3	3	0.021	0.869	0.158
	3	11/3/95	0.279	0.109	0.633	0.042	0.054	10	144.4	12.4	4	0.023	1.150	0.181
Ct River- Chapman's Pond	1	10/27/95	0.250	0.054	0.539	0.028	0.029	24	114.2	10.0	13	0.031	1.005	0.011
	2	10/27/95	0.245	0.046	0.482	0.029	0.040	23	112.4	10.1	9	0.028	1.042	0.037
	3	10/27/95	0.246	0.058	0.616	0.029	0.032	22	109.2	10.0	7	0.024	1.187	0.085

[c] LA= Laboratory Accident

Appendix 5, continued. Summary of chemical water quality parameters analyzed at three depths (1-m below surface, mid-, and 1-m above the lake bottom) by the Environmental Research Institute. Results are reported in mg/l.

Location	#	DATE	NOX	NH3	TDN	DIP	TDP	ALK	COND	DOC	TSS	PP	PC	PN
Dodge Pond	1	9/5/95	0.021	ND	0.340	ND	0.005	12	81.5	6.5	ND	0.006	0.817	0.240
	2	9/5/95	0.023	ND	0.355	ND	0.011	13	77.8	6.4	ND	0.006	0.943	0.120
	3	9/5/95	0.024	ND	0.274	ND	0.012	12	ND	6.2	9	0.018	2.128	0.388
East Twin Lake	1	9/12/95	ND	ND	0.513	0.003	0.022	96	248.0	31.3	3	0.015	0.970	0.131
	2	9/12/95	0.008	ND	0.554	0.002	0.022	93	222.0	32.0	3	0.011	0.994	0.088
	3	9/12/95	ND	0.002	0.528	0.003	0.021	92	223.0	31.3	4	0.019	0.900	0.100
Gardner Lake	1	9/15/95	ND	0.005	0.360	0.007	0.021	10	69.1	6.5	1	0.012	1.140	0.140
	2	9/15/95	ND	ND	0.358	0.003	0.011	9	71.4	6.3	2	0.019	1.193	0.396
	3	9/15/95	ND	0.006	0.373	0.006	0.022	6	73.5	6.3	14	0.045	6.287	0.638
Glasgo Pond	1	8/23/95	0.010	0.006	0.281	0.002	0.010	11	59.1	8.5	8	0.010	1.302	0.116
	2	8/23/95	ND	0.006	0.267	0.001	0.009	12	64.5	8.9	8	0.015	1.306	0.098
	3	8/23/95	0.003	0.105	0.410	ND	0.010	15	66.5	9.5	11	0.016	1.605	0.105
North Grosvenor	1	11/17/95	0.247	0.009	0.681	0.022	0.102	3	153.5	9.6	2	0.009	0.764	0.041
Dale Pond	2	11/17/95	0.219	0.010	0.678	0.018	0.057	3	147.3	9.3	1	0.011	0.901	0.063
	3	11/17/95	0.225	0.008	0.681	0.016	0.054	6	145.5	9.1	4	0.017	1.037	0.067
Hannover Pond	1	9/29/95	3.308	ND	3.890	0.471	0.422	66	341.0	21.3	9	0.062	1.223	0.147
	2	9/29/95	3.260	0.011	3.924	0.463	0.418	65	310.0	21.1	7	0.059	1.153	0.131
	3	9/29/95	3.249	0.012	3.848	0.467	0.426	67	296.0	21.2	7	0.067	1.235	0.173
Highland Lake	1	9/12/95	0.002	ND	0.295	0.001	0.003	15	141.7	7.7	ND	0.025	0.790	0.102
	2	9/12/95	0.032	0.014	0.742	ND	0.005	16	145.3	9.1	ND	0.029	1.287	0.200
	3	9/12/95	0.005	ND	0.356	ND	0.004	17	140.2	8.0	ND	0.029	0.772	0.109
Lower Hocknum River	1	11/20/95	2.242	1.377	3.784	0.304	0.311	44	380.0	17.8	22	0.061	1.026	0.093
	2	11/20/95	2.224	1.403	3.801	0.275	0.315	52	377.0	17.7	20	0.050	0.844	0.085
	3	11/20/95	2.220	1.392	3.789	0.264	0.312	53	373.0	18.0	20	0.050	1.099	0.119
Housatonic Lake	1	11/10/95	0.328	0.029	0.578	0.024	0.041	57	212.0	19.5	14	0.016	0.715	0.100
	2	11/10/95	0.323	0.034	0.594	0.026	0.041	43	210.0	19.7	17	0.017	0.807	0.046
	3	11/10/95	0.323	0.032	0.585	0.026	0.037	50	208.0	19.7	15	0.012	1.029	0.031

Appendix 5, continued. Summary of chemical water quality parameters analyzed at three depths (1-m below surface, mid-, and 1-m above the lake bottom) by the Environmental Research Institute. Results are reported in mg/l.

Location	#	DATE	NOX	NH3	TDN	DIP	TDP	ALK	COND	DOC	TSS	PP	PC	PN
Lake Kenosia	1	11/9/95	0.066	0.161	0.635	0.004	0.029	64	316.0	24.4	23	0.024	1.574	0.356
	2	11/9/95	0.065	0.159	0.587	0.003	0.027	80	315.0	24.4	20	0.027	1.437	0.170
	3	11/9/95	0.065	0.155	0.639	0.005	0.026	62	320.0	24.2	16	0.043	2.324	0.277
Lake of Isles	1	8/31/95	0.120	0.009	0.536	ND	0.008	9	43.1	7.1	2	0.006	LA	LA
	2	8/31/95	0.023	0.004	0.452	ND	0.088	8	41.7	7.0	2	0.005	LA	LA
	3	8/31/95	0.029	0.016	LA	ND	LA	9	LA	LA	ND	0.005	LA	LA
Mamanasco Lake	1	11/9/95	0.010	ND	0.349	0.007	0.006	59	326.0	22.8	ND	0.009	0.745	0.289
	2	11/9/95	0.005	ND	0.346	0.003	0.009	56	326.0	23.0	ND	0.019	1.442	0.246
	3	11/9/95	ND	ND	0.320	0.002	0.008	54	320.0	22.8	ND	0.016	1.601	0.192
Mansfield Hollow Reservior	1	8/22/95	0.012	0.009	0.312	0.007	0.027	20	87.6	9.8	5	0.008	0.850	0.058
	2	8/22/95	0.006	0.005	0.255	0.004	0.010	19	80.2	9.4	5	0.010	0.970	0.054
	3	8/22/95	0.008	0.008	0.267	0.003	0.012	18	86.2	9.5	6	0.010	0.914	0.036
Mashapaug Pond	1	10/20/95	0.004	0.012	0.419	0.015	0.010	LA	218.0	5.4	3	0.015	1.026	0.137
	2	10/20/95	0.004	0.010	0.342	0.012	0.010	LA	129.0	5.2	4	0.013	0.892	0.169
	3	10/20/95	0.005	0.008	0.225	0.011	0.007	LA	118.5	5.1	2	0.021	0.850	0.161
Lake McDonough	1	9/12/95	0.002	0.004	0.275	0.002	0.007	9	607.0	4.8	ND	ND	0.699	0.087
	2	9/12/95	0.002	ND	0.296	0.005	0.021	8	58.7	4.5	ND	0.030	0.805	0.121
	3	9/12/95	0.009	ND	0.376	0.003	0.022	8	59.8	4.8	ND	0.020	0.688	0.083
Moodus Reservior	1	9/15/95	ND	ND	0.491	0.013	0.027	12	58.0	8.6	1	0.037	1.673	0.193
	2	9/15/95	ND	ND	0.499	0.011	0.024	14	56.0	8.6	ND	0.036	1.543	0.185
	3	9/15/95	ND	0.006	0.517	0.009	0.027	10	58.7	8.9	6	0.024	1.675	0.232
Mudge Pond	1	9/12/95	0.006	ND	0.416	0.002	0.023	132	161.1	42.5	2	0.020	1.148	0.163
	2	9/12/95	0.004	ND	0.414	0.004	0.025	132	315.0	42.5	3	0.034	1.127	0.148
	3	9/12/95	0.006	ND	0.417	0.002	0.022	140	317.0	43.9	1	0.034	1.700	0.228
North Farms Reservior	1	9/29/95	0.004	ND	1.063	0.058	0.110	61	178.2	24.8	23	0.253	7.021	0.785
	2	9/29/95	0.007	ND	1.243	0.077	0.109	69	195.5	30.0	23	0.217	7.426	0.990
	3	9/29/95	0.006	0.002	1.341	0.072	0.111	70	211.0	30.7	23	0.211	7.152	0.948

Appendix 5, continued. Summary of chemical water quality parameters analyzed at three depths (1-m below surface, mid-, and 1-m above the lake bottom) by the Environmental Research Institute. Results are reported in mg/l.

Location	#	DATE	NOX	NH3	TDN	DIP	TDP	ALK	COND	DOC	TSS	PP	PC	PN
Pachaug Pond	1	8/22/95	0.003	ND	0.230	0.002	0.006	12	57.3	7.4	3	0.004	0.911	0.080
	2	8/22/95	ND	0.007	0.243	ND	0.005	12	ND	7.2	4	0.006	0.762	0.069
	3	8/22/95	0.003	0.010	0.263	0.002	0.008	12	56.6	5.5	4	0.005	0.910	0.076
Powers Lake	1	9/5/95	0.021	ND	0.377	ND	0.010	4	31.4	5.4	4	0.008	1.147	0.128
	2	9/5/95	0.022	ND	0.358	ND	0.007	7	31.7	5.4	2	0.007	1.290	0.120
	3	9/5/95	ND	ND	0.359	ND	0.010	3	31.1	5.6	3	0.009	1.446	0.143
Pattagansett Lake	1	9/5/95	0.024	ND	0.228	ND	0.014	6	58.1	6.6	3	0.006	1.060	0.128
	2	9/5/95	0.023	ND	0.361	ND	0.015	7	73.9	6.6	3	0.006	1.022	0.139
	3	9/5/95	0.023	0.008	0.382	ND	0.013	12	78.9	6.5	3	0.007	1.065	0.126
Quaddick Reservior	1	9/21/95	ND	0.007	0.433	0.006	0.005	7	52.5	6.8	ND	0.010	0.895	0.066
	2	9/21/95	0.020	0.007	0.412	0.003	0.003	7	52.1	6.6	1	0.014	0.852	0.066
	3	9/21/95	0.019	0.011	0.463	0.010	0.005	6	50.8	6.8	ND	0.011	0.835	0.097
Lake Quassapaug	Unable to get water quality													
Rainbow Reservior	1	10/3/95	0.810	ND	1.089	0.131	0.118	29	190.0	10.2	7	0.064	1.511	0.304
	2	10/3/95	1.077	0.008	1.381	0.155	0.137	25	189.0	10.1	3	0.056	0.908	0.142
	3	10/3/95	1.173	0.041	1.504	0.148	0.136	27	184.0	10.0	8	0.082	1.189	0.162
Rogers Lake	1	9/5/95	0.024	ND	0.346	ND	0.022	9	57.3	6.8	5	0.006	0.764	
	2	9/5/95	0.220	ND	0.269	ND	0.022	9	60.0	6.0	5	0.005	0.963	0.077
	3	9/5/95	0.109	ND	0.349	ND	0.010	7	59.6	5.5	4	0.004	0.837	0.081
Lake Saltonstall	1	10/27/95	0.092	0.068	0.404	0.006	0.007	65	260.0	20.2	16	0.027	0.953	0.022
	2	10/27/95	0.093	0.093	0.629	0.009	0.006	64	262.0	20.1	19	0.028	1.044	0.055
	3	10/27/95	0.090	0.099	0.456	0.008	0.004	64	262.0	17.6	22	0.026	0.942	0.022
Saugatuck Reservior	1	11/9/95	0.038	0.030	0.294	0.006	0.021	26	173.0	11.9	275	0.280	6.802	0.593
	2	11/9/95	0.024	0.014	0.281	0.006	0.019	32	174.4	11.9	115	0.119	5.603	0.403
Silver Lake	1	9/29/95	0.152	0.108	1.233	0.107	0.028	64	350.0	24.4	3	0.025	1.294	0.343
	2	9/29/95	0.189	0.108	0.774	0.107	0.028	64	315.0	23.9	3	0.033	1.297	0.200
	3	9/29/95	0.192	0.101	0.753	0.105	0.006	66	515.0	24.2	4	0.022	1.386	0.208
Taunton Lake	1	11/10/95	0.074	0.215	0.493	0.023	0.043	28	165.0	12.2	13	0.037	3.656	0.495
	2	11/10/95	0.073	0.213	0.509	0.025	0.043	29	162.0	12.1	15	0.056	3.610	0.340

Appendix 5, continued. Summary of chemical water quality parameters analyzed at three depths (1-m below surface, mid-, and 1-m above the lake bottom) by the Environmental Research Institute. Results are reported in mg/l.

Location	#	DATE	NOX	NH3	TDN	DIP	TDP	ALK	COND	DOC	TSS	PP	PC	PN
Tyler Lake	1	9/12/95	0.005	0.010	0.466	0.005	0.026	43	127.8	17.2	ND	0.026	1.754	0.261
	2	9/12/95	ND	ND	0.437	0.011	0.027	42	128.8	LA	ND	0.027	1.834	0.255
	3	9/12/95	0.018	0.007	0.462	0.002	0.023	43	130.0	17.1	ND	0.041	1.636	0.236
Union Pond	1	10/3/95	2.706	1.024	4.505	0.255	0.234	52	370.0	17.8	7	0.123	1.372	0.197
	2	10/3/95	2.829	1.962	5.061	0.349	0.327	53	396.0	19.2	7	0.118	1.316	0.248
	3	10/3/95	2.869	2.244	6.187	0.357	0.336	57	465.0	19.6	6	0.120	1.569	0.339
Lake Waramaug	1	10/13/95	0.010	0.022	0.420	0.005	0.020	30	230.0	11.6	5	0.042	1.872	0.457
	2	10/13/95	0.020	0.062	0.436	0.002	0.011	25	229.0	11.4	5	0.033	1.373	0.276
	3	10/13/95	0.019	0.003	0.395	0.003	0.014	31	229.0	11.4	5	0.038	1.087	0.188
Wauregan Reservior	1	9/21/95	0.008	ND	0.305	0.002	0.004	7	127.0	5.7	ND	0.015	0.659	0.038
	2	9/21/95	0.027	ND	0.390	0.006	0.003	6	120.5	5.9	ND	0.007	0.835	0.054
	3	9/21/95	0.013	ND	0.238	ND	ND	7	132.1	5.4	3	0.014	0.939	0.089
Lake Winchester	1	9/12/95	0.013	0.024	0.491	0.002	0.024	6	56.6	17.4	ND	0.011	0.888	0.079
	2	9/12/95	0.022	0.028	0.592	0.002	0.023	5	60.1	6.5	ND	0.022	0.937	0.148
	3	9/12/95	0.015	0.029	0.518	0.002	0.021	9	54.0	6.7	1	0.023	1.102	0.121
Wononscopomuc Lake	1	9/12/95	0.005	ND	0.472	0.005	0.028	103	256.0	33.6	ND	0.023	0.994	0.104
	2	9/12/95	ND	0.017	0.475	0.006	0.020	101	255.0	33.2	1	0.014	0.802	0.073
	3	9/12/95	ND	ND	0.394	0.004	0.023	129	340.0	40.4	4	0.027	1.295	0.154
Wyassup Lake	1	8/24/95	0.008	0.014	0.398	0.002	0.009	9	55.3	6.1	3	0.005	0.548	0.071
	2	8/24/95	0.003	0.008	0.060	ND	0.006	5	56.4	5.5	2	0.006	0.554	0.138
	3	8/24/95	0.005	0.016	0.366	ND	0.007	5	48.2	4.9	4	0.005	0.475	0.083
Lake Zoar	1	11/10/95	0.361	0.034	0.671	0.024	0.041	57	224.0	20.1	20	0.025	0.972	0.162
	2	11/10/95	0.359	0.035	0.738	0.025	0.053	50	218.0	20.3	16	0.030	0.911	0.139
	3	11/10/95	0.355	0.028	0.577	0.023	0.039	54	221.0	20.0	14	0.015	0.998	0.046

Appendix 6. Data from split samples analyzed at the laboratories of the Environmental Research Institute (ERI) and the Department of Public Health and Addiction Services (DPHAS). Data listed are for mercury concentrations (ug/g wet weight) in largemouth bass from Dodge Pond.

Sample ID number	ERI (ug/g)	DPHAS (ug/g)	RPD[a]
DOD-101[b]	2.645	2.56	3.266
DOD-102[b]	1.016	0.79	25.028
DOD-103[b]	1.216	1.03	19.198
DOD-104	1.051	0.98	5.219
DOD-105[b]	0.911	0.74	20.715
DOD-106	0.927	0.97	4.533
DOD-107	1.176	1.05	11.321
DOD-108	0.926	0.89	3.960
DOD-109[b]	0.719	0.64	5.368
DOD-110	0.770	0.87	12.195

[a] RPD= relative percent difference
[b] Homogenate included muscle tissue and skin

Appendix 7. Results of mercury analysis for QA/QC tests using hatchery reared rainbow trout (*Oncorhynchus mykiss*), a commercially available livewell chemical, and Parafilm (ND= non detectable levels; Conc= concentration; CV= coefficient of variation).

Lake	Sample No	Absorbance	Conc	Mean Conc	CV	g Fish	ug/g Hg	Mean ug/g	CV
Black Pond	101	12	0.965	0.965	0.000	2.428	0.040	0.040	0.000
		12	0.965			2.428	0.040		
		12	0.965			2.428	0.040		
	107	4	ND						
		4	ND						
		4	ND						
	113	5	ND						
		4	ND						
		4	ND						
Bolton Lake	11	8	ND						
		6	ND						
		9	ND						
	12	10	ND						
		7	ND						
		9	ND						
	13	7	ND						
		8	ND						
		9	ND						
Lake Candlewood	2	2	ND						
		3	ND						
		2	ND						
	7	2	ND						
		3	ND						
		3	ND						
	13	2	ND						
		3	ND						
		4	ND						
Lake Kenosia	21	2	ND						
		5	ND						
		0	ND						
	22	-3	ND						
		7	ND						
		8	ND						

Appendix 7, continued. Results of mercury analysis for QA/QC tests using hatchery reared rainbow trout (*Oncorhynchus mykiss*), a commercially available livewell chemical, and Parafilm (ND= non detectable levels; Conc= concentration; CV= coefficient of variation).

Lake	Sample No	Absorbance	Conc	Mean Conc	CV	g Fish	ug/g Hg	Mean ug/g	CV
Lake Kenosia	23	3	ND						
		3	ND						
		3	ND						
Silver Lake	10	4	ND						
		1	ND						
		3	ND						
	11	3	ND						
		2	ND						
		1	ND						
	12	2	ND						
		1	ND						
		1	ND						
Wononskopomuc Lake	10	3	ND						
		3	ND						
		3	ND						
	16	2	ND						
		1	ND						
		6	ND						
	28	1	ND						
		1	ND						
		4	ND						
Livewell QC- run with Reservior		3	ND						
		3	ND						
		3	ND						
Livewell QC- run with Wauregan		1	ND						
		2	ND						
		1	ND						
Parafilm QC- run with Park Pond		3	ND						
		1	ND						
		2	ND						

Appendix 8. Precision and recovery of mercury in duplicate and spiked fish samples. Samples are in chronological order of analysis (Conc= concentration in tissue; RPD= relative percent difference; dup= duplicate; spk= spiked sample). Values are reported in ug/g wet weight.

Sample Number	Weight g	Conc	RPD	Spike Value	Target Value	Percent Recovery
Amos Pond-01	1.110	0.589				
dup	1.010	0.551	6.709			
spk	1.220	1.633		1.25	1.614	101.9
Moodus Reservior-02	1.210	0.624				
dup	1.100	0.633	1.362			
spk	1.190	1.669		1.25	1.674	99.4
Lake Winchester-01	1.200	1.026				
dup	1.370	1.048	2.161			
spk	1.190	2.115		1.25	2.076	103.7
East Twin Lake-01	1.190	0.456				
dup	1.120	0.472	3.422			
spk	1.120	1.522		1.25	1.572	95.5
Mansfield Hollow Reservior-03	1.030	0.440				
dup	1.030	0.466	5.666			
spk	1.040	1.563		1.25	1.642	93.4
Batterson Park Pond-01	1.461	0.437				
dup	1.021	0.465	6.179			
spk	1.345	1.235		1	1.180	107.4
Highland Lake-10	1.054	0.176				
dup	1.272	0.177	0.051			
spk	1.427	0.809		1	0.877	90.2
North Farms Reservior-01	1.091	0.542				
dup	1.132	0.620	13.506			
spk	1.246	1.234		1	1.345	86.3
Lake McDonough-02	1.251	0.573				
dup	1.379	0.549	4.243			
spk	1.228	1.311		1	1.387	90.7
Mashapaug Pond-01	1.368	0.271				
dup	1.263	0.248	8.789			
spk	1.190	1.056		1	1.111	93.4
Silver Lake-03	1.285	1.418				
dup	1.098	1.479	4.199			
spk	1.305	2.104		1	2.184	89.5
Ball Pond-01	1.349	0.676				
dup	1.320	0.615	9.467			
spk	1.304	1.426		1	1.443	97.8
Lake Kenosia-07	1.211	0.238				
dup	1.010	0.242	1.802			
spk	1.267	0.971		1	1.027	92.9

Appendix 8, continued. Precision and recovery of mercury in duplicate and spiked fish samples. Samples are in chronological order of analysis (Conc= concentration in tissue; RPD= relative percent difference; dup= duplicate; spk= spiked sample). Values are reported in ug/g wet weight.

Sample Number	Weight g	Conc	RPD	Spike Value	Target Value	Percent Recovery
Hanover Pond-06	1.006	0.155				
dup	1.200	0.146	5.643			
spk	1.156	1.057		1	1.020	104.2
Candlewood Lake-06	1.092	0.502				
dup	1.140	0.473	5.940			
spk	1.175	1.284		1	1.353	91.9
Wononscopomuc Lake-13	1.005	0.457				
dup	1.175	0.461	0.865			
spk	1.229	1.286		1	1.271	101.9
Pachaug Pond-01	1.101	0.406				
dup	1.089	0.322	22.908			
spk	1.170	1.175		1	1.261	90.0
Pattagansett Lake-01	1.097	0.526				
dup	0.988	0.531	0.988			
spk	1.053	1.551		1	1.476	107.9
Taunton Lake-01	1.236	0.297				
dup	1.220	0.306	2.978			
spk	1.447	0.930		1	0.988	91.7
Lake Zoar-08	1.289	0.667				
dup	1.044	0.693	3.768			
spk	1.110	1.447		1	1.568	86.6
Rainbow Reservior-05	1.029	0.158				
dup	1.141	0.156	1.663			
spk	1.101	0.947		1	1.066	86.8
Bashan Lake-01	1.313	1.252				
dup	1.382	1.261	0.694			
spk	1.184	2.103		1	2.097	100.7
Canoe Brook Lake-04	1.455	0.195				
dup	1.047	0.183	6.343			
spk	1.421	0.815		1	0.899	88.0
Powers Lake-01	1.117	0.767				
dup	1.128	0.725	5.625			
spk	1.229	1.474		1	1.581	86.9
Wauregan Reservior-03	1.141	0.399				
dup	1.481	0.443	10.372			
spk	1.274	1.111		1	1.184	90.7
Lake Saltonstall-08	1.867	0.125				
dup	0.988	0.153	20.117			
spk	1.020	1.001		1	1.105	89.4

Appendix 8, continued. Precision and recovery of mercury in duplicate and spiked fish samples. Samples are in chronological order of analysis (Conc= concentration in tissue; RPD= relative percent difference; dup= duplicate; spk= spiked sample). Values are reported in ug/g wet weight.

Sample Number	Weight g	Conc	RPD	Spike Value	Target Value	Percent Recovery
Quaddick Reservior-01	1.015	0.614				
dup	1.047	0.607	1.138			
spk	1.247	1.294		1	1.416	84.8
Mudge Pond-01	1.007	0.388				
dup	1.101	0.381	2.047			
spk	1.011	1.305		1	1.377	92.7
Tyler Lake-101	1.491	0.383				
dup	1.008	0.388	1.258			
spk	1.091	1.204		1	1.300	89.6
Cedar Swamp Pond-05	1.485	0.797				
dup	0.915	0.874	9.324			
spk	1.045	1.656		1	1.754	89.8
Lake Quassapaug-01	1.353	0.689				
dup	1.197	0.610	12.189			
spk	1.139	1.505		1	1.567	92.9
CT River (Wethersfield)-01	1.485	0.619				
dup	1.427	0.602	2.680			
spk	1.151	1.443		1	1.488	94.8
CT River (Enfield)-06	1.183	0.458				
dup	1.213	0.460	0.372			
spk	1.307	1.111		1	1.223	85.4
Glasgo Pond-01	1.036	0.634				
dup	1.123	0.660	4.007			
spk	1.034	1.617		1	1.601	101.6
CT River (Enfield)-01	1.283	0.241				
dup	1.461	0.258	7.023			
spk	1.735	0.808		1	0.817	98.4
Lake Waramaug-05	1.333	0.158				
dup	1.258	0.168	5.789			
spk	1.290	0.905		1	0.933	96.3
Long Island Sound-01	1.493	0.114				
dup	1.399	0.122	6.501			
spk	1.542	0.764		1	0.763	100.2
Cystal Lake (Ellington)-01	1.015	0.250				
dup	1.096	0.242	3.358			
spk	0.974	1.172		1	1.277	89.8
Lake McDonough-104	1.137	0.680				
dup	1.223	0.658	3.216			
spk	1.041	1.569		1	1.641	92.6

Appendix 8, continued. Precision and recovery of mercury in duplicate and spiked fish samples. Samples are in chronological order of analysis (Conc= concentration in tissue; RPD= relative percent difference; dup= duplicate; spk= spiked sample). Values are reported in ug/g wet weight.

Sample Number	Weight g	Conc	RPD	Spike Value	Target Value	Percent Recovery
Dodge Pond-104	1.242	1.051				
dup	1.305	0.975	7.438			
spk	1.496	1.627		1	1.719	86.2

Control limits for the RPD are ±15%.
Control limits for Percent Recovery are 85-115%.

Target Value = $\left(\frac{(SpikeValue(\mu g))}{Weightoffishusedinspike}\right)+Concentrationfororiginalsample$

% Recovery= $\left(\frac{(Conc.ofspikedsamp.-Conc.oforiginalsamp.)\times Wt.offishinspike}{Spikevalue(\mu g)}\right)\times 100$

RPD= $\left(\frac{Conc.oforiginalsample-Conc.ofduplicatesample}{\left(\frac{Conc.oforiginalsample+Conc.ofduplicatesample}{2}\right)}\right)\times 100$

Appendix 9. Precision and recovery of mercury in duplicate and spiked sediment samples. Samples are in chronological order of analysis (Conc= concentration in sediment; RPD= relative percent difference; dup= duplicate; spk= spiked sample). Values are reported in ug/g dry wt.

Sample Number	Weight g	Conc	RPD	Spike Value	Target Value	Percent Recovery
Billings Lake-02S	0.039	0.190				
dup	0.039	xxx[1]	xxx[a]			
spk	0.054	18.254		1	18.709	97.5
Lake of Isles-01S	0.128	0.347				
dup	0.087	0.276	22.868[b]			
spk	0.090	10.425		1	11.458	91.0
Powers Lake-01S	0.197	0.284				
dup	0.189	0.312	9.475			
spk	0.184	5.995		1	5.719	105.1
Lake McDonough-01S	0.359	0.043				
dup	0.368	0.183	124.2[b]			
spk	0.413	2.347		1	2.464	95.2
Burr Pond-01S	0.147	0.373				
dup	0.156	0.389	4.331			
spk	0.146	6.485		1	7.222	89.3
Mudge Pond-01S	0.286	0.228				
dup	0.255	0.199	18.817			
spk	0.290	3.508		1	3.676	95.0
Quaddick Reservior-01S	0.191	0.235				
dup	0.228	0.235	0.283			
spk	0.190	4.718		1	5.498	85.4
North Farms Reservior-01S	0.128	0.505				
dup	0.105	0.433	15.316[b]			
spk	0.123	8.547		1	8.635	98.7
Lake Waramaug-03S	0.370	0.358				
dup	0.293	0.347	3.302			
spk	0.343	3.200		1	3.273	97.5
Lake Kenosia-01S	0.233	3.608				
dup	0.262	3.481	3.567			
spk	0.243	7.846		1	7.723	103.0
Lake CandlewoodCAN-01S	0.633	0.189				
dup	0.549	0.190	0.510			
spk	0.541	2.071		1	2.037	101.9
Hocknum River-01S	0.594	0.108				
dup	0.603	0.183	51.799			
spk	0.613	1.802		1	1.739	103.9

[a] Lab Accident.

[b] Poor RPD due to non detectability of sample.

Appendix 9, continued. Precision and recovery of mercury in duplicate and spiked sediment samples. Samples are in chronological order of analysis (Conc= concentration in sediment; RPD= relative percent difference; dup= duplicate; spk= spiked sample). Values are reported in ug/g dry wt.

Control limits for the RPD are ±15%.
Control limits for Percent Recovery are 85-115%.

$$\text{Target Value} = \left(\frac{(\mathit{Spike\,Value}(\mu g))}{\mathit{Weight\,of\,sed.\,used\,in\,spike}}\right) + \mathit{Concentration\,for\,original\,sample}$$

$$\text{RPD} = \left(\frac{\mathit{Conc.\,of\,original\,sample} - \mathit{Conc.\,of\,duplicate\,sample}}{\left(\frac{\mathit{Conc.\,of\,original\,sample} + \mathit{Conc.\,of\,duplicate\,sample}}{2}\right)}\right) \times 100$$

$$\%\ \text{Recovery} = \left(\frac{(\mathit{Conc.\,of\,spiked\,samp.} - \mathit{Conc.\,of\,original\,samp.}) \times \mathit{Wt.\,of\,sed.\,in\,spike}}{\mathit{Spike\,value}(\mu g)}\right) \times 100$$

Appendix 10. Fish collection, necropsy, sediiment sampling, and water sampling standard operating procedures.

STANDARD OPERATING PROCEDURES
Fish Collection and Sample Preparation

Modified from:

Lauenstein and Cantillo. 1993. NOAA Technical Memorandum NOS ORCA 71. Vol.1.

Environmental Protection Agency. 1993. Guidance for assessing chemical contaminant data for use in fish advisories, Volume 1, Fish sampling and analysis. United States Environmental Protection Agency, EPA 823-R-93-002

I. Sampling Preparation (to be done immediately prior to field work)

A. Fish measuring boards will be cleaned with detergent, rinsed 5 times with DI water, and stored in plastic bags or plastic wrap until use.

B. Ice chests, holding tanks (including lids), and ambient lake water containers will be cleaned with detergent, rinsed with dilute HNO3, rinsed 5 times with DI water, and taped sealed until use.

C. All utensils that will be in contact with fish will be cleaned with detergent, rinsed with dilute HNO3, rinsed 5 times with DI water, and stored in plastic bags or plastic wrap until use **Note: any acid washing of stainless steel tools should be done quickly to avoid mobilization of metals.**

II. Fish Collection

Tournaments

A. Appropriate contacts will be made to notify tournament organizers of the project.

B. During or after the tournament weigh-in, ten largemouth bass will be selected from the tournament catch; three largemouth bass in each of three length groups will be selected (12-14.9 in; 15-17.9 in, and 18+ in); an additional bass will be collected based on availability of fish within a particular length group. Largemouth bass will be sorted by length and all fish will be placed in a clean polyethylene holding tank filled with ambient lake water for subsequent sample preparation. The holding tank cover will be closed at all times when fish are not being added or removed.

C. At this point, personnel will be required to wear talc-free rubber gloves.

D. Individual fish will be removed from the holding tank (replacing the lid each time to avoid outside contamination), measured to the nearest mm.

E. Spines will be sheared to minimize punctures to polyethelene bags.

F. The bass will then be thoroughly rinsed in ambient lake water using a polyethelene spigot wash tank with lid, sealed in a polyethylene bag, and weighed to the nearest g. After weighing, the bagged fish is then sealed in a second bag along with a identification tag placed between bags.

G. Whole fish will be immediately packed on dry ice in a cooler and returned to the laboratories of ERI. Fish will remain on dry ice no longer than 24 hours before freezing.

BETWEEN EACH FISH WORKUP: Hands and all utensils wil be rinsed in ambient lake water. The measuring board surface will be covered with new clear plastic wrap. Steps C-G are repeated until all fish are processed.

At all times fish and other equipment will not be in contact with any dirty surfaces.

Electrofishing

A. Sample preparation (A-E)

B. Fish captured by electrofishing will be placed in a clean polyethelene holding tank filled with ambient lake water. The lid of the holding tank will only be removed for adding or removing fish. During netting, contact between fish and boat surfaces will be avoided.

C. If possible, all electrofishing will be conducted up wind of any outboard motors to avoid contamination with exhaust.

D. Once all fish are captured, the motor will be stopped before sample preparation. Under no circumstances will the person operating the motor be allowed contact with the fish.

E. Steps C-G of tournament procedures will be followed.

III. Dissection Environment Preparation

A. All fish will be dissected in a positive pressure laminar flow hood.

B. All work surfaces will be acid-washed, rinsed using deionized water (DI) and air dried in the laminar flow hood.

C. Two sets of stainless steel dissecting instruments will be cleaned thoroughly with a detergent solution, rinsed with tap water, sprayed with dilute HNO3, rinsed with deionized water, and thoroughly sprayed with deinoinzed water (these include: knives, scissors, forceps).

D. New polyethylene cleanroom gloves will be worn between each fish workup.

E. Prior to each new fish, repeat steps B through D

IV. Fish Specimen Preparation

A. Fish will be examined for abnormalities, discoloration, general well-being, etc.

B. The outside of the fish will be washed with distilled water and placed on a clean cutting board. The fish is layed flat, and a sample of scales is removed at the tip pectoral fin by using the blade edge of a clean stainless steel knife.

C. Fish will be measured to the nearest mm on a measuring board covered wih new polyethylene wrap. Fish will be weighed to the nearest gram on a new polyethylene lined balance tray prior to necropsy. The polyethene liner is replaced after each measurement.

D. Fish will be placed with their left side facing up. A series of three cuts will be made to expose muscle. The first cut extends dorsally from the base of the tail to the top of the head. Make a shallow cut along the belly from the base of the pectoral fin to the tail. A shallow cut will extend from the ventral to the dorsal side of the tail. Damage or exposure to internal organs will be avoided.

E. The knife will be rinsed in a DI container, and sprayed with DI between cuts to remove any scales and mucus.

F. The knife will be used to lift the edge of the skin along the cut line at the posterior end of the fish. The skin is pulled back using clean stainless steel forceps, and cut from the muscle using a clean filet knife to expose the muscle mass. The locked forceps are used to hold the skin away from the muscle.

G. The core of the muscle tissue mass will be cut free and removed, placed in a clean whirl-pak, labeled, and stored until homogenization. The filets are frozen if the period between excision and homogenization is greater than 4 hours, otherwise they are refrigerated.

H. The filets are homogenized in an acid washed food processor with a stainless steel blade inside the laminar flow hood, and ground until the entire filet is homogenized. Approximately 1 gram of the homgenate is removed using a clean pair of forceps, placed on clean weighing paper, weighed, wrapped in the paper and inserted into an acid washed BOD bottle. The sample weight and identification number is placed on the bottle.

STANDARD OPERATING PROCEDURES
Sediment and Water Quality Sampling

I. Sampling Equipment Preparation (prior to each sampling trip)

A. The kemmerer bottle and 1L sample bottles will we rinsed in tap water, soaked in detergent and warm water, rinsed in tap water, soaked for 5 mins. in 3% HCl and triple rinsed in DI water. The kemmerer bottle will be filled with DI, and the clamp opened to clean the drain.

B. The bottles will be air dried and placed in clean plastic bags and the kemmerer will be placed in a clean plastic bag and stored in its case between sampling trips.

C. The dredge and acrylic liners will be rinsed with tap water, soaked in detergent and warm water, rinsed in tap water, and triple rinsed in DI water.

D. The dredge's vent screen will be removed. The liners will be soaked in a nitric acid bath for no longer than eight hours and then triple rinsed in DI water. The vent screen will be rinsed in a nitric acid bath and triple rinsed with DI water.

E. The vent screen will be placed in a clean plastic bag, and the acrylic liners covered on both ends with plastic wrap.

F. The sediment specimen cups, spoon, and spatula will be rinsed with tap water, soaked in detergent and warm water, rinsed in tap water, soaked overnight in nitric acid, and triple rinsed in DI water. The cooler will be rinsed with tap water, detergent washed, rinsed with tap water, sprayed with a 10% nitric acid solution, and triple rinsed with DI water.

G. The cooler will be sealed with duct tape, and the spoon and spatula will be placed in a plastic bag.

H. The spray bottles of DI and 10% Nitric Acid will be filled for field decontamination between study sites.

II. Ambient Water Parameters

Water quality parameters will be taken at the center of the water body.

Maximum Depth at Sample Collection Location

A. Depth will be measured by a graphical depth/fish finder. The maximum depth will be recorded on the data sheet.

Secchi Disk

A. The secchi disk will be slowly lowered over the side of the boat until it dissapears from sight.

B. The disk will then be raised until it comes back into sight. The secchi depth will then be recorded on the data sheet. This process will be repeated three times, with each measurement recorded on the data sheet

C. Sunglasses will not be worn (to standardize between lakes/personnel).

Hydrolab- Recorder

A. The Hydrolab recorder multiprobe will be taken out of its case and assembled.

B. The probe will be lowered to 1 m below the surface and kept there for 1 minute for the readings to stabilize.

C. Step B will be repeated at mid depth, 1 m above the surface, again at mid depth, and at 1 m below the surface.

III. Sample Collection

A. Prior to collection of water and sediment samples, personnel will be required to wear new talc free rubber gloves.

Water Sample Collection

A. The kemmerer water bottle will be cocked open by grasping the the two stoppers and pulling apart until the bottle locks in the open position.

B. The water bottle will be lowered over the side of the boat, upstream of the engine smoke plume to avoid contamination. At a depth of 1m below the surface, the messenger will be released, closing the two stoppers.

C. The bottle will then be pulled to the surface, and into the boat.

D. The clamp on the drain tube will be opened and water will be allowed to drain away for 5 seconds, thereby cleaning the drain tube. The 1L bottle will then be opened and the remainder of the water will be siphoned into it. The 1L bottle will be capped and placed inside the ziplock bag.

E. Steps A thru E will be repeated at mid depth and 1m above the bottom.

F. The kemmerer will be triple rinsed by using the DI spray bottle, and placed in a plastic bag.

Sediment Collection

A. The dredge screen will be taken out of the plastic bag and affixed to the dredge. The dredge is then attached to the clip on the end of the winch rope.

B. Clean polyethylene cutting boards will be placed on the

C. The dredge will be cocked open using the safety pin, the cotter pin on the side of the dredge is removed, a clean acrylic liner is placed in the dredge, and the cotter pin is reattached.

D. The dredge is placed on the polyethylene cutting board, the safety pin is removed, and the spring loaded pin is placed in the trip.

E. The dredge is swung out over the water, and slowly lowered to 1.5 m above the botttom. The dredge is then allowed to freely descend and dig into the sediment.

F. The dredge is pulled up out of the water and swung into the boat. The dredge is lowered onto a polyethylene cutting board and the side cotter pin removed. The dredge is then opened, allowing the core and acrylic liner to slide out.

G. The premarked specimen cup is opened and the top 5 cm of the core is removed and placed into the cup. The cup is sealed, placed in an individual plastic bag, and then placed in a large plastic bag.

H.The dredge and screen will be rinsed in ambient lake water.

I.A clean acrylic liner is inserted into the dredge and the dredge is then closed.

J.Steps C to I will be repeated for each of the two other samples.

IV. Collection Equipment Decontamination

Between lakes, the collection equipment will be cleaned to prevent cross-contamination.

A. The kemmerer water bottle will be sprayed with dilute nitric acid, triple rinsed with DI, half filled with DI, and then allowed to drain through the valve.

B. The sampler is placed in a plastic bag, and then the carry case.

C. The vent screen and acrylic liners will be rinsed with ambient lake water, sprayed with a dilute nitric acid solution, and triple rinsed with DI. The acrylic liners are wrapped in plastic wrap. The vent screen is placed in a plastic bag and sealed.

D. The plastic tray, spoon, and spatula are rinsed in lake water, sprayed with nitric acid, and triple rinsed with DI. The spoon and spatula are placed in plastic bags.