Mercury and Organic Chemicals in Fish from the New York City Reservoir System

by

Jefferey J. Loukmas and Lawrence C. Skinner
Bureau of Habitat, Division of Fish, Wildlife, and Marine Resources
New York State Department of Environmental Conservation
Albany, NY

March 9, 2005

ABSTRACT

The 19 upstate reservoirs in New York City's water supply system all support active fisheries, but recent contaminant monitoring in five of these reservoirs detected elevated mercury concentrations in certain species of fish. The lack of fish contaminant data for the other reservoirs and the likelihood that elevated mercury levels would be found prompted this project. From 2001 - 2003, important recreational fish species from 16 reservoirs (two reservoirs, Cannonsville and Pepacton, were re-sampled because contaminant data were available for only one species from each reservoir) were examined for polychlorinated biphenyls, organochlorine pesticides, dioxins, furans, and mercury residues.

Mercury was confirmed as the primary contaminant of concern in fish tissue from the reservoir system. Mercury concentrations above the United States Food and Drug Administration (USFDA) enforcement limit of 1000 ng/g were detected in 13.6% of the samples and included seven species and 14 reservoirs. The New York State Department of Health (NYSDOH) subsequently issued human consumption advisories for six species from 11 reservoirs. Species included in the advisories were walleye (*Sander vitreus*), smallmouth bass (*Micropterus dolomieui*), largemouth bass (*Micropterus salmoides*), brown trout (*Salmo trutta*), white perch (*Morone americana*) and yellow perch (*Perca flavescens*). There are now 14 reservoirs, including all six west of the Hudson River, within the New York City system with mercury-related health advisories.

Chlorinated dioxin and furan, PCB, and DDT concentrations were below USFDA or NYSDOH health criteria for all samples. However, many samples exceeded the corresponding United States Environmental Protection Agency (USEPA) risk-based criteria. Relatively high PCB concentrations in Bog Brook Reservoir fish indicated a potential point source problem that should be investigated further.

The USEPA piscivorous wildlife criterion for mercury in high trophic level fish (346 ng/g) was exceeded in 50% of the samples. Further monitoring of mercury in smaller, forage fish and piscivorous wildlife is recommended. There were few samples that exceeded the wildlife health criteria for chlorinated dioxins and furans, and DDT. None of the samples exceeded either the human or wildlife guidance levels for chlordane or other analytes.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

INTRODUCTION

The New York City water supply watershed consists of three reservoir systems, made up of 19 reservoirs and 3 controlled lakes, in and around the Catskill Mountains and the lower Hudson River Valley (Figures 1 and 2). The Croton system is located to the east of the Hudson River and includes 12 reservoirs and 3 controlled lakes. The remaining reservoirs are located in the Delaware and Catskill systems, which are primarily west of the Hudson River. The entire watershed encompasses almost 2,000 square miles and supplies drinking water to about nine million people in New York City and the metropolitan area, as well as some communities through which the connecting aqueducts pass. All of the reservoirs support active fisheries and are available for restricted public use via a permit issued by the New York City Department of Environmental Protection (NYCDEP).

Due to increasing concerns about contaminant levels, especially mercury, in fish and a corresponding paucity of contaminant data from the watershed, five reservoirs (Ashokan, Cannonsville, Neversink, Pepacton and Rondout reservoirs) were assessed by the New York State Department of Environmental Conservation (NYSDEC) from 1998 - 1999 to determine polychlorinated biphenyl (PCB), organochlorine pesticide, and mercury levels in popular recreational fish species. Elevated mercury concentrations ($\geq$1000 ng/g) were documented in fish from all five reservoirs (NYSDEC, unpublished data, Table 2), which prompted the New York State Department of Health (NYSDOH) to issue health advice to consumers of affected fish from these waters (NYSDOH 2000). Health advice was issued for smallmouth bass (*Micropterus dolomieui*) in all five reservoirs and for walleye (*Sander vitreus*) in Ashokan Reservoir. Polychlorinated biphenyl and organochlorine pesticide concentrations did not provide a cause for issuance of health advice.

Because all five New York City reservoirs that were tested contained at least one fish species with elevated mercury concentrations, additional reservoirs may have similar conditions. In order to determine the contaminant status of fish from other reservoirs in the New York City water supply system a monitoring program was developed. Our objectives were: 1) to provide current information on the concentrations of mercury, PCB and organochlorine pesticides in representative samples of indicator fish species taken from the 16 New York City reservoirs lacking recent analytical data; 2) in consultation with the New York State Department of Health, to provide appropriate health advice to consumers of fish taken from New York City reservoirs; 3) to provide a limited assessment of the relative health of fisheries as part of the aquatic and terrestrial ecosystem; and 4) to provide baseline data for future contaminant trend analysis.

METHODS

Sampling locations

Sixteen reservoirs were selected for fish sampling and subsequent chemical analysis (Table 1, Figures 1 and 2). The three reservoirs (Ashokan, Rondout and Neversink) having adequate chemical residue data collected from 1998-1999 (Table 2) were excluded. Cannonsville and Pepacton reservoirs were included because only one species (smallmouth bass) was previously sampled from both reservoirs. Sampling was conducted over a three-year period from spring through fall 2001 - 2003.

Table 1. New York City water supply reservoirs that were sampled, 2001 - 2003.

Reservoirs East of the Hudson River[1]	Amawalk	Bog Brook	Boyds Corner
	Cross River	Diverting	Croton Falls
	East Branch	Kensico	Middle Branch
	Muscoot	New Croton	Titicus
	West Branch		
Reservoirs West of the Hudson River[2]	Cannonsville	Pepacton	Schoharie

[1] All reservoirs east of the Hudson River are part of the Croton system except Kensico Reservoir which receives water from both the Catskill and Delaware systems and West Branch Reservoir which receives water from the Delaware system.
[2] Cannonsville and Pepacton reservoirs are located in the Delaware system; Schoharie Reservoir is located in the Catskill system.

Sample selection and collection

Six fish species with high public interest (i.e., palatable and recreationally valuable) were selected to represent those species with the greatest likelihood of containing elevated concentrations of mercury or the organic chemicals being assessed. The six species were brown trout (*Salmo trutta*), lake trout (*Salvelinus namaycush*), largemouth bass (*Micropterus salmoides*), smallmouth bass, walleye, and yellow perch (*Perca flavescens*). However, not all of these fish were present in each of the reservoirs, so other available fish species were selected as substitutes. Legal edible sizes of fish were targeted and the samples typically taken represented the range of legal edible sizes available to the angler.

All samples were collected by experienced NYSDEC and NYCDEP fisheries personnel. Sampling was conducted by electrofishing, gill netting, and angling. Fish were handled according to standard NYSDEC procedures (Appendix A) which required recording the date of collection, a unique identification number, the location including GIS coordinates, species, length in millimeters, weight in grams, and method of collection on standard specimen collection forms. Chain of custody forms were maintained and samples were kept cool after collection until measurements were taken and identification tags were attached to the specimens. Samples were frozen immediately after handling. They were subsequently delivered in a frozen state to the NYSDEC Hale Creek Field Station in Gloversville, NY, where they were stored at -20 C in a locked freezer until tissue processing ensued.

Tissue preparation and chemical analysis

Each fish sample was processed according to standard NYSDEC methods (Appendix A). This included partially thawing the fish sample, removing scales and then removing a skin-on and rib bone-in fillet that extended from the gill cover to the caudal fin (i.e., standard fillet). The fillet was then homogenized in a food processor and split into three aliquots for chemical analyses. Aliquots were placed in cleaned and labeled clear glass jars and refrozen. Frozen samples that were prepared for shipment to contract laboratories were placed in styrofoam shipping containers, which were packed with stryofoam nuggets. Sample analysis request information was included and the containers were then sealed and shipped to the appropriate analytical laboratories by overnight delivery.

Upon receipt at each analytical laboratory, all samples were checked for condition and logged into sample tracking systems. CEBAM Analytical, Inc., (Seattle, WA) conducted mercury analyses, Brehm Laboratories at Wright State University (Dayton OH) conducted dioxin and furan analyses, and AXYS Analytical, Inc., (British Columbia, Canada) conducted PCB and organochlorine pesticide analyses. Analytical methods used included United States Environmental Protection Agency (USEPA) Method 1631 for mercury, USEPA Method 8290 for dioxins and furans and AXYS Method MLA 007 for determination of PCB Aroclors and chlorinated pesticides. All samples were analyzed for total mercury. Where available, 3 samples of each species from each reservoir were analyzed for PCB and organochlorine pesticides. Also, up to 3 samples of a selected species from each reservoir were analyzed for chlorinated dioxins and furans. All PCB, organochlorine pesticide, and mercury data were reported in units of ng/g (ppb) wet weight whereas chlorinated dioxins and furans were reported in pg/g (ppt) wet weight. Lipids were reported as a percentage.

Analytical quality control for mercury consisted of certified reference materials, matrix spikes and matrix spike duplicates, sample duplicates, and method blanks. The rate of the quality control samples was typically one for every 15 unknown samples. Quality control for chlorinated dioxins and furans included analysis of laboratory blanks, sample duplicates, and matrix spikes at a rate of at least one for every nine samples. Recovery of radio-labeled standards was also determined for each sample analysis. For PCB and organochlorine pesticides, analysis of laboratory blanks, sample duplicates, and matrix spikes were analyzed at a rate of one of each quality control sample for each 15 unknown samples. Recovery of radio-labeled standards was again determined in conjunction with each sample analysis.

Data reporting and statistical analyses

Summary descriptive statistics, calculated within a Microsoft Excel© database, for samples tested for chemical analytes were reported in tabular format and typically include sample sizes, lengths, weights, and contaminant concentration means, standard deviations (where appropriate), and ranges. Non-detects for PCBs and organochlorine pesticides were either reported as half the detection limit when they were combined with other positive values, or a maximum detection limit was given when the analytes from multiple individuals of one species were all not detected. For dioxins and furans, non-detects were calculated both as zero and ½ the detection limit for 2,3,7,8-TCDD TEQ summaries and were also reported as the detection limit for congener-specific tables.

Statistix® 8 software (Analytical Software 2003) was used to perform all statistical tests. The Shapiro-Wilk test was used to assess fish length and mercury levels for normality. Data were log-transformed when appropriate to meet parametric test assumptions; however, minor and infrequent departures from normality were deemed acceptable. Pearson correlation analyses were used to compare the relationship between fish length and mercury concentrations. Linear regressions were also performed using mercury concentrations and fish length as the dependent and independent variables, respectively, with subsequent regression-based predictions made for average-sized fish of certain species in order to make intra-specific comparisons among reservoirs. Because of small sample sizes, species and reservoir comparisons for dioxins/furans, PCBs, and organochlorine pesticides were made qualitatively, without regard for differences in fish size.

RESULTS AND DISCUSSION

Sample collections

Six reservoirs were sampled in 2001, 10 were sampled in 2002, and two were resampled in 2003 to expand collections (Appendix B). A total of 784 fish among 16 species were collected for chemical analysis. Of the targeted species, yellow perch were the most ubiquitous; 142 were collected from 15 reservoirs. Lake trout (n = 10) were the least common and were collected from only one reservoir. Black crappie (*Pomoxis nigromaculatus*), bluegill (*Lepomis macrochirus*), chain pickerel (*Esox niger*), cisco (*Coregonus artedii*), common carp (*Cyprinus carpio*), pumpkinseed (*Lepomis gibbosus*), rock bass (*Ambloplites rupestris*), white catfish (*Ictalurus catus*), and white perch (*Morone americana*) were the species not initially considered as targets but were collected and used as substitutes when target species were not available or if they were prevalent in the reservoirs (e.g., white perch were captured from 11 reservoirs). We collected eight species from one reservoir (Diverting), seven species from four reservoirs, six species from five reservoirs, and five, four, and three species from two reservoirs each (Appendix B).

Analytical quality assurance and quality control

USEPA (2000a) recommended guidelines were used for determining quality assurance and quality control for all sample analyses. For mercury, most quality control results were within the general guidelines (Table 3). The only deviation from the guidelines occurred where mercury was detected in concentrations slightly above the detection limit of 0.5 μg/g in four of 41 method blank samples; however, these levels were not elevated enough to cause concern about instrument contamination.

Quality control determinations for dioxins and furans were also generally acceptable. Recovery of isotope-labeled standards (Table 4) and matrix spikes (Table 5) both fell within guideline ranges. Several laboratory duplicates did not meet recommended control limits (RPD $\leq$20, Table 6) but detected concentrations for these samples were near detection limits (duplicate analytical results near the detection limit may have exaggerated relative percent differences and still be acceptable because data variability increases when concentrations are low) so these results were deemed acceptable.

Recoveries of isotope-labeled compounds for PCB and organochlorine pesticides were generally within acceptable limits (Table 7). Also, laboratory duplicates of PCB and organochlorine pesticides primarily fell within guideline parameters (Table 8). One duplicate sample for delta HCH indicated an RPD of 148, well outside the control limits. However the detected levels again approximated detection limits and the results were accepted. Most laboratory blanks contained no detectable concentrations of target analytes thus indicating no instrument contamination. Laboratory blanks with detected analyte concentrations were all very near detection limits and were thus acceptable. All PCB and organochlorine pesticide quality assurance and quality control results also were thoroughly reviewed and accepted by QA/QC chemists at AXYS Analytical, Inc.

Analytical results by analyte group

Mercury

Total mercury was detected in all 784 fish tissue samples. The mean mercury concentration for all fish was 496 ng/g (SD = 428 ng/g) and levels ranged from 17 ng/g in a common carp from Bog Brook Reservoir to 2633 ng/g in a walleye from Schoharie Reservoir . Walleye (n = 55) had the highest mean mercury concentrations among species ($\bar{x}$ = 1264 ± 516 ng/g), while white suckers (n = 10) had the lowest levels ($\bar{x}$ = 94 ± 30 ng/g, Table 9). Walleye were collected from six reservoirs and had the highest mercury concentrations among all species in five of those (Table 10). In the one exception, Schoharie Reservoir, smallmouth bass ($\bar{x}$ = 1739 ± 420 ng/g) had higher mean mercury levels than walleye ($\bar{x}$ = 1559 ± 596 ng/g). For the eight species with at least 50 samples, a ranking of mean mercury levels is as follows: walleye > smallmouth bass > largemouth bass > white perch > brown trout > yellow perch > common carp > black crappie. Because these eight species were the only ones with sufficient sample sizes, these were the species used for statistical and qualitative comparisons.

When compared within individual reservoirs, fish length and mercury concentrations were, in most cases, positively correlated (Table 11). Brown trout were the only species to consistently exhibit a significant positive relationship between these variables within all the reservoirs from which they were sampled. There also was a positive relationship between length and mercury for largemouth and smallmouth bass within most reservoirs. In one instance there was a significant negative relationship (i.e., mercury levels in common carp from Cross River decreased with increasing fish length). Length/mercury correlations for other species determined either positive or no relationships between these variables, depending on the reservoir. Individual species data combined for all reservoirs were determined to be nonparametric, so these data were log-transformed before correlations were performed. Correlation analysis of the combined length and mercury concentration data determined that only common carp did not have a positive relationship between length and mercury concentrations (Table 11).

Because mean fish size differed among reservoirs (Table 10), and the generally positive relationship between fish length and mercury, there was a need to standardize fish lengths in order to make mercury concentration comparisons between reservoirs. Predicted values and 95% prediction intervals for average-sized fish (based on the mean length of each species for all reservoirs combined, Table 9) were determined for the eight most common species in reservoirs where at least five individuals were collected (Figures 3 - 10). Also, in order to make a more complete regional evaluation of the reservoir system, data from the 1998 and 1999 collections (Table 2) were included in this assessment. For 250 mm yellow perch and 395 mm smallmouth bass, a comparison of 16 reservoirs indicates that fish from reservoirs west of the Hudson River had higher mercury concentrations than those to the east (Figures 3 and 4). Largemouth bass, walleye, brown trout, and black crappie mercury concentrations were similar for reservoirs on both sides of the Hudson River (Figures 5 - 8). White perch and common carp were not collected west of the Hudson River (Figures 9 and 10). In all instances except one (i.e., brown trout from Rondout Reservoir) predicted mercury levels for fish from the reservoirs west of the Hudson River exceeded overall mean predicted concentrations for individual species. For sites east of the Hudson River, species from four reservoirs were consistently above mean predicted mercury values calculated for individual species: 1) Amawalk (yellow perch, largemouth bass, black crappie, and common carp), 2) Cross River (smallmouth bass, largemouth bass, white perch, and brown trout), 3) Titicus (largemouth bass, white perch, brown trout, and black crappie), and 4) Boyds Corner (largemouth bass and walleye). These four reservoirs, along with the six sites west of the Hudson River, appear to have a more prominent mercury problem in fish than the other reservoirs.

Chlorinated dioxins and furans

Dioxins and furans are discussed as 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) TEQs. Tables 12- 28 present the findings by reservoir for the 48 samples analyzed for dioxins and furans.

Brown trout, common carp, white perch and walleye were the species analyzed (Table 12). Common carp were the most frequently analyzed species (27 fish from nine reservoirs), followed by white perch and brown trout (nine samples from three reservoirs, each), and walleye (three samples from one reservoir). The maximum TEQ value (using ½ the detection limit in the calculation) was 4.2 pg/g in a common carp from West Branch Reservoir. Dioxins and furans were not detected in two walleye from Schoharie Reservoir and one brown trout from Cannonsville Reservoir. Statistical comparisons between species and sites were not made because of the small sample sizes (n = 3 in each reservoir), but in general, common carp had higher concentrations of these analytes than the other species tested. This may have resulted in the typically higher dioxin and furan concentrations found in reservoirs east of the Hudson River, where all the carp samples were taken, versus reservoirs to the west. Also, higher concentrations of lipophilic dioxins and furans may be anticipated in carp because they tended to have higher lipid percentages than other species.

Reservoirs west of the Hudson River tended to have fewer detected dioxin/furan congeners ($\bar{x}$ = 2.3 ± 1.1) than the other reservoirs ($\bar{x}$ = 5.9 ± 2.9). The most commonly detected congener was 2,3,7,8-TCDF, which was found in all but one reservoir (Schoharie). Also, more congeners were found in common carp ($\bar{x}$ = 6.8 ± 3.2) than white perch ($\bar{x}$ = 4.3 ± 0.6), brown trout ($\bar{x}$ = 3), or walleye (1).

Polychlorinated biphenyls

PCBs and organochlorine pesticide results for 246 analyzed samples are presented in Tables 29 - 44. Total PCB concentrations, calculated as the sum of Aroclors 1016/1242, 1248, 1254, and 1260, in all fish averaged 260 ng/g and ranged from 3 ng/g in a yellow perch from Schoharie Reservoir (Table 42) to 1530 ng/g in a common carp from Bog Brook Reservoir (Table 30). Among the eight most commonly analyzed species from all reservoirs combined, common carp ($\bar{x}$ = 571 ± 363 ng/g) and brown trout ($\bar{x}$ = 459 ± 218 ng/g) had the highest total PCB concentrations, and black crappie ($\bar{x}$ = 46 ± 42 ng/g) and yellow perch ($\bar{x}$ = 73 ± 96 ng/g) had the lowest (Figure 11). Total PCB levels in largemouth bass ($\bar{x}$ = 231 ± 235 ng/g), smallmouth bass ($\bar{x}$ = 219 ± 161 ng/g), walleye ($\bar{x}$ = 248 ± 280 ng/g), and white perch ($\bar{x}$ = 265 ± 249 ng/g) were similar.

Intraspecific mean total PCB concentrations were compared among reservoirs (Figures 12-19). Bog Brook Reservoir had the highest mean total PCB concentrations in largemouth bass, smallmouth bass, walleye, white perch, and yellow perch; and the second highest levels in common carp, even though they were the smallest (i.e., mean length) carp among all reservoirs. Compared to East Branch Reservoir, which lies adjacent and is connected via a 3 m diameter tunnel to Bog Brook Reservoir, PCB concentrations were 2 - 22 times higher in the same species. This discrepancy alludes to a potential point source of PCBs into the Bog Brook Reservoir watershed. One plausible, but unconfirmed, PCB source was identifed as the Hipotronics facility in Sears Corners, NY, which is located < 1 km from Bog Brook Reservoir. This facility has been manufacturing high voltage test equipment since 1966 and transformer oil was used and stored here as part of the operation. Stormwater runoff from the site flows into the reservoir and a 1989 assessment of sediment at the culvert pipe outflow from the on-site storm drains revealed a PCB concentration of 4.8 ppm (pers. comm. W. Buskey, NYSDEC). While this is generally regarded as a low level of PCBs, it is an indication that they were present and being drained from the facility into the reservoir at one time. Further investigation is necessary to determine the extent of contamination, any other possible sources, and potential impacts in the Bog Brook Reservoir watershed.

Other reservoirs that were consistently above overall mean total PCB concentrations for each species were Amawalk (five of six species), Cross River (three of five species), Cannonsville (two of two species), and Pepacton (three of three species) reservoirs. Boyds Corner and Schoharie reservoirs had consistently low PCB concentrations, relative to other reservoirs. There was no clear pattern between total PCB concentrations in reservoirs east of the Hudson River versus reservoirs to the west.

DDT

The six DDT metabolites (o,p’-DDD, p,p’-DDD, o,p’-DDE, p,p’-DDE, o,p’-DDT, p,p’-DDT) were consistently detected in fish from all reservoirs. Mean total DDT (i.e., the sum of metabolites) levels for all samples was 87.5 ng/g (SD = 101 ng/g) and ranged from 1.9 ng/g in walleye from Schoharie Reservoir to 311 ng/g in common carp from West Branch Reservoir. Among the 8 most commonly analyzed species, common carp ($\bar{x}$ = 190 ± 134 ng/g) had the highest mean concentration of total DDT and yellow perch ($\bar{x}$ = 17.9 ± 23.4 ng/g) had the lowest (Figure 20). Reservoirs east of the Hudson River typically had higher mean total DDT concentrations than reservoirs to the west. Amawalk, Cross River, and Titicus reservoirs consistently had higher mean total DDT levels in most species, relative to other reservoirs.

Chlordane

USEPA (2000b) recommended that when determining chlordane levels in fish tissue for human risked-based consumption criteria, the total concentrations of the isomers cis- and trans-chlordane, the major metabolite oxchlordane, and the impurities cis- and trans-nonachlor be combined. These analytes were summed and calculated as total chlordane. Total chlordane was detected in all samples ($\bar{x}$ = 17.5 ± 18.5 ng/g) and means ranged from 0.7 ng/g (SD = 0.2 ng/g) in yellow perch from both Boyds Corner and Schoharie reservoirs to 62.9 ng/g (SD = 1.2 ng/g) in brown trout from Cross River Reservoir. Among the 8 most commonly analyzed species, brown trout ($\bar{x}$ = 31.5 ± 20.8 ng/g) and common carp ($\bar{x}$ = 31.0 ± 22.2 ng/g) had the highest mean total chlordane concentrations and yellow perch ($\bar{x}$ = 5.3 ± 9.2 ng/g) and black crappie ($\bar{x}$ = 5.7 ± 5.9 ng/g) had the lowest (Figure 21). As with DDT and dioxins and furans, chlordane levels tended to be higher in reservoirs east of the Hudson River. Amawalk, Cross River, and New Croton reservoirs had consistently higher chlordane levels in most fish species, relative to other reservoirs.

Other analytes

The other organochlorine pesticides analyzed included hexachlorobenzene, HCH (alpha, beta, delta, and gamma), heptachlor, heptachlor epoxide, aldrin, dieldrin, endrin, endrine ketone, endosulphan (alpha and beta), endosulphan sulphate, methoxychlor, mirex, and photomirex (Tables 29 - 44). All of these analytes were either not detected or were present near the detection limit.

Human health guidelines

Criteria to protect the health of human consumers of contaminated fish have been developed by USEPA, the United States Food and Drug Administration (USFDA, Table 45) and NYSDOH. These criteria provide the comparative values necessary for evaluation of potential human health effects. The two federal agencies have developed criteria for nine of the same contaminants or contaminant groups, but guideline levels are quite different between them.

USEPA criteria were established as risk-based consumption guidelines and are based on carcinogenic and chronic health endpoints (USEPA 2000b). For most contaminants, specific fish tissue contaminant levels were determined by choosing the most conservative health endpoint (i.e., cancer endpoint where available) for each analyte and the monthly consumption limit used for comparison in this study was no more than one meal per month. This was chosen because one meal per month is the typical initial consumption limit used, beyond the general advisory of one meal per week, by NYSDOH for contaminant levels of concern. These consumption limits were based on the assumptions of an eight ounce serving for an average-sized adult (70 kg). For mercury, USEPA determined a distinct toxic criterion in fish tissue (USEPA 2001).

USFDA contaminant criteria were determined as federal action levels for commercially sold fish (i.e., USFDA can enforce these criteria and seize contaminated fish, if warranted). USFDA considers a variety of issues for selection of these criteria, including risks to consumers, ability to detect the analyte, economics, and adequate food supply. NYSDOH typically uses USFDA criteria when making determinations for health advice. In addition, NYSDOH has developed a tolerance level for dioxin and furan levels in fish tissue.

NYSDOH reviewed contaminant data from this project and subsequently determined health advisories for the reservoirs. These advisories were reported in the statewide publication, “Chemicals in Sportfish and Game: 2004-05 Health Advisories” (NYSDOH 2004a) and a smaller bulletin specific to the New York City reservoirs, “2004 Health Advisories on Eating Sportfish: New York City Reservoir System” (NYSDOH 2004b). The complete list of advisories for all New York City reservoirs is provided in Table 46.

Mercury[1]

The USFDA consumption criterion of 1000 ng/g (1 ppm) for mercury levels in fish was exceeded in 107 samples (13.6% of all analyzed samples) and included seven species from 14 reservoirs. Walleye were the most prominent species (n = 42, 76% of all walleye analyzed), followed by smallmouth (n=22) and largemouth bass (n=19), white perch (n=13), yellow perch (n=7), brown trout (n=3), and white catfish (n=1). The reservoirs with the highest number of samples that exceeded this tolerance level were Schoharie (n = 21), Cross River (n = 14), and Titicus (n = 12) reservoirs. NYSDOH uses the USFDA mercury criterion to determine specific health advisories for recreationally caught fish. Based on this criterion and a number of other factors, including sample sizes and specimen lengths, NYSDOH used data from this project to develop advisories for high mercury levels in six species from 11 reservoirs. Along with previously issued advisories, there are now 14 reservoirs with mercury-related consumption advice (Table 46, NYSDOH 2004a, NYSDOH 2004b).

The USEPA criterion of 300 ng/g was exceeded in 430 samples (54.8% of all analyzed samples) from 13 species in all 16 reservoirs. Twenty-five percent of these samples were largemouth bass (n=106, 94% of all largemouth bass analyzed), followed by smallmouth bass (n=89), white perch (n=69), walleye (n=53, 96% of all walleye analyzed), yellow perch (n=45), brown trout (n=26), cisco (n=9), white catfish (n=8), chain pickerel and black crappie (n=7),

---

[1]Despite the high levels of mercury in many reservoir fish, regular NYCDEP monitoring of water throughout the system has determined the supply safe for human consumption. In the health advisory bulletin for the reservoir system NYSDOH (2004b) stated “The New York City Department of Environmental Protection’s most recent annual water quality statement lists mercury among the regulated conventional physical and chemical parameters that are not detected in the City’s water distribution system.”

common carp (n=6), lake trout (n=4), and brown bullhead (n=1). The reservoirs with the highest number of samples that exceeded this criterion were Cross River (n = 49), Amawalk (n = 43) and Schoharie (n = 40, 100% of the samples from this reservoir) reservoirs. According to USEPA (2000b) the noncancer health endpoint at 300 ng/g fish tissue concentration translates to a recommended consumption limit of no more than three meals per month. The maximum concentration at the recommended consumption limit of eat no more than one meal per month is 940 ng/g, which is similar to the USFDA and NYSDOH advisory level of 1000 ng/g.

Chlorinated dioxins and furans

NYSDOH uses a human consumption guideline for chlorinated dioxins and furans, expressed as 2,3,7,8-TCDD TEQs, of 10 pg/g. None of the 48 samples analyzed approached this level.

USEPA determined that dioxins and furans pose a 1 in 100,000 cancer risk at 0.31 pg/g if the consumption limit is restricted to one meal a month (assuming an 8 ounce portion for a 70 kg adult). Mean 2,3,7,8-TCDD TEQ concentrations in fish from the majority of reservoirs exceeded this level (10 reservoirs if non-detects were treated as zero, and 14 reservoirs if they are treated as ½ the detection limit when calculating TEQs). The fish tissue concentration where USEPA (2000b) recommends eating no fish is 1.2 pg/g (mean common carp concentrations exceeded this level in 6 reservoirs if non-detects were calculated as ½ the detection limit), which is an order of magnitude less than the NYSDOH advisory guideline. Thus, depending on the criterion employed to issue advisories, there may or may not be a dioxin/furan problem in fish from some of these reservoirs.

Polychlorinated biphenyls

The USFDA enforcement criteria and NYSDOH advisory level for PCBs in fish tissue is 2000 ng/g. The sum of Aroclors were used as the total PCB measure for comparison. None of the 246 samples analyzed for PCBs exceeded the tolerance level (Tables 29 - 44).

USEPA determined that at 23.1 ng/g, PCBs pose a 1 in 100,000 cancer risk if consumption was limited to one meal per month. The majority of mean fish tissue concentrations (91%) exceeded this criterion. The exceptions were yellow perch from Boyds Corner, Diverting, East Branch, Middle Branch, Schoharie, and Titicus reservoirs, chain pickerel from Croton Falls Reservoir, walleye from Schoharie Reservoir, and black crappie from Titicus Reservoir. USEPA recommends eating no fish at 94.1 ng/g total PCBs for a cancer health endpoint and 381 ng/g for a noncancer health endpoint. Even at USEPA's most liberal level, 380 ng/g, there is a large discrepancy between the agencies' (USEPA *vs* USFDA and NYSDOH) determinations of what constitutes a human health risk. As with dioxins and furans, the criterion used has an impact on whether or not a PCB problem is identified.

DDT

The USFDA enforcement criterion used for the sum of DDT and it's metabolites is 5000 ng/g in fish tissue. None of the 246 samples analyzed for DDT exceeded or were close to this level (Tables 29 - 44).

USEPA's risk-based one meal per month consumption limit for cancer health endpoints is 141 ng/g. Mean total DDT concentrations in common carp exceeded this level in six reservoirs (Amawalk, Cross River, East Branch, Muscoot, Titicus, and West Branch reservoirs). Mean total DDT concentrations exceeded this level less frequently in brown trout (Cross River, Croton Falls, and Titicus reservoirs), largemouth bass (Amawalk and Middle Branch reservoirs), white perch (Amawalk and Cross River reservoirs), smallmouth bass (Amawalk Reservoir), white catfish (Cross River Reservoir), and lake trout (Kensico Reservoir). If the USEPA "eat none" recommendation limit for cancer health endpoints of 551 ng/g is used, none of the mean sample concentrations meet or exceed this level. However, again there is an enormous difference in the criteria, depending on the source agency, and so the identification of a DDT contamination problem is dependent on which guideline is used.

Chlordane

USFDA uses 300 ng/g as the enforcement criteria for chlordane in fish tissue. USEPA's 1:100,000 cancer risk level at one meal per month is 131 ng/g total chlordane in fish tissue. None of the 246 samples analyzed for chlordane met or exceeded these levels. The maximum mean total chlordane concentration, which was 62.9 ng/g in brown trout from Cross River Reservoir, would fit into USEPA's risk-based consumption limit of four meals per month for cancer endpoints. Based on these guidelines, there does not appear to be a chlordane problem in the reservoir system.

Other analytes

USFDA and/or USEPA human health criteria also exist for aldrin, dieldrin, endrin, heptachlor, heptchlor epoxide, hexachlorabenzene, endosulphan, and mirex (Table 46). Concentrations of these contaminants in New York City reservoir fish did not exceed these guidance levels.

Wildlife protection guidelines

Wildlife protection guidelines exist for 13 of the contaminants or contaminant groups analyzed for this project. There are, however, a number of caveats to consider when assessing potential contaminant risks to fish-eating wildlife. Principally among these are the species of predator and the size of the fish. USEPA's (1997a) exposure parameters for fish-eating wildlife indicate that the majority of piscivorous wildlife consume small, low trophic level fish (planktonivores and insectivores), almost exclusively. These parameters seem to be overly generic and simplistic for most species, but the concept that fish-eating wildlife feed more heavily on smaller fish versus large predatory fish is appropriate (e.g., Barr 1986, Barr 1996) and considered in this assessment of risks. For this assessment, small, low trophic level fish (forage fish) are defined as any fish $\leq$15 cm; thus, no forage fish were collected as part of this project. Because of this, the exposure of contaminant levels detected in the fish samples to wildlife was likely limited to larger predators, such as loons (*Gavia immer*), osprey (*Pandion haliaetus*), double-crested cormorants (*Phalacrocorax auritus*), otters (*Lontra canadensis*), and eagles (*Haliaeetus leucocephalus*), which are more likely to consume larger fish than smaller piscivores like mink (*Mustela vison*) and kingfishers (*Ceryle alcyon*). The exposure is assumed to be further limited because even though larger predators may consume larger fish, they typically have a dietary preference for forage-size fish (Barr 1996, USEPA 1997a).Therefore this is an incomplete evaluation of contaminant risks to wildlife, but is nonetheless valuable because it provides a precursory examination of potential problems. In order to garner a more reliable and complete assessment, further sampling and analysis of forage-sized fish would have to be conducted.

For the protection of fish-eating wildlife from mercury contamination, Eisler (1987) suggested that prey items for birds and small mammals not exceed 100 ng/g and 1,100 ng/g, respectively. More recently, USEPA (1997b) developed a criterion to determine potential risk to wildlife from mercury concentrations in water and used this value to express corresponding risk levels in fish. The resulting USEPA (1997b) fish tissue criteria were used as the standards of comparison in this evaluation. For other contaminants, the recommendations of Newell et al. (1987) were used to determine the potential for adverse health impacts to piscivorous wildlife (Table 45). The criteria used were the 1 in 100 lifetime cancer risk calculations, which were typically developed for mink, a semi-piscivorous species known to be sensitive to a variety of environmental contaminants. It is noted that Newell et al.'s (1987) report is currently undergoing revisions and preliminary calculations of risk criteria suggest that the guidance levels described in this assessment may in fact be high (pers. comm., T. Sinnott, NYSDEC).

Mercury

Fish tissue criteria formulated by USEPA (1997b) for the protection of piscivorous wildlife are 77 ng/g for mercury levels in forage fish and 346 ng/g in larger, higher trophic level fish. Mercury concentrations at or below these levels were assumed to be protective of wildlife health. For forage fish, a documented effect level was found in loons at 300 ng/g (Barr 1986) and USEPA suggested that a specific adverse effects level for mercury in forage fish lies between 77 ng/g and 300 ng/g. No range in values was given for higher trophic level fish; thus mercury concentrations exceeding 346 ng/g in sample fish from this project were considered potentially harmful to certain piscivorous wildlife.

The 346 ng/g mercury criterion was exceeded in 387 (50% of all samples) fish from 13 species and all 16 reservoirs. The species with the highest number of samples above the criterion were largemouth bass (n = 97), followed by smallmouth bass (n = 83), white perch (n = 62), and walleye (n = 52, 95% of all walleye samples). Only 27% (n = 39) of yellow perch and 9% (n = 5) of black crappie exceeded the criterion and these fish were typically larger than average (e.g., mean length of yellow perch = 258 mm *vs* overall mean length of 250 mm; mean length of black crappie = 295 mm *vs* overall mean length of 253 mm). Cross River (n = 45), Amawalk (n = 41) and Schoharie (n = 40, 98% of all samples collected) reservoirs had the highest number of samples that exceeded the criterion; Muscoot Reservoir (n = 6, 10% of all samples collected) had the fewest. The high percentage of fish that exceed the USEPA wildlife criterion from most of the reservoirs suggests that there are potential injurious health implications for some species of wildlife in the New York City watershed. Additional monitoring of mercury concentrations in forage-sized fish and piscivorous wildlife is warranted to further understand the potential risks.

Chlorinated dioxins and furans

Newell et al. (1987) determined a wildlife fish flesh criterion for 2,3,7,8-TCDD at 2.3 pg/g. Mean 2,3,7,8-TCDD TEQ concentrations from fish from only one reservoir (common carp from West Branch Reservoir) exceeded this level (Table 12). Only seven individual samples (all common carp) from five reservoirs exceeded this criterion when using ½ the detection limit for non-detects (five samples from four reservoirs when using zero for non-detects). West Branch was the only reservoir with more than one sample exceeding the criterion and it also had the maximum 2,3,7,8-TCDD TEQ value among all samples (4.23 pg/g). Thus, it may be the only reservoir with dioxin and furan levels consistently elevated enough to potentially affect the health of fish-eating wildlife. However, caution is urged in this assessment because of the small sample sizes and the analysis of only one species.

Polychlorinated biphenyls

The NYSDEC PCB criterion for wildlife health was determined at 110 ng/g (Newell et al. 1987). The majority of samples (151 of 246 samples, 61%) exceeded this guidance level. Species that were consistently above 110 ng/g total PCB were brown trout (all 22 samples analyzed), lake trout (all 3 samples), white sucker (all 3 samples), white catfish (all 3 samples), common carp (26 of 29 samples), walleye (13 of 18 samples), white perch (22 of 31 samples), and smallmouth bass (25 of 36 samples). Species that were consistently below this criterion were black crappie (12 of 14 samples) and yellow perch (34 of 44 samples). Mean total PCB concentrations for brown trout and common carp were above the guidance level from every reservoir from which they were sampled. In contrast, mean total PCB concentrations for yellow perch and black crappie were below the criterion in 11 of 14 and four of five reservoirs, respectively. Reservoirs with species with mean total PCB levels that consistently exceeded the criterion were Amawalk (all six species), Bog Brook (all six species), Pepacton (all three species), Cannonsville (two of three species), Cross River (five of six species), Croton Falls (five of six species), Kensico (four of five species), New Croton (four of five species), Titicus (five of seven species), and West Branch (six of seven species) reservoirs. Four reservoirs, Boyds Corner (all four species), Diverting (four of seven species), Muscoot (four of six species), and Schoharie (all four species), all had the majority of species with mean total PCB concentrations below the wildlife health criterion.

DDT

The 1 in 100 wildlife cancer risk criterion for total DDT is 266 ng/g (Newell et al. 1987). Twenty samples (8% of all samples analyzed) exceeded this criterion. Most of these samples were common carp ($n = 9$) and white perch ($n = 4$). Cross River ($n = 5$), Titicus ($n = 4$), and Amawalk ($n = 4$) contained the most individual samples above the criterion among reservoirs. Four reservoirs contained species with mean total DDT concentrations above the guidance level:

Amawalk (common carp and white perch), Cross River (common carp and white catfish), Titicus (brown trout and common carp), and West Branch (common carp).

Chlordane

The wildlife fish flesh criterion developed by Newell et al. (1987) for total chlordane is 370 ng/g. None of the 246 samples analyzed for chlordane exceeded this criterion.

Other analytes

Of the remaining analytes for which criteria were developed (i.e., HCH, dieldrin, aldrin, endrin, heptachlor, heptachlor epoxide, hexachlorobenzene, mirex), all were well below established wildlife health guidelines (Table 45).

SUMMARY OF RESULTS AND CONCLUSIONS

1. Mercury was the primary contaminant of concern in fish tissue from the New York City reservoir system.

2. Mercury levels in certain fish from 14 of the 16 reservoirs that were sampled exceeded the USFDA enforcement criterion of 1000 ng/g. Over 50% of the fish sampled had mercury concentrations that exceeded the USEPA (2001) human health risk-based criterion of 300 ng/g.

3. NYSDOH subsequently issued human consumption advisories for 6 species of fish from 11 reservoirs for high mercury levels. This brought the total number of New York City reservoirs with mercury-related advisories to 14 (out of 19).

4. Species included in the advisories were walleye (7 reservoirs), smallmouth bass (7 reservoirs), largemouth bass (3 reservoirs), yellow perch (2 reservoirs), brown trout (2 reservoirs), and white perch (1 reservoir).

5. USEPA's (1997b) wildlife criterion for consumption of high trophic level fish (346 ng/g) was exceeded in 50% of the fish samples. Interpretation of this data requires caution with respect to wildlife dietary preferences, but it does provide a precursory suggestion that mercury levels may be impacting the health of certain wildlife species. Further monitoring of forage-sized fish and piscivorous wildlife species is recommended.

6. Fish from reservoirs west of the Hudson River consistently had high mercury concentrations, while mercury levels in fish from reservoirs to the east were more variable.

7. For PCBs, organochlorine pesticides, and dioxins and furans, human health based criteria developed and/or used by state and federal agencies typically vary widely from one another. The determination of levels that may constitute human health risks depends on

the criteria used.

8. Chlorinated dioxins and furans, expressed as 2,3,7,8-TCDD TEQs, did not exceed the NYSDOH advisory criterion of 10 pg/g in any sample. However, the majority of mean 2,3,7,8-TCDD TEQs did exceed USEPA's (2000b) human 1 in 100,000 cancer risk-based criterion of 0.31 pg/g for a consumption limit of 1 meal per month.

9. Mean 2,3,7,8-TCDD TEQs exceeded the NYSDEC wildlife health criterion developed by Newell et al. (1987) in fish from only 1 reservoir (West Branch).

10. None of the samples exceeded the USFDA tolerance for PCBs of 2000 ng/g. In contrast, the USEPA (2000b) 1 in 100,000 cancer risk level at 1 meal per month, 23.1 ng/g, was exceeded in a majority of samples.

11. Fish from Bog Brook Reservoir typically had the highest mean PCB concentrations among all reservoirs and levels were 1.7 - 21.5 times higher than those in the same species from the adjacent East Branch Reservoir. A potential, but unverified, point source of PCBs into the Bog Brook Reservoir watershed was identified and further investigation is recommended.

12. The NYSDEC wildlife protection criterion for PCBs of 110 ng/g was exceeded in 61% of the samples. PCB concentrations in brown trout, lake trout, white sucker, white catfish, common carp, walleye, white perch, and smallmouth bass were regularly above this guidance level.

13. Reservoirs with species with mean total PCB levels that consistently exceeded the wildlife criterion were Amawalk, Bog Brook, Pepacton, Cannonsville, Cross River, Croton Falls , Kensico, New Croton, Titicus, and West Branch reservoirs.

14. The USFDA enforcement criterion for total DDT, 5000 ng/g, was not exceeded in any sample. Mean total DDT levels exceeded the USEPA 141 ng/g 1 in 100,000 cancer health endpoint based on 1 meal per month in 7 species from 9 reservoirs.

15. The NYSDEC wildlife health criterion for total DDT, 266 ng/g, was exceeded in 20 samples. Common carp and white perch made up the majority of these samples. Amawalk, Cross River, Titicus, and West Branch reservoirs contained species with mean total DDT concentrations above the criterion.

16. None of the samples exceeded the human or wildlife criteria for chlordane, HCH, dieldrin, aldrin, endrin, heptachlor, heptachlor epoxide, hexachlorobenzene, endosulphan, and mirex.

17. DDT, chlordane, and dioxins and furans were generally higher in reservoirs east of the Hudson River.

ACKNOWLEDGMENTS

The successful completion of this project would not have been possible without the contributions of many dedicated technicians and biologists. We especially thank Ronald Pierce, Tom Baudanza, and Norman McBride for providing expert and enthusiastic assistance and direction with project implementation, particularly with sample collections. We also thank Donald Slingerlands and Wayne Elliot for their help with project administration. Tim McNamara, Art Falk, Linda Wysocki, Fred Linhart, Jeremy Burns, Mike Flaherty, Jack Stewart, Mike Osai, Bruce Ryan, David Cornwell, Matthew Merchant, Robin Osterhoudt, Bernie Antal, and Tony Zerkle assisted with sample collections. Anthony Gudlewski, Brian Buanno, John Finn, Timothy Martin, and Rebecca Quail assisted with fish tissue processing and shipment to analytical laboratories. This project was funded as part of the New York City Watershed Program by a federal Safe Drinking Water Act grant (FY 2000 X-99273800-2 and FY 2001 X-98255001-1), which was aptly managed within NYSDEC by Kenneth Markussen, Laura Stetson, and Bruce Mussett. The report was reviewed and helpful comments were made by Tim Sinnott, Ronald Pierce, Dawn McReynolds, and Howard Simonin.

LITERATURE CITED

Analyitcal Software. 2003. Statistix® 8. Tallahassee, FL. USA.

Barr, J. F. 1986. Population dynamics of the common loon (*Gavia immer*) associated with mercury-contaminated waters in northwestern Ontario. Occasional paper number 56. Canadian Wildlife Service. Ottawa, ON, Canada. 25 pp.

Barr, J. F. 1996. Aspects of common loon (*Gavia immer*) feeding biology on its breeding ground. Hydrobiologia. Vol. 321:119-144.

Eisler, R. 1987. Mercury hazards to fish, wildlife, and invertebrates: a synoptic review. Biol. Rep. 85 (1.10). Contaminant Hazard Reviews - Report Number 10. US Fish and Wildlife Service, Patuxent Wildlife Research Center. US Department of the Interior, Laurel MD. 63 pp.

Newell, A. J., D. W. Johnson, and L. K. Allen. 1987. Niagara River biota contamination project: fish flesh criteria for piscivorous wildlife. Technical Report 87-3. Division of Fish and Wildlife. New York State Department of Environmental Conservation, Albany, NY. 182 pp.

NYSDOH. 2000. Chemicals in sportfish and game: health advisories 2000-2001. New York State Department of Health, Troy, NY. 20 pp.

NYSDOH. 2004a. Chemicals in sportfish and game: health advisories 2004-2005. New York State Department of Health, Troy, NY. 23 pp.

NYSDOH. 2004b. 2004 Health advisories on eating sportfish - New York City Reservoir System. New York State Department of Health, Troy, NY.

USEPA, 1997a. Mercury Study Report to Congress Volume VI: An ecological assessment for anthropogenic mercury emissions in the United States. EPA-452/R-97-008. Office of Air Quality Planning and Standards and Office of Research and Development, Washington D.C.

USEPA, 1997b. Mercury Study Report to Congress Volume VII: Characterization of human health and wildlife risks from mercury exposure in the United States. EPA-452/R-97-009. Office of Air Quality Planning and Standards and Office of Research and Development, Washington D.C.

USEPA. 2000a. Guidance for assessing chemical contaminant data for use in fish advisories. Volume 1: Fish sampling and analysis, third edition. EPA 823-B-00-007. Office of Water, Washington, D.C.

USEPA. 2000b. Guidance for assessing chemical contaminant data for use in fish advisories. Volume 2: Risk assessment and fish consumption limits, third edition. EPA 823-B-00-

007. Office of Water, Washington, D.C.

USEPA. 2001. Water quality criterion for the protection of human health: methylmercury. EPA-823-R-01-001. Office of Science and Technology and Office of Water, Washington, D.C.

Table 2. Mercury levels in fish taken from New York City reservoirs, 1998-1999 (Source: NYSDEC, unpublished data).

Reservoir	Species	n	Length (mm)[1]	Weight (g)[1]	Mercury[1] (ng/g wet weight)
Ashokan	Black crappie	5	255 ± 15 235 - 270	292 ± 57 220 - 350	143 ± 38 116 - 209
	Brown trout	15	500 ± 55 435 - 630	1595 ± 480 1000 - 2780	463 ± 137 240 - 680
	Chain pickerel	2	529 ± 1 528 - 530	1020 ± 14 1010 - 1030	570 ± 155 460 - 680
	Largemouth bass	9	402 ± 66 322 - 505	1150 ± 602 560 - 2170	731 ± 248 440 - 1160
	Rainbow trout	10	364 ± 62 295 - 467	562 ± 343 280 - 1190	230 ± 174 83 - 670
	Rock bass	27	199 ± 25 165 - 267	171 ± 69 100 - 400	509 ± 143 200 - 701
	Smallmouth bass	60	367 ± 49 295 - 525	664 ± 333 300 - 1940	809 ± 318 270 - 1640
	Walleye	46	609 ± 83 440 - 765	2791 ± 1225 1100 - 5400	1448 ± 504 552 - 2490
	Yellow bullhead	13	243 ± 23 215 - 297	199 ± 67 125 - 360	287 ± 103 151 - 500
	Yellow perch	13	246 ± 75 139 - 363	232 ± 203 15 - 720	498 ± 277 119 - 872
Cannonsville	Smallmouth bass	10	379 ± 24 347 - 421	740 ± 169 520 - 1070	986 ± 395 690 - 2010
Neversink	Atlantic salmon (landlocked)	4	361 ± 64 302 - 445	520 ± 288 290 - 920	261 ± 33 229 - 307
	Brown bullhead	4	298 ± 30 271 - 341	385 ± 114 290 - 540	165 ± 45 130 - 231
	Brown trout	10	439 ± 56 377 - 530	1052 ± 438 650 - 1960	492 ± 293 271 - 1160
	Smallmouth bass	6	338 ± 45 270 - 386	508 ± 204 210 - 750	1313 ± 503 786 - 1880
	White sucker	12	473 ± 45 411 - 523	1253 ± 402 720 - 1800	504 ± 125 299 - 630
	Yellow perch	11	210 ± 26 174 - 244	122 ± 47 60 - 190	333 ± 97 184 - 498

Table 2. Continued.

Reservoir	Species	n	Length (mm)[1]	Weight (g)[1]	Mercury[1] (ng/g wet weight)
Pepacton	Smallmouth bass	13	357 ± 39 320 - 438	608 - 237 385 - 1100	985 ± 306 674 - 1880
Rondout	Brown bullhead	2	334 332 - 335	650 580 - 720	293 106 - 479
	Brown trout	7	432 ± 123 326 - 658	1239 ± 1336 315 - 4000	250 ± 227 52 - 609
	Carp	1	736	5980	175
	Chain pickerel	1	512	1000	673
	Lake trout	10	432 ± 95 290 - 558	846 ± 545 150 - 1600	333 ± 131 114 - 548
	Smallmouth bass	13	344 ± 65 256 - 475	663 ± 446 240 - 1800	783 ± 327 482 - 1470
	White sucker	15	434 ± 25 384 - 474	859 ± 184 580 - 1190	273 ± 63 133 - 362
	Yellow perch	1	232	130	256

[1] Values given are the mean ± standard deviation; minimum and maximum values are reported on the second line.

Table 3. Summary of quality control results for analysis of mercury in fish from the New York City Reservoir system, 2001 - 2003.

QC sample type	Units	n	Mean ± SD	Range
Method blanks	ng/g	41	< 0.5	<0.5 - 0.8[1]
Calibration standards	% recovery	41	97.7 ± 6.8	84.5 - 113.7
Check standards	% recovery	41	99.2 ± 7.7	83.4 - 117.3
Reference materials	% recovery	26	95.1 ± 4.1	86.4 - 102.6
Sample Duplicates	RPD[2]	27	4.8 ± 3.6	0.5 - 13.8
Matrix Spike Duplicates	RPD	15	1.3 ± 1.2	0.2 - 4.4

[1] The method detection limit is 0.5 ng/g.
[2] RPD = relative percent difference.

Table 4. Recovery of isotope-labeled standards (n = 72) used for chlorinated dioxin and furan analyses of fish taken from the New York City Reservoir system, 2001 - 2003.

$^{13}C_{12}$ -Labeled Chemical Compound	% Recovery	
	Mean ± SD	**Range**
2,3,7,8-TCDD	75 ± 11	45 - 99
1,2,3,7,8-PeCDD	81 ± 15	45 - 108
1,2,3,4,7,8-HxCDD	84 ± 11	59 - 111
1,2,3,6,7,8-HxCDD	86 ± 12	59 - 110
1,2,3,4,6,7,8-HpCDD	85 ± 15	58 - 119
1,2,3,4,6,7,8,9-OCDD	68 ± 15	37 - 105
2,3,7,8-TCDF	79 ± 17	45 - 112
1,2,3,7,8-PeCDF	84 ± 19	44 - 126
2,3,4,7,8-PeCDF	80 ± 17	40 - 117
1,2,3,4,7,8-HxCDF	81 ± 12	57 - 118
1,2,3,6,7,8-HxCDF	83 ± 12	51 - 114
2,3,4,6,7,8-HxCDF	84 ± 13	56 - 118
1,2,3,4,7,8,9-HxCDF	87 ± 15	58 - 123
1,2,3,4,6,7,8-HpCDF	80 ± 14	52 - 124
1,2,3,4,7,8,9-HpCDF	78 ± 12	53 - 113

Table 5. Recovery of matrix spikes (n = 8) used for chlorinated dioxin and furan analyses of fish taken from the New York City Reservoir system, 2001 - 2003.

Congener	% Recovery	
	Mean ± SD	Range
2,3,7,8-TCDD	103 ± 17	83 - 128
1,2,3,7,8-PeCDD	98 ± 10	83 - 114
1,2,3,4,7,8-HxCDD	100 ± 9	85 - 111
1,2,3,6,7,8-HxCDD	103 ± 11	90 - 122
1,2,3,7,8,9-HxCDD	99 ± 15	69 - 118
1,2,3,4,6,7,8-HpCDD	107 ± 14	80 - 124
1,2,3,4,6,7,8,9-OCDD	114 ± 14	82 - 131
2,3,7,8-TCDF	124 ± 11	99 - 136
1,2,3,7,8-PeCDF	95 ± 15	78 - 114
2,3,4,7,8-PeCDF	101 ± 4	92 - 108
1,2,3,4,7,8-HxCDF	104 ± 9	86 - 110
1,2,3,6,7,8-HxCDF	100 ± 7	85 - 110
2,3,4,6,7,8-HxCDF	96 ± 8	78 - 103
1,2,3,4,7,8,9-HxCDF	91 ± 11	74 - 102
1,2,3,4,6,7,8-HpCDF	101 ± 16	79 - 123
1,2,3,4,7,8,9-HpCDF	95 ± 19	68 - 121
1,2,3,4,6,7,8,9-OCDF	103 ± 18	85 - 138

Table 6. Summary of analytical results for duplicate analyses of dioxin and furan congener groups in fish samples taken from the New York City Reservoir system, 2001 - 2003.

Congener Group	n[1]	Mean RPD ± SD	Range	No. ND[2]	No. ND/D[3]
TetraCDDs	1	4	-	2	5
PentaCDDs	1	11	-	6	1
HexaCDDs	1	6	-	5	2
HeptaCDDs	2	13 ± 11	5 - 20	5	1
OctaCDDs	5	7 ±6	2 - 16	2	1
TetraCDFs	8	18 ± 17	2 - 56	0	0
PentaCDFs	6	29 ± 19	5 - 59	1	1
HexaCDFs	2	65 ± 21	50 - 79	1	5
HeptaCDFs	1	9	-	5	1
OctaCDFs	0	-	-	8	0

[1] The number of samples with both values at detectable levels; mean, standard deviation, and range describe these samples.
[2] Number of duplicates where congeners from both samples where not detected.
[3] Number of duplicates where congeners were detected in one sample, but not the other.

Table 7. Recovery of isotope-labeled standards for PCB and organochlorine pesticides conducted in association with analysis of fish from the New York City Reservoir system, 2001 - 2003.

$^{13}C_{12}$ -Labeled Compound	n	Percent recovery	
		Mean ± SD	Range
$^{13}C_{12}$ 4-MonoCB	177	57 ± 12	18 - 80
$^{13}C_{12}$ 4,4'-DiCB	260	71 ± 11	32 - 94
$^{13}C_{12}$ 3,4,4'-TriCB	260	83 ± 12	40 - 107
$^{13}C_{12}$ 2,2'6,6-TetraCB	167	72 ± 9	41 - 91
$^{13}C_{12}$ 2,3'4,4'5-PentaCB	270	87 ± 12	43 - 111
$^{13}C_{12}$ 2,2'3,4,4'5,5'-HeptaCB	270	90 ± 12	44 - 116
^{13}C Hexachlorobenzene	270	61 ± 11	24 - 86
^{13}C beta HCH	260	71 ± 14	18 - 99
^{13}C gamma HCH	260	75 ± 15	28 - 111
^{13}C Heptachlor	270	70 ± 15	27 - 101
^{13}C Aldrin	270	74 ± 11	33 - 101
^{13}C trans-Chlordane	270	86 ± 12	37 - 110
^{13}C trans-Nonachlor	270	86 ± 12	34 - 111
^{13}C p,p'-DDE	270	94 ± 14	41 - 132
^{13}C p,p'-DDT	270	86 ± 17	32 - 131
^{13}C PCB 118	259	83 ± 12	39 - 109
d4-Endosulphan, alpha	269	94 ± 19	30 - 149
d4-Endosulphan, beta	269	95 ± 19	30 - 141

Table 8. Summary of analytical results for duplicate analyses of organic chemicals in fish samples taken from the New York City Reservoir system, 2001 - 2003.

Analyte	n[1]	Mean RPD ± SD	Range	No. ND[2]	No. ND/D[3]
Aroclor 1016/1242	17	15 ± 16	2 - 64	4	1
Aroclor 1248	0	-	-	22	0
Aroclor 1254	22	9 ± 7	0 - 28	0	0
Aroclor 1260	22	10 ± 9	0 - 33	0	0
Hexachlorobenzene	21	8 ± 5	0 - 19	0	1
alpha HCH	0	-	-	18	3
beta HCH	0	-	-	21	0
gamma HCH	0	-	-	18	3
Heptachlor	0	-	-	21	1
Aldrin	0	-	-	21	1
Oxychlordane	15	9 ± 10	0 - 34	5	2
trans-Chlordane	22	8 ± 6	0 - 26	0	0
cis-Chlordane	22	11 ± 8	0 - 38	0	0
o,p'-DDE	19	12 ± 8	0 - 28	1	2
p,p'-DDE	22	10 ± 10	0 - 37	0	0
trans-Nonachlor	22	9 ± 7	0 - 26	0	0
cis-Nonachlor	22	13 ± 10	1 - 40	0	0
o,p'-DDD	20	19 ± 14	0 - 48	1	1
p,p'-DDD	22	12 ± 12	0 - 46	0	0
o,p'-DDT	19	18 ± 12	0 - 42	2	1
p,p'-DDT	21	14 ± 10	0 - 37	1	0
Mirex	15	11 ± 10	0 - 30	6	1
HCH, delta	2	75 ± 103	2 - 148	15	2
Heptachlor epoxide	14	21 ± 16	0 - 51	5	2
Endosulphan, alpha	1	19	-	19	1
Dieldrin	19	21 ± 16	1 - 58	1	1
Endrin	1	3	-	19	1

Table 8. Continued.

Analyte	**n**	**Mean RPD ± SD**	**Range**	**No. ND[2]**	**No. ND/D[3]**
Endosulphan, beta	0	-	-	21	0
Endosulphan sulfate	7	19 ± 17	2 - 54	11	3
Endrin ketone	0	-	-	21	0
Methoxychlor	0	-	-	19	2
Photomirex	1	4	-	20	1

[1] The number of samples with both values at detectable levels; mean, standard deviation, and range describe these samples.
[2] Number of duplicates where congeners from both samples where not detected.
[3] Number of duplicates where congeners were detected in one sample, but not the other.

Table 9. Mercury concentrations in fish species from 16 New York City Reservoirs, combined, 2001 - 2003.

Species	n	Number of Reservoirs	Length (mm)[1]	Weight (g)[1]	Mercury (ng/g, wet weight)[1]
Walleye	55	6	527 ± 93	1721 ± 904	1264 ± 516
Smallmouth bass	102	14	395 ± 51	917 ± 358	698 ± 464
Largemouth bass	113	12	425 ± 48	1280 ± 448	674 ± 313
Brown bullhead	1	1	300	330	539
White perch	107	11	305 ± 45	477 ± 226	507 ± 337
Cisco	10	1	427 ± 38	797 ± 155	505 ± 133
White catfish	10	1	367 ± 55	687 ± 345	503 ± 333
Brown trout	63	8	457 ± 91	1334 ± 805	374 ± 302
Yellow perch	142	15	250 ± 36	193 ± 110	333 ± 329
Chain pickerel	10	1	501 ± 57	886 ± 382	309 ± 97
Lake trout	10	1	615 ± 55	2476 ± 686	297 ± 103
Common carp	88	10	709 ± 91	5501 ± 2396	205 ± 67
Black crappie	53	6	253 ± 31	259 ± 141	183 ± 115
Yellow bullhead	3	1	270 ± 45	323 ± 176	140 ± 87
Pumpkinseed	7	1	186 ± 13	159 ± 29	132 ± 54
White sucker	10	1	440 ± 26	1022 ± 183	94 ± 30

[1] Values given are the mean ± standard deviation.

Table 10. Mercury concentrations in fish from individual New York City reservoirs, 2001 - 2003.

Reservoir	Species	n	Length (mm)[1]	Weight (g)[1]	Mercury (ng/g, wet weight)[1]
Amawalk	Black crappie	10	278 ± 42 236 - 278	381 ± 239 160 - 760	354 ± 109 252 - 555
	Common carp	10	599 ± 51 519 - 680	3044 ± 857 1750 - 4470	210 ± 51 102 - 269
	Largemouth bass	10	453 ± 39 402 - 521	1583 ± 419 980 - 2290	1203 ± 317 684 - 1664
	Smallmouth bass	10	395 ± 46 298 - 465	952 ± 294 360 - 1430	832 ± 367 516 - 1581
	White perch	10	340 ± 23 305 - 375	641 ± 130 460 - 900	676 ± 139 484 - 862
	Yellow perch	8	279 ± 60 215 - 361	368 ± 264 130 - 770	494 ± 222 210 - 882
Bog Brook	Common carp	2	555 310 - 800	4215 530 - 7900	103 17 - 190
	Largemouth bass	3	420 ± 22 401 - 445	1230 ± 130 1080 - 1310	474 ± 181 298 - 660
	Smallmouth bass	10	391 ± 30 347 - 455	868 ± 210 660 - 1380	399 ± 149 250 - 654
	Walleye	10	548 ± 119 300 - 736	2067 ± 816 290 - 3980	816 ± 498 194 - 1452
	White perch	10	322 ± 30 287 - 384	590 ± 199 420 - 980	278 ± 136 147 - 611
	Yellow perch	10	311 ± 13 290 - 333	368 ± 59 300 - 490	149 ± 52 89 - 230
Boyd Corners	Largemouth bass	10	390 ± 45 350 - 510	969 ± 496 620 - 2350	823 ± 320 380 - 1601
	Walleye	10	504 ± 63 445 - 651	1356 ± 585 800 - 2780	1639 ± 167 1399 - 1979
	White Perch	10	261 ± 12 243 - 277	266 ± 41 210 - 320	436 ± 71 326 - 542
	Yellow Perch	4	238 ± 29 200 - 264	158 ± 47 90 - 190	360 ± 83 257 - 452
Cannonsville	Brown bullhead	1	300	330	539
	Brown trout	10	472 ± 106 315 - 640	1196 ± 637 340 - 2340	409 ± 365 38 - 1211

Table 10. Continued.

Reservoir	Species	n	Length (mm)[1]	Weight (g)[1]	Mercury (ng/g, wet weight)[1]
Cannonsville	Yellow perch	10	272 ± 36 210 - 340	238 ± 109 90 - 490	962 ± 328 499 - 1398
Cross River	Brown trout	10	453 ± 67 396 - 595	1472 ± 756 890 - 3230	496 ± 206 287 - 918
	Common carp	10	670 ± 34 595 -706	4072 ± 482 3000 - 4850	246 ± 78 92 - 373
	Largemouth bass	10	415 ± 58 326 - 495	1195 ± 479 590 - 1920	791 ± 239 399 - 1115
	Smallmouth bass	10	408 ± 33 349 - 442	1016 ± 288 550 - 1350	988 ± 268 551 - 1298
	White catfish	10	367 ± 55 299 - 458	687 ± 345 330 - 1360	503 ± 333 175 - 1364
	White perch	10	349 ± 15 322 - 370	768 ± 110 620 - 960	940 ±195 710 - 1236
Croton Falls	Brown trout	10	460 ± 111 353 - 656	1475 ± 1117 410 - 3850	189 ±159 57 - 478
	Chain pickerel	10	501 ± 57 418 - 627	886 ± 382 450 - 1830	309 ± 97 127 - 452
	Largemouth bass	10	427 ± 47 360 - 488	1294 ± 457 700 - 1880	575 ± 234 300 - 1009
	Smallmouth bass	10	404 ± 39 332 - 456	1072 ± 306 570 - 1500	462 ±136 284 - 735
	White perch	10	281 ± 20 252 - 320	351 ± 106 220 - 580	190 ± 71 66 - 296
	Yellow perch	10	227 ± 16 212 - 253	137 ± 42 100 - 220	98 ± 48 53 - 203
Diverting	Black crappie	5	292 ± 23 265 - 327	389 ± 110 285 - 570	235 ± 45 187 - 305
	Brown trout	1	381	600	211
	Common carp	10	766 ± 74 693 - 938	7540 ± 2534 4510 - 13404	181 ± 60 101 - 298
	Largemouth bass	10	412 ± 36 350 - 473	1149 ± 266 705 - 1650	571 ± 255 304 - 1194
	Smallmouth bass	10	369 ± 28 332 - 422	692 ± 184 425 - 1050	514 ± 150 312 - 767

Table 10. Continued.

Reservoir	Species	n	Length (mm)[1]	Weight (g)[1]	Mercury (ng/g, wet weight)[1]
Diverting	Walleye	4	587 ± 68 527 - 678	2300 ± 761 1610 - 3340	1238 ± 157 1028 - 1409
	White perch	10	265 ± 14 233 - 282	278 ± 42 185 - 330	292 ± 143 109 - 582
	Yellow perch	10	252 ± 19 226 - 285	189 ± 50 105 - 270	216 ± 58 130 - 316
East Branch	Black crappie	10	242 ± 7 227 - 250	210 ± 38 145 - 255	190 ± 53 125 - 272
	Common carp	6	706 ± 42 625 - 743	4567 ± 907 2880 - 5520	251 ± 88 138 - 398
	Smallmouth bass	7	347 ± 36 297 - 394	560 ± 157 350 - 730	531 ± 190 321 - 814
	Walleye	10	554 ± 102 360 - 672	2041 ± 1092 500 - 3690	1270 ± 591 330 - 2036
	White perch	10	280 ± 24 244 - 320	347 ± 103 210 - 550	326 ± 112 217 - 580
	Yellow perch	10	226 ± 19 206 - 263	134 ± 30 85 - 200	272 ± 80 152 - 430
Kensico	Brown trout	3	469 ± 36 447 - 510	1440 ±410 1160 - 1910	157 ± 63 118 - 230
	Largemouth bass	10	433 ± 42 378 - 513	1399 ± 487 850 - 2420	578 ± 208 321 - 1024
	Lake trout	10	615 ± 56 544 - 720	2476 ± 686 1710 - 3670	297 ± 103 189 - 495
	Smallmouth bass	10	396 ± 57 302 - 468	988 ± 396 430 - 1680	460 ± 291 140 - 1084
	Yellow perch	10	272 ± 35 230 - 339	251 ± 95 150 - 450	90 ± 38 45 - 154
Middle Branch	Black crappie	10	262 ± 17 241 - 295	280 ± 51 220 - 380	63 ± 16 34 - 86
	Common carp	10	700 ± 60 635 - 811	4454 ± 1132 3200 - 6640	150 ± 59 72 - 258
	Largemouth bass	10	464 ± 34 410 - 508	1561 ± 373 980 - 1960	601 ± 197 336 - 840
	Smallmouth bass	7	468 ± 51 368 - 522	1447 ± 389 700 - 1840	471 ± 211 265 - 912

Table 10. Continued.

Reservoir	Species	n	Length (mm)[1]	Weight (g)[1]	Mercury (ng/g, wet weight)[1]
Middle Branch	White perch	10	333 ± 35 255 - 365	500 ± 142 220 - 640	486 ± 260 68 - 915
	Yellow bullhead	3	270 ± 45 221 - 310	323 ± 176 160 - 510	140 ± 87 41 - 203
	Yellow perch	10	254 ± 23 228 - 289	177 ± 58 105 - 290	135 ± 64 48 - 242
Muscoot	Black crappie	8	226 ± 13 206 - 249	134 ± 32 100 - 190	78 ± 21 45 - 105
	Common carp	10	793 ± 84 670 - 935	7216 ± 2654 3800 - 11200	220 ± 61 125 - 325
	Largemouth bass	10	421 ± 60 325 - 492	1241 ± 554 430 - 2030	400 ± 186 127 - 763
	Pumpkinseed	7	186 ± 13 158 - 195	159 ± 29 100 - 180	132 ± 54 86 - 238
	Smallmouth bass	5	307 ± 24 274 - 332	340 ± 55 300 - 400	219 ± 41 174 - 283
	White sucker	10	440 ± 26 393 - 469	1022 ± 183 800 - 1360	94 ± 30 52 - 146
	Yellow perch	10	248 ± 13 225 - 270	158 ± 25 110 - 200	144 ± 46 78 - 225
New Croton	Common carp	10	748 ± 43 675 - 812	6941 ± 1811 4380 - 10442	200 ± 60 128 - 312
	Largemouth bass	10	444 ± 28 408 - 498	1430 ± 309 1075 - 1960	646 ± 267 191 - 1059
	Smallmouth bass	10	447 ± 21 399 - 471	1223 ± 146 940 - 1430	714 ± 184 373 - 1040
	White perch	8	240 ± 23 208 - 273	208 ± 74 145 - 350	192 ± 50 123 - 259
	Yellow perch	10	236 ± 17 206 - 261	151 ± 28 95 - 190	174 ± 65 99 - 301
Pepacton	Brown trout	10	533 ± 81 418 - 637	1831 ± 880 880 - 3120	688 ± 411 206 - 1358
	Yellow perch	10	222 ± 27 184 - 269	120 ± 49 60 - 210	793 ± 390 483 - 1547
	Smallmouth bass	1	405	1000	1043

Table 10. Continued.

Reservoir	Species	n	Length (mm)[1]	Weight (g)[1]	Mercury (ng/g, wet weight)[1]
Schoharie	Cisco	10	427 ± 38 326 - 460	797 ± 155 385 - 940	505 ± 133 226 - 640
	Walleye	11	449 ± 66 377 - 574	856 ± 429 460 - 1870	1559 ± 596 802 - 2633
	Smallmouth bass	10	382 ± 30 327 - 415	716 ± 166 430 - 900	1739 ± 420 1055 - 2324
	Yellow perch	10	263 ± 18 241 - 300	203 ± 47 150 - 310	762 ± 348 505 - 1716
Titicus	Black crappie	10	233 ± 8.9 220 - 246	199 ± 28 170 - 250	185 ± 20 162 - 231
	Brown trout	9	383 ± 85 312 - 512	893 ± 826 325 - 2550	346 ± 197 191 - 747
	Common carp	10	671 ± 61 580 - 783	4267 ± 1427 2760 - 7290	229 ± 61 123 - 322
	Largemouth bass	10	432 ± 35 386 - 503	1302 ± 378 920 - 2300	863 ± 195 467 - 1147
	Smallmouth bass	1	325	500	414
	White perch	10	371 ± 11 350 - 385	825 ± 113 590 - 960	1185 ± 187 994 - 1603
	Yellow perch	10	220 ± 21 190 - 255	131 ± 32 90 - 180	197 ± 54 114 - 291
West Branch	Brown trout	10	438 ± 46 353 - 522	1134 ± 427 480 - 1960	193 ± 38 102 - 240
	Common carp	10	761 ± 52 708 - 843	7291 ± 2094 5150 - 10433	198 ± 25 166 - 253
	Largemouth bass	10	382 ± 49 308 - 471	974 ± 412 460 - 1910	420 ± 96 295 - 612
	Smallmouth bass	1	400	990	578
	Walleye	10	566 ± 61 500 - 710	2137 ± 438 1720 - 3060	1016 ± 118 778 - 1195
	White perch	9	302 ± 10 293 - 322	417 ± 39 375 - 485	513 ± 89 359 - 666
	Yellow perch	10	225 ± 12 205 - 243	127 ± 18 105 - 160	198 ± 45 139 - 275

[1] Values given are the mean ± standard deviation. Minimum and maximum values are reported on the second line.

Table 11. Correlation analyses of length vs mercury concentrations in eight fish species from the New York City Reservoir system, 2001 - 2003.

Reservoir	Species							
	Black crappie	Brown trout	Common carp	Largemouth bass	Smallmouth bass	Walleye	White perch	Yellow perch
Amawalk	0.701[1] (0.024)	-	0.351 (0.320)	0.895 (0.001)	0.773 (0.009)		0.922 (<0.001)	0.909 (0.002)
Bog Brook	-	-	-	-	0.692 (0.027)	0.765 (0.010)	0.853 (0.004)	0.191 (0.598)
Boyds Corner	-	-	-	0.844 (0.002)	-	-0.202 (0.576)	0.302 (0.430)	-
Cannons-ville	-	0.899 (<0.001)	-	-	-	-	-	0.577 (0.081)
Cross River	-	0.964 (<0.001)	-0.765 (0.010)	0.852 (0.002)	0.946 (<0.001)	-	0.447 (0.227)	-
Croton Falls	-	0.967 (<0.001)	-	0.876 (0.001)	0.512 (0.130)	-	0.082 (0.834)	0.585 (0.098)
Diverting	0.608 (0.277)	-	0.558 (0.094)	0.872 (0.001)	0.145 (0.689)	-	0.305 (0.425)	0.766 (0.010)
East Branch	0.371 (0.291)	-	-0.417 (0.411)	-	0.746 (0.054)	0.825 (0.003)	0.307 (0.388)	0.843 (0.002)
Kensico	-	-	-	0.782 (0.008)	0.854 (0.002)	-	-	-0.098 (0.787)
Middle Branch	0.712 (0.021)	-	0.748 (0.013)	0.869 (0.001)	0.709 (0.075)	-	0.755 (0.012)	0.047 (0.801)
Muscoot	0.653 (0.079)	-	0.254 (0.479)	0.883 (0.001)	0.642 (0.242)	-	-	0.725 (0.018)
New Croton	-	-	<0.001 (1.000)	0.479 (0.162)	0.505 (0.137)	-	0.877 (0.004)	0.298 (0.402)
Pepacton	-	0.875 (0.001)	-	-	-	-	-	0.568 (0.087)
Schoharie	-	-	-	-	0.737 (0.015)	0.934 (<0.000)	-	0.790 (0.007)
Titicus	0.539 (0.108)	0.948 (<0.001)	-0.451 (0.191)	-0.027 (0.945)	-	-	0.339 (0.337)	0.803 (0.005)
West Branch	-	0.767 (0.010)	-0.589 (0.073)	0.638 (0.047)	-	-0.481 (0.159)	-0.223 (0.565)	0.164 (0.652)
All Reservoirs[2]	0.404 (0.003)	0.734 (<0.001)	-0.011 (0.923)	0.588 (<0.001)	0.443 (<0.001)	0.387 (0.004)	0.744 (<0.001)	0.133 (0.115)

[1] Correlation coefficients (r); P-values are in parentheses.

[2] Based on log-transformed data. One carp (03-0083-H) was considered an outlier and removed from the analysis.

Table 12. 2,3,7,8-TCDD toxicity equivalents (TEQs, pg/g) for dioxin and furan concentrations in fish tissue in New York City Reservoirs, 2001 - 2003.

Reservoir	Species	Number of Samples	Length (mm)[1]	Weight (gm)[1]	2,3,7,8 - TCDD TEQ (DL = 0)[1, 2]	2,3,7,8 - TCDD TEQ (½ DL)[1, 3]
Amawalk	Common carp	3	658 639 - 680	3877 2960 - 4470	1.02 0.46 - 2.03	1.32 0.60 - 2.65
Bog Brook	White perch	3	359 330 - 384	833 600 - 980	0.76 0.62 - 0.84	0.93 0.83 - 0.99
Boyd Corners	White perch	3	276 275 - 277	313 310 - 320	0.24 0.15 - 0.40	0.49 0.28 - 0.84
Cannonsville	Brown trout	3	586 528 - 640	1833 1240 - 2340	0.10 0.00 - 0.21	0.38 0.23 - 0.48
Cross River	Common carp	3	700 695 - 706	4,497 4,220 - 4,850	0.75 0.70 - 0.84	1.61 1.41 - 1.87
Croton Falls	White perch	3	304 293 - 320	477 390 - 580	0.26 0.15 - 0.45	0.46 0.27 - 0.74
Diverting	Common carp	3	856 814 - 938	10,414 8,920 - 13,404	1.61 0.27 - 3.39	2.19 0.77 - 4.19
East Branch	Common carp	3	731 718 - 743	5147 4800 - 5520	1.38 0.73 - 2.34	1.69 0.97 - 2.79
Kensico	Brown trout	3	469 447 - 510	1,440 1,160 - 1,910	0.38 0.25 - 0.59	0.83 0.67 - 1.03
Middle Branch	Common carp	3	773 720 - 811	5640 4480 - 6640	0.09 0.08 - 0.12	0.28 0.25 - 0.31
Muscoot	Common carp	3	875 840 - 935	9,493 8,400 - 11,200	1.10 0.19 - 2.24	1.63 0.53 - 2.92
New Croton	Common carp	3	793 782 - 812	7890 7,050 - 9,040	0.59 0.00 - 1.28	0.99 0.29 - 1.61
Pepacton	Brown trout	3	629 621 - 637	2957 2710 - 3120	0.11 0.00 - 0.19	0.59 0.37 - 0.88
Schoharie	Walleye	3	411 395 - 429	593 480 - 680	0.00	0.06 0.04 - 0.07
Titicus	Common carp	3	742 701 - 783	5903 4500 - 7290	0.61 0.35 - 0.91	0.86 0.59 - 1.06
West Branch	Common carp	3	829 810 - 843	10,244 10,100 - 10,433	2.90 2.23 - 4.12	3.03 2.36 - 4.23

[1]Mean value; minimum and maximum values on second line.
[2]Concentrations below the detection limit were treated as 0.
[3]Concentrations below the detection limit were treated as ½ the detection limit.

Table 13. Chlorinated dioxins and furans in individual common carp from Amawalk Reservoir, 2002.

Analyte	Concentration (pg/g, wet weight)			Mean ± standard deviation
	02-1012-H[1]	02-1014-H	02-1019-H	
2,3,7,8-TCDD	<0.13	<0.32	0.22	0.15 ± 0.08[3]
1,2,3,7,8-PeCDD	0.36	<0.74	<0.16	0.27 ± 0.16
1,2,3,4,7,8-HxCDD	<0.11	1.20	<0.10	0.44 ± 0.66
1,2,3,6,7,8-HxCDD	<0.86	1.65	<0.29	0.74 ± 0.80
1,2,3,7,8,9-HxCDD	<0.12	0.40	<0.10	0.17 ± 0.20
1,2,3,4,6,7,8-HpCDD	2.84	5.67	<1.32	3.06 ± 2.51
1,2,3,4,6,7,8,9-OCDD	15.60	34.30	8.18	19.36 ± 13.46
2,3,7,8-TCDF	1.45	6.97	0.329	2.92 ± 3.56
1,2,3,7,8-PeCDF	<0.15	<0.48	<0.17	-[4]
2,3,4,7,8-PeCDF	<0.72	1.90	0.42	0.89 ± 0.87
1,2,3,4,7,8-HxCDF	0.19	<0.64	<0.11	0.19 ± 0.13
1,2,3,6,7,8-HxCDF	<0.11	<0.35	<0.09	-
2,3,4,6,7,8-HxCDF	<0.12	<0.27	<0.10	-
1,2,3,7,8,9-HxCDF	<0.13	<0.17	<0.12	-
1,2,3,4,6,7,8-HpCDF	<0.22	<0.32	0.11	0.12 ± 0.03
1,2,3,4,7,8,9-HpCDF	<0.17	<0.20	<0.11	-
1,2,3,4,6,7,8,9-OCDF	<1.77	<0.15	<0.11	-
2,3,7,8-TCDD TEQ (DL = 0)[2]	0.56	2.03	0.46	1.02 ± 0.88
2,3,7,8-TCDD TEQ (½ DL)[3]	0.72	2.65	0.60	1.32 ± 1.15
Lipid (percent)	3.20	11.28	1.10	8.49 ± 4.59

[1]Fish identification number.
[2]Concentrations below the detection limit were treated as 0.
[3]Concentrations below the detection limit were treated as ½ the detection limit.
[4]A dash indicates the concentration was not calculated since all values were less than the detection limit.

Table 14. Chlorinated dioxins and furans in individual white perch from Bog Brook Reservoir, 2002.

Analyte	Concentration (pg/g, wet weight)			Mean ± standard deviation
	03-0064-H[1]	03-0066-H	01-0067-H	
2,3,7,8-TCDD	<0.10	<0.09	<0.09	-[4]
1,2,3,7,8-PeCDD	<0.25	<0.11	<0.13	-
1,2,3,4,7,8-HxCDD	<0.13	<0.14	<0.11	-
1,2,3,6,7,8-HxCDD	<0.11	<0.13	0.14	-
1,2,3,7,8,9-HxCDD	<0.11	<0.13	<0.09	-
1,2,3,4,6,7,8-HpCDD	<0.11	0.17	<0.12	0.10 ± 0.07[3]
1,2,3,4,6,7,8,9-OCDD	<0.15	<0.16	<0.51	-
2,3,7,8-TCDF	3.14	3.55	3.70	3.46 ± 0.29
1,2,3,7,8-PeCDF	<0.21	0.26	0.19	0.19 ± 0.08
2,3,4,7,8-PeCDF	0.60	0.88	0.90	0.79 ± 0.17
1,2,3,4,7,8-HxCDF	<0.11	<0.09	<0.12	-
1,2,3,6,7,8-HxCDF	<0.09	<0.08	<0.09	-
2,3,4,6,7,8-HxCDF	<0.10	<0.09	<0.10	-
1,2,3,7,8,9-HxCDF	<0.12	<0.11	<0.12	-
1,2,3,4,6,7,8-HpCDF	<0.16	<0.11	<0.09	-
1,2,3,4,7,8,9-HpCDF	<0.22	<0.15	<0.11	-
1,2,3,4,6,7,8,9-OCDF	<0.11	<0.13	<0.11	-
2,3,7,8-TCDD TEQ (DL = 0)[2]	0.62	0.81	0.84	0.76 ± 0.12
2,3,7,8-TCDD TEQ (½ DL)[3]	0.83	0.95	0.99	0.92 ± 0.08
Lipid (percent)	4.78	6.37	6.18	5.78 ± 0.87

[1]Fish identification number.
[2]Concentrations below the detection limit were treated as 0.
[3]Concentrations below the detection limit were treated as ½ the detection limit.
[4]A dash indicates the concentration was not calculated since all values were less than the detection limit.

Table 15. Chlorinated dioxins and furans in individual white perch from Boyds Corner Reservoir, 2001.

Analyte	Concentration (pg/g, wet weight)			Mean ± standard deviation
	01-1672-H[1]	01-1674-H	01-1675-H	
2,3,7,8-TCDD	0.18	<0.03	<0.02	0.07 ±0.10[3]
1,2,3,7,8-PeCDD	<0.15	<0.13	<0.06	-[4]
1,2,3,4,7,8-HxCDD	<0.02	<0.01	<0.02	-
1,2,3,6,7,8-HxCDD	<0.13	<0.01	<0.13	-
1,2,3,7,8,9-HxCDD	<0.02	<0.01	<0.02	-
1,2,3,4,6,7,8-HpCDD	0.31	<0.04	0.22	0.18 ±0.15
1,2,3,4,6,7,8,9-OCDD	1.49	1.10	<0.73	0.99 ±0.57
2,3,7,8-TCDF	2.12	1.81	1.46	1.80 ±0.33
1,2,3,7,8-PeCDF	<0.04	0.12	<0.02	-
2,3,4,7,8-PeCDF	0.49	<0.26	<0.22	0.24 ±0.21
1,2,3,4,7,8-HxCDF	<0.63	<0.04	<0.07	-
1,2,3,6,7,8-HxCDF	<0.05	<0.04	<0.06	-
2,3,4,6,7,8-HxCDF	<0.06	<0.05	<0.08	-
1,2,3,7,8,9-HxCDF	<0.08	<0.05	<0.07	-
1,2,3,4,6,7,8-HpCDF	<0.08	<0.08	0.07	-
1,2,3,4,7,8,9-HpCDF	<0.06	<0.03	<0.08	-
1,2,3,4,6,7,8,9-OCDF	<0.08	<0.08	<0.01	-
2,3,7,8-TCDD TEQ (DL = 0)[2]	0.40	0.19	0.15	0.24 ±0.13
2,3,7,8-TCDD TEQ (½ DL)[3]	0.84	0.34	0.28	0.49 ±0.31
Lipid (percent)	4.11	3.29	2.30	3.23 ±0.91

[1]Fish identification number.
[2]Concentrations below the detection limit were treated as 0.
[3]Concentrations below the detection limit were treated as ½ the detection limit.
[4]A dash indicates the concentration was not calculated since all values were less than the detection limit.

Table 16. Chlorinated dioxins and furans in individual brown trout from Cannonsville Reservoir, 2002.

Analyte	Concentration (pg/g, wet weight)			Mean ± standard deviation
	02-0648-H[1]	02-0658-H	02-0664-H	
2,3,7,8-TCDD	<0.17	<0.08	<0.14	-[4]
1,2,3,7,8-PeCDD	<0.36	<0.14	<0.21	-
1,2,3,4,7,8-HxCDD	<0.15	<0.12	<0.13	-
1,2,3,6,7,8-HxCDD	<0.16	<0.13	<0.12	-
1,2,3,7,8,9-HxCDD	<0.13	<0.11	<0.12	-
1,2,3,4,6,7,8-HpCDD	<0.15	<0.12	<0.13	-
1,2,3,4,6,7,8,9-OCDD	<0.43	<0.33	0.51	0.30 ± 0.19[3]
2,3,7,8-TCDF	0.86	<0.13	<1.07	0.49 ± 0.40
1,2,3,7,8-PeCDF	<0.16	<0.11	<0.15	-
2,3,4,7,8-PeCDF	<0.36	<0.20	0.42	0.23 ± 0.17
1,2,3,4,7,8-HxCDF	<0.20	<0.13	<0.11	-
1,2,3,6,7,8-HxCDF	<0.16	<0.12	<0.09	-
2,3,4,6,7,8-HxCDF	<0.19	<0.13	<0.10	-
1,2,3,7,8,9-HxCDF	<0.23	<0.16	<0.12	-
1,2,3,4,6,7,8-HpCDF	<0.16	<0.23	<0.15	-
1,2,3,4,7,8,9-HpCDF	<0.22	<0.31	<0.21	-
1,2,3,4,6,7,8,9-OCDF	<0.27	<0.11	<0.12	-
2,3,7,8-TCDD TEQ (DL = 0)[2]	0.09	0.00	0.21	0.10 ± 0.11
2,3,7,8-TCDD TEQ (½ DL)[3]	0.43	0.23	0.48	0.38 ± 0.13
Lipid (percent)	2.76	0.48	1.25	1.50 ± 1.16

[1]Fish identification number.
[2]Concentrations below the detection limit were treated as 0.
[3]Concentrations below the detection limit were treated as ½ the detection limit.
[4]A dash indicates the concentration was not calculated since all values were less than the detection limit.

Table 17. Chlorinated dioxins and furans in individual common carp from Cross River Reservoir, 2001.

Analyte	Concentration (pg/g, wet weight)			Mean ± standard deviation
	01-1212-H[1]	01-1218-H	01-1219-H	
2,3,7,8-TCDD	<0.46	<0.18	<0.49	-[4]
1,2,3,7,8-PeCDD	<0.45	<0.28	<0.14	-
1,2,3,4,7,8-HxCDD	<0.06	<0.06	<0.53	-
1,2,3,6,7,8-HxCDD	<0.75	<0.05	<0.84	-
1,2,3,7,8,9-HxCDD	<0.08	<0.05	<0.04	-
1,2,3,4,6,7,8-HpCDD	3.26	<0.58	<1.6	1.46 ±1.59[3]
1,2,3,4,6,7,8,9-OCDD	9.95	4.02	4.45	6.14 ±3.31
2,3,7,8-TCDF	8.07	6.96	7.02	7.35 ±0.62
1,2,3,7,8-PeCDF	<0.35	<0.08	<0.27	-
2,3,4,7,8-PeCDF	<1.71	<0.06	<1.53	-
1,2,3,4,7,8-HxCDF	<1.43	<1.42	<0.94	-
1,2,3,6,7,8-HxCDF	<0.11	<0.06	<0.06	-
2,3,4,6,7,8-HxCDF	<0.12	<0.11	<0.07	-
1,2,3,7,8,9-HxCDF	<0.12	<0.07	<0.07	-
1,2,3,4,6,7,8-HpCDF	<0.13	<0.08	<0.13	-
1,2,3,4,7,8,9-HpCDF	<0.15	<0.10	<0.16	-
1,2,3,4,6,7,8,9-OCDF	<0.05	<0.03	<0.03	-
2,3,7,8-TCDD TEQ (DL = 0)[2]	0.84	0.70	0.72	0.75 ±0.08
2,3,7,8-TCDD TEQ (½ DL)[3]	1.87	1.41	1.54	1.61 ±0.24
Lipid (percent)	9.48	3.05	8.33	6.95 ±3.43

[1]Fish identification number.
[2]Concentrations below the detection limit were treated as 0.
[3]Concentrations below the detection limit were treated as ½ the detection limit.
[4]A dash indicates the concentration was not calculated since all values were less than the detection limit.

Table 18. Chlorinated dioxins and furans in individual white perch from Croton Falls Reservoir, 2001.

Analyte	Concentration (pg/g, wet weight)			Mean ± standard deviation
	01-1124-H[1]	01-1126-H	01-1129-H	
2,3,7,8-TCDD	<0.20	<0.17	<0.03	-[4]
1,2,3,7,8-PeCDD	<0.09	<0.18	<0.16	-
1,2,3,4,7,8-HxCDD	<0.12	<0.04	<0.02	-
1,2,3,6,7,8-HxCDD	0.13	<0.22	<0.02	0.09 ±0.07[3]
1,2,3,7,8,9-HxCDD	<0.03	<0.03	<0.02	-
1,2,3,4,6,7,8-HpCDD	<0.05	<0.25	<0.05	-
1,2,3,4,6,7,8,9-OCDD	0.45	<0.60	<0.30	0.30 ±0.15
2,3,7,8-TCDF	1.73	<1.50	1.48	1.32 ±0.51
1,2,3,7,8-PeCDF	<0.05	<0.05	<0.04	-
2,3,4,7,8-PeCDF	<0.05	0.91	<0.05	0.32 ±0.51
1,2,3,4,7,8-HxCDF	<0.05	<0.09	<0.08	-
1,2,3,6,7,8-HxCDF	<0.05	<0.09	<0.08	-
2,3,4,6,7,8-HxCDF	<0.06	<0.10	<0.06	-
1,2,3,7,8,9-HxCDF	<0.06	<0.10	<0.06	-
1,2,3,4,6,7,8-HpCDF	<0.12	<0.08	<0.06	-
1,2,3,4,7,8,9-HpCDF	<0.15	<0.10	<0.08	-
1,2,3,4,6,7,8,9-OCDF	<0.03	<0.11	<0.10	-
2,3,7,8-TCDD TEQ (DL = 0)[2]	0.19	0.45	0.15	0.26 ±0.17
2,3,7,8-TCDD TEQ (½ DL)[3]	0.37	0.74	0.27	0.46 ±0.25
Lipid (percent)	3.16	4.21	2.40	3.26 ±0.91

[1]Fish identification number.
[2]Concentrations below the detection limit were treated as 0.
[3]Concentrations below the detection limit were treated as ½ the detection limit.
[4]A dash indicates the concentration was not calculated since all values were less than the detection limit.

Table 19. Chlorinated dioxins and furans in individual common carp from Diverting Reservoir, 2002.

Analyte	Concentration (pg/g, wet weight)			Mean ± standard deviation
	02-0422-H[1]	02-0423-H	02-0425-H	
2,3,7,8-TCDD	1.04	<0.27	0.53	0.57 ± 0.45[3]
1,2,3,7,8-PeCDD	<1.52	<0.41	<0.41	-[4]
1,2,3,4,7,8-HxCDD	0.86	<0.23	<0.51	0.41 ± 0.40
1,2,3,6,7,8-HxCDD	2.90	<0.73	1.21	1.49 ± 1.29
1,2,3,7,8,9-HxCDD	<0.50	<0.28	<0.46	-
1,2,3,4,6,7,8-HpCDD	6.80	3.98	<1.83	3.90 ± 2.94
1,2,3,4,6,7,8,9-OCDD	13.40	64.90	3.57	27.29 ± 32.94
2,3,7,8-TCDF	4.45	2.28	4.62	3.78 ± 1.30
1,2,3,7,8-PeCDF	1.47	<0.14	<0.40	0.58 ± 0.77
2,3,4,7,8-PeCDF	2.51	<0.77	<0.84	1.11 ± 1.22
1,2,3,4,7,8-HxCDF	0.48	<0.32	0.61	0.42 ± 0.23
1,2,3,6,7,8-HxCDF	0.81	<0.33	<0.25	0.37 ± 0.38
2,3,4,6,7,8-HxCDF	<0.16	<0.46	<0.11	-
1,2,3,7,8,9-HxCDF	<0.15	<0.28	<0.12	-
1,2,3,4,6,7,8-HpCDF	<0.89	<0.20	<0.14	-
1,2,3,4,7,8,9-HpCDF	<0.17	<0.20	<0.15	-
1,2,3,4,6,7,8,9-OCDF	<0.24	<0.77	<0.18	-
2,3,7,8-TCDD TEQ (DL = 0)[2]	3.39	0.27	1.18	1.61 ± 1.60
2,3,7,8-TCDD TEQ (½ DL)[3]	4.19	0.77	1.60	2.19 ± 1.78
Lipid (percent)	8.91	4.84	6.52	6.76 ± 2.05

[1]Fish identification number.
[2]Concentrations below the detection limit were treated as 0.
[3]Concentrations below the detection limit were treated as ½ the detection limit.
[4]A dash indicates the concentration was not calculated since all values were less than the detection limit.

Table 20. Chlorinated dioxins and furans in individual common carp from East Branch Reservoir, 2002.

Analyte	Concentration (pg/g, wet weight)			Mean ± standard deviation
	03-0003-H[1]	03-0005-H	03-0006-H	
2,3,7,8-TCDD	0.42	0.97	<0.08	0.47 ± 0.47[3]
1,2,3,7,8-PeCDD	0.30	<0.50	0.27	0.27 ± 0.03
1,2,3,4,7,8-HxCDD	<0.13	<0.87	<0.17	-[4]
1,2,3,6,7,8-HxCDD	<0.81	<1.83	0.80	0.71 ± 0.27
1,2,3,7,8,9-HxCDD	<0.12	<0.35	<0.15	-
1,2,3,4,6,7,8-HpCDD	<1.94	4.53	<1.89	2.15 ± 2.06
1,2,3,4,6,7,8,9-OCDD	10.70	11.6	6.74	9.68 ± 2.59
2,3,7,8-TCDF	3.37	5.29	3.80	4.15 ± 1.01
1,2,3,7,8-PeCDF	0.35	<0.41	<0.34	0.24 ± 0.09
2,3,4,7,8-PeCDF	<0.58	1.48	<0.53	0.68 ± 0.69
1,2,3,4,7,8-HxCDF	<0.24	0.51	<0.23	0.25 ± 0.23
1,2,3,6,7,8-HxCDF	<0.15	<0.37	<0.17	-
2,3,4,6,7,8-HxCDF	<0.17	<0.16	<0.19	-
1,2,3,7,8,9-HxCDF	<0.20	<0.19	<0.22	-
1,2,3,4,6,7,8-HpCDF	<0.20	0.47	<0.22	0.23 ± 0.21
1,2,3,4,7,8,9-HpCDF	<0.16	<0.21	<0.11	-
1,2,3,4,6,7,8,9-OCDF	<0.18	<0.18	<0.10	-
2,3,7,8-TCDD TEQ (DL = 0)[2]	1.07	2.34	0.73	1.38 ± 0.85
2,3,7,8-TCDD TEQ (½ DL)[3]	1.32	2.79	0.97	1.69 ± 0.97
Lipid (percent)	3.88	10.24	5.85	6.66 ± 3.26

[1]Fish identification number.
[2]Concentrations below the detection limit were treated as 0.
[3]Concentrations below the detection limit were treated as ½ the detection limit.
[4]A dash indicates the concentration was not calculated since all values were less than the detection limit.

Table 21. Chlorinated dioxins and furans in individual brown trout from Kensico Reservoir, 2001.

Analyte	Concentration (pg/g, wet weight)			Mean ± standard deviation
	01-1302-H[1]	01-1303-H	01-1656-H	
2,3,7,8-TCDD	0.30	<0.25	<0.23	0.18 ±0.11[3]
1,2,3,7,8-PeCDD	<0.24	<0.16	<0.29	-[4]
1,2,3,4,7,8-HxCDD	<0.06	<0.04	<0.09	-
1,2,3,6,7,8-HxCDD	<0.06	<0.05	<0.08	-
1,2,3,7,8,9-HxCDD	<0.06	<0.04	<0.08	-
1,2,3,4,6,7,8-HpCDD	<0.21	<0.04	<0.04	-
1,2,3,4,6,7,8,9-OCDD	<0.18	<0.23	0.48	0.23 ±0.22
2,3,7,8-TCDF	2.88	2.50	2.95	2.78 ±0.24
1,2,3,7,8-PeCDF	<0.04	<0.07	<0.08	-
2,3,4,7,8-PeCDF	<0.05	<0.64	<1.30	-
1,2,3,4,7,8-HxCDF	<0.66	<0.79	<2.40	-
1,2,3,6,7,8-HxCDF	<0.04	<0.05	<0.15	-
2,3,4,6,7,8-HxCDF	<0.05	<0.05	<0.15	-
1,2,3,7,8,9-HxCDF	<0.06	<0.04	<0.09	-
1,2,3,4,6,7,8-HpCDF	<0.09	<0.09	<0.15	-
1,2,3,4,7,8,9-HpCDF	<0.11	<0.11	<0.17	-
1,2,3,4,6,7,8,9-OCDF	<0.04	<0.03	<0.25	-
2,3,7,8-TCDD TEQ (DL = 0)[2]	0.59	0.25	0.30	0.38 ±0.19
2,3,7,8-TCDD TEQ (½ DL)[3]	0.78	0.67	1.03	0.83 ±0.19
Lipid (percent)	10.86	7.91	10.31	9.69 ±1.57

[1]Fish identification number.
[2]Concentrations below the detection limit were treated as 0.
[3]Concentrations below the detection limit were treated as ½ the detection limit.
[4]A dash indicates the concentration was not calculated since all values were less than the detection limit.

Table 22. Chlorinated dioxins and furans in individual common carp from Middle Branch Reservoir, 2002.

Analyte	Concentration (pg/g, wet weight)			Mean ± standard deviation
	02-1139-H[1]	02-1141-H	02-1144-H	
2,3,7,8-TCDD	<0.10	<0.12	<0.13	-[4]
1,2,3,7,8-PeCDD	<0.14	<0.15	<0.12	-
1,2,3,4,7,8-HxCDD	<0.11	<0.23	<0.13	-
1,2,3,6,7,8-HxCDD	<0.11	<0.10	<0.12	-
1,2,3,7,8,9-HxCDD	<0.10	<0.10	<0.11	-
1,2,3,4,6,7,8-HpCDD	<0.29	1.0	0.48	0.54 ± 0.43[3]
1,2,3,4,6,7,8,9-OCDD	<0.90	<2.94	2.76	1.56 ± 1.16
2,3,7,8-TCDF	0.27	1.15	<0.35	0.53 ± 0.54
1,2,3,7,8-PeCDF	<0.09	<0.12	<0.10	-
2,3,4,7,8-PeCDF	0.11	<0.21	0.14	0.12 ± 0.02
1,2,3,4,7,8-HxCDF	<0.14	<0.11	<0.14	-
1,2,3,6,7,8-HxCDF	<0.13	<0.10	<0.13	-
2,3,4,6,7,8-HxCDF	<0.14	<0.11	<0.14	-
1,2,3,7,8,9-HxCDF	<0.16	<0.13	<0.18	-
1,2,3,4,6,7,8-HpCDF	<0.13	<0.13	<0.10	-
1,2,3,4,7,8,9-HpCDF	<0.19	<0.17	<0.13	-
1,2,3,4,6,7,8,9-OCDF	<0.11	<0.25	0.21	0.13 ± 0.08
2,3,7,8-TCDD TEQ (DL = 0)[2]	0.08	0.12	0.08	0.09 ± 0.02
2,3,7,8-TCDD TEQ (½ DL)[3]	0.25	0.31	0.27	0.28 ± 0.03
Lipid (percent)	0.89	2.79	1.00	1.56 ± 1.07

[1]Fish identification number.
[2]Concentrations below the detection limit were treated as 0.
[3]Concentrations below the detection limit were treated as ½ the detection limit.
[4]A dash indicates the concentration was not calculated since all values were less than the detection limit.

Table 23. Chlorinated dioxins and furans in individual common carp from Muscoot Reservoir, 2002.

Analyte	**Concentration (pg/g, wet weight)**			**Mean ± standard deviation**
	02-0364-H[1]	**02-0366-H**	**02-0369-H**	
2,3,7,8-TCDD	<0.19	<0.30	0.53	0.26 ± 0.24[3]
1,2,3,7,8-PeCDD	<0.35	<0.57	<0.56	-[4]
1,2,3,4,7,8-HxCDD	<0.17	<0.25	0.87	0.36 ± 0.44
1,2,3,6,7,8-HxCDD	<0.18	<1.05	2.49	1.04 ± 1.28
1,2,3,7,8,9-HxCDD	<0.15	<0.25	<0.36	-
1,2,3,4,6,7,8-HpCDD	<0.35	1.42	4.54	2.05 ± 2.25
1,2,3,4,6,7,8,9-OCDD	1.69	2.72	9.14	4.52 ± 4.04
2,3,7,8-TCDF	1.93	4.36	5.66	3.98 ± 1.89
1,2,3,7,8-PeCDF	<0.21	<0.13	<0.65	-
2,3,4,7,8-PeCDF	<0.52	0.87	1.87	1.00 ± 0.81
1,2,3,4,7,8-HxCDF	<0.12	<0.26	<0.14	-
1,2,3,6,7,8-HxCDF	<0.10	<0.13	<0.14	-
2,3,4,6,7,8-HxCDF	<0.10	<0.15	<0.14	-
1,2,3,7,8,9-HxCDF	<0.11	<0.15	<0.15	-
1,2,3,4,6,7,8-HpCDF	<0.13	<0.20	<0.23	-
1,2,3,4,7,8,9-HpCDF	<0.16	<0.20	<0.24	-
1,2,3,4,6,7,8,9-OCDF	<0.19	<0.22	<0.18	-
2,3,7,8-TCDD TEQ (DL = 0)[2]	0.19	0.88	2.24	1.10 ± 1.04
2,3,7,8-TCDD TEQ (½ DL)[3]	0.53	1.44	2.92	1.63 ± 1.21
Lipid (percent)	2.04	5.54	10.90	6.16 ± 4.46

[1]Fish identification number.
[2]Concentrations below the detection limit were treated as 0.
[3]Concentrations below the detection limit were treated as ½ the detection limit.
[4]A dash indicates the concentration was not calculated since all values were less than the detection limit.

Table 24.Chlorinated dioxins and furans in individual common carp from New Croton Reservoir, 2001.

Analyte	Concentration (pg/g, wet weight)			Mean ± standard deviation
	01-1261-H[1]	01-1265-H	01-1268-H	
2,3,7,8-TCDD	<0.16	<0.26	<0.03	-[4]
1,2,3,7,8-PeCDD	<0.37	<0.16	<0.22	-
1,2,3,4,7,8-HxCDD	<0.04	<0.34	<0.08	-
1,2,3,6,7,8-HxCDD	0.79	<0.74	<0.04	-
1,2,3,7,8,9-HxCDD	<0.18	<0.04	<0.04	-
1,2,3,4,6,7,8-HpCDD	<1.34	2.31	<0.37	1.06 ±1.11[3]
1,2,3,4,6,7,8,9-OCDD	1.62	3.96	1.09	2.22 ±1.53
2,3,7,8-TCDF	5.33	4.76	<0.82	3.50 ±2.69
1,2,3,7,8-PeCDF	0.37	<0.27	<0.03	0.17 ±0.18
2,3,4,7,8-PeCDF	1.29	<0.91	<0.30	0.63 ±0.59
1,2,3,4,7,8-HxCDF	<0.68	<0.54	<0.39	-
1,2,3,6,7,8-HxCDF	<0.08	<0.04	<0.23	-
2,3,4,6,7,8-HxCDF	<0.09	<0.05	<0.05	-
1,2,3,7,8,9-HxCDF	<0.09	<0.04	<0.08	-
1,2,3,4,6,7,8-HpCDF	<0.07	<0.11	<0.11	-
1,2,3,4,7,8,9-HpCDF	<0.09	<0.10	<0.06	-
1,2,3,4,6,7,8,9-OCDF	<0.20	0.18	<0.04	0.10 ±0.08
2,3,7,8-TCDD TEQ (DL = 0)[2]	1.28	0.50	0.00	0.59
2,3,7,8-TCDD TEQ (½ DL)[3]	1.61	1.03	0.29	0.98 ±0.66
Lipid (percent)	6.25	5.27	1.33	4.28 ±2.60

[1]Fish identification number.
[2]Concentrations below the detection limit were treated as 0.
[3]Concentrations below the detection limit were treated as ½ the detection limit.
[4]A dash indicates the concentration was not calculated since all values were less than the detection limit.

Table 25. Chlorinated dioxins and furans in individual brown trout from Pepacton Reservoir, 2003.

Analyte	Concentration (pg/g, wet weight)			Mean ± standard deviation
	03-0534-H[1]	03-0537-H	03-0538-H	
2,3,7,8-TCDD	<0.10	<0.13	<0.04	-[4]
1,2,3,7,8-PeCDD	<0.31	<0.85	<0.48	-
1,2,3,4,7,8-HxCDD	<0.10	<0.10	<0.15	-
1,2,3,6,7,8-HxCDD	<0.10	0.15	<0.16	0.09 ± 0.05[3]
1,2,3,7,8,9-HxCDD	<0.10	<0.10	<0.14	-
1,2,3,4,6,7,8-HpCDD	<0.10	<0.11	0.16	0.09 ± 0.06
1,2,3,4,6,7,8,9-OCDD	<0.49	<0.32	<0.11	-
2,3,7,8-TCDF	1.28	1.88	<0.86	1.20 ± 0.73
1,2,3,7,8-PeCDF	<0.10	<0.17	<0.08	-
2,3,4,7,8-PeCDF	<0.58	<0.59	<0.08	-
1,2,3,4,7,8-HxCDF	<0.09	<0.10	<0.07	-
1,2,3,6,7,8-HxCDF	<0.09	<0.10	<0.05	-
2,3,4,6,7,8-HxCDF	<0.10	<0.09	<0.07	-
1,2,3,7,8,9-HxCDF	<0.12	<0.11	<0.07	-
1,2,3,4,6,7,8-HpCDF	<0.09	<0.21	<0.20	-
1,2,3,4,7,8,9-HpCDF	<0.12	<0.32	<0.30	-
1,2,3,4,6,7,8,9-OCDF	<0.12	<0.11	<0.11	-
2,3,7,8-TCDD TEQ (DL = 0)[2]	0.13	0.19	0.01	0.11 ± 0.09
2,3,7,8-TCDD TEQ (½ DL)[3]	0.52	0.88	0.37	0.59 ± 0.26
Lipid (percent)	6.31	5.74	3.94	5.33 ± 1.24

[1]Fish identification number.
[2]Concentrations below the detection limit were treated as 0.
[3]Concentrations below the detection limit were treated as ½ the detection limit.
[4]A dash indicates the concentration was not calculated since all values were less than the detection limit.

Table 26. Chlorinated dioxins and furans in individual walleye from Schoharie Reservoir, 2001.

Analyte	Concentration (pg/g, wet weight)			Mean ± standard deviation
	01-0809-H[1]	01-0822-H	01-0828-H	
2,3,7,8-TCDD	<0.01	<0.01	<0.02	-[4]
1,2,3,7,8-PeCDD	<0.04	<0.03	<0.03	-
1,2,3,4,7,8-HxCDD	<0.03	<0.03	<0.02	-
1,2,3,6,7,8-HxCDD	<0.03	<0.03	<0.13	-
1,2,3,7,8,9-HxCDD	<0.03	<0.02	<0.02	-
1,2,3,4,6,7,8-HpCDD	<0.01	<0.03	<0.03	-
1,2,3,4,6,7,8,9-OCDD	<0.30	0.36	<0.18	0.20 ±0.14[3]
2,3,7,8-TCDF	<0.07	<0.02	<0.01	-
1,2,3,7,8-PeCDF	<0.02	<0.03	<0.04	-
2,3,4,7,8-PeCDF	<0.10	<0.04	<0.04	-
1,2,3,4,7,8-HxCDF	<0.02	<0.03	<0.03	-
1,2,3,6,7,8-HxCDF	<0.02	<0.03	<0.03	-
2,3,4,6,7,8-HxCDF	<0.02	<0.04	<0.03	-
1,2,3,7,8,9-HxCDF	<0.10	<0.03	<0.03	-
1,2,3,4,6,7,8-HpCDF	<0.08	<0.05	<0.04	-
1,2,3,4,7,8,9-HpCDF	<0.04	<0.07	<0.05	-
1,2,3,4,6,7,8,9-OCDF	<0.09	<0.03	<0.04	-
2,3,7,8-TCDD TEQ (DL = 0)[2]	0.00	0.00	0.00	0.00
2,3,7,8-TCDD TEQ (½ DL)[3]	0.07	0.04	0.06	0.06 ±0.01
Lipid (percent)	1.01	1.71	0.75	1.16 ±0.50

[1]Fish identification number.
[2]Concentrations below the detection limit were treated as 0.
[3]Concentrations below the detection limit were treated as ½ the detection limit.
[4]A dash indicates the concentration was not calculated since all values were less than the detection limit.

Table 27. Chlorinated dioxins and furans in individual common carp from Titicus Reservoir, 2002.

Analyte	Concentration (pg/g, wet weight)			Mean ± standard deviation
	02-0899-H[1]	02-0905-H	02-0907-H	
2,3,7,8-TCDD	0.15	<0.46	<0.27	0.17 ± 0.05[3]
1,2,3,7,8-PeCDD	<0.19	<0.19	<0.11	-[4]
1,2,3,4,7,8-HxCDD	0.44	<0.13	<0.10	0.19 ± 0.22
1,2,3,6,7,8-HxCDD	0.88	<0.12	<0.09	0.18 ± 0.22
1,2,3,7,8,9-HxCDD	<0.11	<0.12	<0.09	-
1,2,3,4,6,7,8-HpCDD	1.21	<0.20	<0.10	0.45 ± 0.66
1,2,3,4,6,7,8,9-OCDD	2.65	<0.17	<0.17	0.94 ± 1.48
2,3,7,8-TCDF	3.18	5.63	3.50	4.10 ± 1.33
1,2,3,7,8-PeCDF	<0.23	<0.12	<0.12	-
2,3,4,7,8-PeCDF	0.60	<0.12	<0.11	0.24 ± 0.31
1,2,3,4,7,8-HxCDF	<0.30	<0.16	<0.12	-
1,2,3,6,7,8-HxCDF	<0.18	<0.14	<0.11	-
2,3,4,6,7,8-HxCDF	<0.14	<0.15	<0.12	-
1,2,3,7,8,9-HxCDF	<0.17	<0.17	<0.14	-
1,2,3,4,6,7,8-HpCDF	<0.17	<0.20	<0.17	-
1,2,3,4,7,8,9-HpCDF	<0.23	<0.22	<0.22	-
1,2,3,4,6,7,8,9-OCDF	<0.16	<0.13	<0.18	-
2,3,7,8-TCDD TEQ (DL = 0)[2]	0.91	0.56	0.35	0.61 ± 0.28
2,3,7,8-TCDD TEQ (½ DL)[3]	1.06	0.94	0.59	0.86 ± 0.24
Lipid (percent)	7.31	5.23	8.23	6.92 ± 1.54

[1]Fish identification number.
[2]Concentrations below the detection limit were treated as 0.
[3]Concentrations below the detection limit were treated as ½ the detection limit.
[4]A dash indicates the concentration was not calculated since all values were less than the detection limit.

Table 28. Chlorinated dioxins and furans in individual common carp from West Branch Reservoir, 2002.

Analyte	Concentration (pg/g, wet weight)			Mean ± standard deviation
	02-0949-H[1]	02-0950-H	02-0951-H	
2,3,7,8-TCDD	1.74	2.85	1.79	2.13 ± 0.63[3]
1,2,3,7,8-PeCDD	<0.15	<0.12	<0.13	-[4]
1,2,3,4,7,8-HxCDD	<0.14	<0.10	<0.12	-
1,2,3,6,7,8-HxCDD	<0.11	<0.01	<0.11	-
1,2,3,7,8,9-HxCDD	<0.12	<0.09	<0.11	-
1,2,3,4,6,7,8-HpCDD	<0.11	<0.18	<0.14	-
1,2,3,4,6,7,8,9-OCDD	<0.18	<0.14	<0.13	-
2,3,7,8-TCDF	4.87	12.70	5.77	7.78 ± 4.28
1,2,3,7,8-PeCDF	<0.12	<0.12	<0.12	-
2,3,4,7,8-PeCDF	<0.11	<0.10	<0.12	-
1,2,3,4,7,8-HxCDF	<0.18	<0.15	<0.17	-
1,2,3,6,7,8-HxCDF	<0.16	<0.14	<0.15	-
2,3,4,6,7,8-HxCDF	<0.18	<0.16	<0.16	-
1,2,3,7,8,9-HxCDF	<0.20	<0.18	<0.18	-
1,2,3,4,6,7,8-HpCDF	<0.17	<0.17	<0.13	-
1,2,3,4,7,8,9-HpCDF	<0.22	<0.25	<0.15	-
1,2,3,4,6,7,8,9-OCDF	<0.16	<0.11	<0.12	-
2,3,7,8-TCDD TEQ (DL = 0)[2]	2.23	4.12	2.37	2.90 ± 1.05
2,3,7,8-TCDD TEQ (½ DL)[3]	2.36	4.23	2.49	3.03 ± 1.04
Lipid (percent)	7.06	8.73	18.52	11.44 ± 6.19

[1]Fish identification number.
[2]Concentrations below the detection limit were treated as 0.
[3]Concentrations below the detection limit were treated as ½ the detection limit.
[4]A dash indicates the concentration was not calculated since all values were less than the detection limit.

Table 29. Polychlorinated biphenyls and organochlorine pesticide concentrations (ng/g [ppb])[1] in fish taken from Amawalk Reservoir, 2002.

	Black Crappie	**Common Carp**	**Largemouth Bass**	**Smallmouth Bass**	**White Perch**	**Yellow Perch**
No. analyzed	3	3	3	3	3	3
Length (mm)	332 315 - 343	658 639 - 680	492 474 - 521	441 420 - 465	368 361 - 375	345 328 - 361
Weight (g)	710 660 - 760	3,877 2,960 - 4,470	1,990 1,730 - 2,290	1,227 1,000 - 1,430	787 700 - 900	653 490 - 770
Lipid %	3.8 3.6 - 3.9	5.5 1.3 - 11.5	1.9 1.7 - 2.1	3.3 2.6 - 4.3	7.6 6.1 - 8.8	3.0 1.8 - 3.8
Aroclor 1016/1242	1.5 1.3 - 1.9	4.1 0.3 - 9.4	1.7 1.5 - 1.9	3.2 2.0 - 4.7	5.7 5.1 - 6.0	1.7 0.6 - 2.3
Aroclor 1248	<0.3 [2]	<0.4	<0.2	<0.2	<0.3	<0.4
Aroclor 1254	76.5 68.6 - 86.9	258 76.1 - 454	155 105 - 203	197 125 - 283	270 200 - 375	70.1 24.2 - 110
Aroclor 1260	43.0 38.3 - 45.9	186 71.8 - 283	109 80.0 - 125	131 76.3 - 179	188 141 - 250	44.9 13.8 - 78.0
Total PCBs [3]	121 108 - 134	447 148 - 746	266 186 - 330	331 203 - 467	463 346 - 631	116 38.2 - 190
Oxychlordane	1.0 0.7 - 1.1	1.5 0.3 - 3.1	1.5 1.3 - 1.7	2.9 2.2 - 3.9	2.8 2.3 - 3.1	0.8 0.3 - 1.1
trans-Chlordane	0.5 0.3 - 0.5	2.6 0.4 - 5.5	0.5 0.4 - 0.6	0.8 0.4 - 1.3	1.6 1.4 - 1.8	0.7 0.3 - 0.9
cis-Chlordane	4.4 3.5 - 5.2	7.7 1.4 - 16.5	3.3 2.5 - 3.8	5.3 2.8 - 8.2	15.8 12.6 - 18.4	3.7 1.4 - 5.6
trans-Nonachlor	7.7 7.1 - 8.9	13.4 2.73 - 26.8	12.9 9.5 - 16.0	17.7 11.7 - 24.6	25.2 19.7 - 30.7	6.8 2.1 - 10.7
cis-Nonachlor	2.9 2.6 - 3.4	5.9 1.2 - 11.6	5.0 3.6 - 6.5	6.9 4.6 - 9.7	8.5 6.7 - 9.9	2.6 0.8 - 4.2
Total Chlordane [4]	16.4 14.3 - 19.1	31.0 5.7 - 63.6	23.2 17.2 - 28.6	33.7 21.8 - 47.7	54.0 42.7 - 63.7	14.5 4.6 - 22.4
Hexachlorobenzene	0.4 0.3 - 0.4	0.4 <0.1 - 1.0	0.3 0.2 - 0.3	0.5 0.4 - 0.7	0.8 0.7 - 0.9	0.3 0.1 - 0.4
alpha HCH	<0.1	<0.3	<0.4	<0.2	<0.2	<0.4
beta HCH	<0.2	<0.3	<0.8	<0.2	<0.2	<0.3
gamma HCH	<0.2	<0.3	<0.5	<0.2	<0.2	<0.4
delta HCH	<0.1	<0.4	<0.3	<0.3	<0.2	<0.3
Heptachlor	<0.4	<0.6	<0.2	<0.3	<0.4	<0.3

Table 29. Continued.

	Black Crappie	Common Carp	Largemouth Bass	Smallmouth Bass	White Perch	Yellow Perch
Heptachlor epoxide	0.9 0.7 - 1.1	0.5 0.3 - 1.1	0.4 0.3 - 0.4	0.7 0.5 - 1.0	0.8 0.5 - 1.0	0.4 0.2 - 0.6
o,p'-DDE	0.2 0.2 - 0.2	0.7 0.1 - 1.3	0.3 0.2 - 0.3	0.5 0.2 - 0.8	0.9 0.7 - 1.1	0.2 0.1 - 0.2
p,p'-DDE	57.5 50.2 - 65.4	236 62.8 - 389	130 89.7 - 165	157 105 - 232	213 158 - 284	59.3 18.3 - 98.2
o,p'-DDD	0.7 0.7 - 0.9	3.1 0.4 - 6.7	1.1 0.9 - 1.3	1.5 0.9 - 2.3	3.2 2.4 - 3.8	0.5 0.4 - 0.7
p,p'-DDD	18.5 15.2 - 24.0	54.9 9.4 - 113	34.4 25.0 - 39.8	56.1 25.5 - 96.6	69.9 57.4 - 79.8	19.7 6.0 - 31.7
o,p'-DDT	0.5 0.4 - 0.5	0.6 0.1 - 1.3	0.8 0.5 - 1.0	0.9 0.6 - 1.2	1.7 1.2 - 2.4	0.5 0.2 - 0.7
p,p'-DDT	2.1 1.8 - 2.7	1.2 1.0 - 1.5	3.8 2.6 - 5.1	4.6 2.9 - 6.6	7.4 5.3 - 9.7	1.8 0.6 - 3.2
Total DDT [5]	79.6 68.6 - 93.8	296 73.9 - 513	170 119 - 211	220 135 - 339	296 225 - 373	81.9 25.5 - 134
Aldrin	<0.2	<0.2	<0.2	<0.1	<0.1	<0.2
Dieldrin	1.4 1.3 - 1.5	2.4 0.6 - 3.6	0.9 0.8 - 1.1	1.6 1.1 - 2.4	1.8 1.3 - 2.3	1.1 0.3 - 1.7
Endrin	<0.4	<0.4	<0.4	<0.3	0.2 0.1 - 0.3	<0.3
Endrin ketone	<0.4	<0.5	<0.4	<0.3	0.1 0.1 - 0.2	<0.3
Endosulphan, alpha	<0.2	<0.2	<0.2	<0.1	0.1 0.1 - 0.2	<0.1
Endosulphan, beta	<0.5	<0.3	<0.3	<0.2	0.3 0.2 - 0.4	<0.3
Endosulphan sulfate	<0.6	<0.3	<0.3	<0.2	0.3 0.2 - 0.5	<0.3
Methoxychlor	<1.3	<1.3	<1.2	<0.9	0.4 0.2 - 0.6	<1.0
Mirex	<0.1	0.3 0.1 - 0.4	0.2 0.1 - 0.2	0.2 0.1 - 0.3	0.2 0.2 - 0.3	0.2 <0.1 - 0.5
Photomirex	<0.2	<0.3	<0.1	<0.2	<0.2	<0.8

[1] Mean values are reported with minimum and maximum values on the second line.
[2] When all samples were not detected only the maximum detection limit is reported. When at least one sample had detectable concentrations, half the detection limit of non-detects was used to calculate means and ranges.
[3] Total PCBs is the mean and range of the sums of Aroclors.
[4] Total Chlordane is the mean and range of the sums of Oxychlordane, trans-Chlordane, cis-Chlordane, trans-Nonachlor, and cis-Nonachlor.
[5] Total DDT is the mean and range of the sums of o,p'-DDE, p,p'-DDE, o,p'-DDD, p,p'-DDD, o,p'-DDT, and p,p'-DDT.

Table 30. Polychlorinated biphenyls and organochlorine pesticide concentrations (ng/g [ppb])[1] in fish taken from Bog Brook Reservoir, 2002.

	Common Carp	**Largemouth Bass**	**Smallmouth Bass**	**Walleye**	**White Perch**	**Yellow Perch**
No. analyzed	3	3	3	3	3	3
Length (mm)	555 310 - 800	420 401 - 445	426 410 - 455	668 593 - 736	359 330 - 384	320 310 - 330
Weight (g)	4,215 530 - 7,900	1,230 1,080 - 1,310	1,113 970 - 1,380	3,333 2,560 - 3,980	833 600 - 980	397 360 - 430
Lipid %	2.3 1.6 - 3.0	3.5 2.0 - 5.5	3.2 2.7 - 4.0	3.2 2.4 - 4.2	5.6 3.8 - 6.9	1.7 1.3 - 2.5
Aroclor 1016/1242	1.0 0.4 - 1.6	1.2 0.7 - 2.3	1.1 0.8 - 1.4	2.3 2.1 - 2.6	1.2 0.6 - 1.7	0.5 0.3 - 0.7
Aroclor 1248	<0.2[2]	<0.3	<0.1	<0.4	<0.7	<0.1
Aroclor 1254	138 37.4 - 239	118 59.6 - 155	97.1 77.7 - 118	125 82.5 - 186	99.1 52.4 - 124	41.3 26.3 - 62.5
Aroclor 1260	795 300 - 1290	607 251 - 860	455 321 - 593	555 231 - 971	498 262 - 622	214 153 - 311
Total PCBs[3]	934 338 - 1530	726 311 - 1015	553 400 - 712	682 315 - 1159	598 315 - 744	256 179 - 374
Oxychlordane	0.6 0.2 - 0.9	0.6 0.2 - 1.0	0.4 <0.1 - 0.7	0.9 0.7 - 1.1	<1.0	0.3 0.1 - 0.5
trans-Chlordane	1.2 0.3 - 2.1	0.3 0.2 - 0.5	0.2 0.2 - 0.3	0.9 0.7 - 1.1	0.4 0.3 - 0.5	0.2 0.1 - 0.3
cis-Chlordane	2.9 0.6 - 5.2	1.3 0.8 - 2.2	1.1 0.9 - 1.4	4.4 3.5 - 6.0	2.9 1.6 - 3.7	0.8 0.5 - 1.3
trans-Nonachlor	6.3 1.0 - 11.6	5.4 2.5 - 7.2	4.4 3.0 - 5.6	7.2 5.2 - 10.5	4.9 2.3 - 6.2	1.6 0.8 - 2.4
cis-Nonachlor	2.1 0.4 - 3.8	1.9 0.9 - 2.4	1.5 1.0 - 1.9	2.6 1.9 - 4.2	1.8 1.0 - 2.4	0.6 0.3 - 1.0
Total Chlordane[4]	12.9 2.2 - 23.6	9.4 4.6 - 12.5	7.5 5.2 - 8.8	15.9 12.5 - 22.8	10.0 5.1 - 12.5	3.4 1.7 - 5.4
Hexachlorobenzene	0.1 0.1 - 0.2	0.1 0.1 - 0.2	0.1 0.1 - 0.2	0.3 0.2 - 0.3	0.2 0.1 - 0.7	0.1 0.1 - 0.2
alpha HCH	<0.2	<0.1	<0.1	<0.3	<0.6	<0.1
beta HCH	<0.2	<0.2	<0.2	<0.4	0.3 0.1 - 0.7	<0.1
gamma HCH	<0.2	<0.2	<0.2	<0.4	<0.7	<0.1
HCH, delta	<0.2	<0.2	<0.2	<0.1	<0.1	<0.2
Heptachlor	<0.4	<0.1	<0.2	<0.4	<0.4	<0.3

Table 30. Continued.

	Common Carp	Largemouth Bass	Smallmouth Bass	Walleye	White Perch	Yellow Perch
Heptachlor epoxide	0.1 <0.1 - 0.2	0.2 0.1 - 0.3	0.2 0.2 - 0.3	0.3 0.2 - 0.3	0.3 0.2 - 0.4	0.1 0.1 - 0.2
o,p'-DDE	0.2 0.1 - 0.3	0.2 0.1 - 0.2	0.1 0.1 - 0.2	0.2 0.1 - 0.3	0.3 0.2 - 0.3	0.1 0.1 - 0.1
p,p'-DDE	75.7 12.4 - 139	38.5 17.9 - 50.0	29.5 21.3 - 36.5	41.0 28.9 - 61.9	33.3 18.3 - 41.7	14.1 7.9 - 22.1
o,p'-DDD	1.3 0.8 - 1.8	0.6 0.5 - 0.9	0.5 0.4 - 0.5	0.4 0.3 - 0.5	1.0 0.8 - 1.3	0.4 0.2 - 0.4
p,p'-DDD	22.0 13.0 - 30.9	10.4 7.4 - 15.0	8.4 6.3 - 10.4	12.1 8.6 - 16.8	15.1 10.7 - 18.2	8.2 6.2 - 11.4
o,p'-DDT	0.2 <0.1 - 0.3	0.3 0.2 - 0.4	0.2 0.2 - 0.3	0.4 0.3 - 0.6	0.4 0.2 - 0.6	0.1 <0.1 - 0.1
p,p'-DDT	<0.1	1.7 0.6 - 2.3	1.5 0.9 - 2.1	2.4 1.5 - 3.8	1.6 0.6 - 2.5	0.3 0.1 - 0.5
Total DDT[5]	99.4 26.4 - 172	51.6 26.6 - 66.1	40.2 29.2 - 49.9	56.6 39.9 - 83.9	51.7 30.7 - 62.3	23.1 15.6 - 34.6
Aldrin	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1
Endosulphan, alpha	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	0.3 0.1 - 0.5	0.5 0.3 - 0.7	0.5 0.4 - 0.6	0.7 0.7 - 0.9	0.8 0.5 - 1.2	0.3 0.2 - 0.5
Endrin	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulphan, beta	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulphan sulfate	0.1 <0.1 - 0.1	<0.1	0.1 0.1 - 0.1	0.2 0.1 - 0.3	0.2 <0.1 - 0.3	0.1 0.1 - 0.2
Endrin ketone	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2
Mirex	0.1 <0.1 - 0.3	0.1 <0.1 - 0.2	0.1 <0.1 - 0.1	0.1 <0.1 - 0.3	0.1 <0.1 - 0.1	<0.1 <0.1 - <0.1
Photomirex	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

[1] Mean values are reported with minimum and maximum values on the second line.
[2] When all samples were not detected only the maximum detection limit is reported. When at least one sample had detectable concentrations, half the detection limit of non-detects was used to calculate means and ranges.
[3] Total PCBs is the mean and range of the sums of Aroclors.
[4] Total Chlordane is the mean and range of the sums of Oxychlordane, trans-Chlordane, cis-Chlordane, trans-Nonachlor, and cis-Nonachlor.
[5] Total DDT is the mean and range of the sums of o,p'-DDE, p,p'-DDE, o,p'-DDD, p,p'-DDD, o,p'-DDT, and p,p'-DDT.

Table 31. Polychlorinated biphenyls and organochlorine pesticide concentrations (ng/g [ppb])[1] in fish taken from Boyds Corner Reservoir, 2001.

	Largemouth Bass	Walleye	White Perch	Yellow Perch
No. analyzed	3	3	3	3
Length (mm)	434 387 - 510	579 540 - 651	276 275 - 277	250 232 - 264
Weight (g)	1420 910 - 2350	2043 1630 - 2780	313 310 - 320	180 160 - 190
Lipid %	1.1 0.5 - 1.9	2.3 1.6 - 3.1	4.2 2.5 - 5.1	0.7 0.7 - 0.7
Aroclor 1016/1242	<0.6[2]	<0.3	<1.6	<0.1
Aroclor 1248	<0.4	<0.2	<1.0	<0.1
Aroclor 1254	13.5 3.9 - 20.0	45.3 32.0 - 66.5	25.6 17.8 - 34.9	5.1 2.7 - 7.5
Aroclor 1260	13.6 6.3 - 20.5	33.1 23.0 - 45.6	18.0 13.4 - 24.5	4.5 2.6 - 6.4
Total PCBs[3]	26.6 10.1 - 39.5	78.0 54.6 - 112	42.5 30.7 - 59.1	9.4 5.2 - 13.7
Oxychlordane	0.2 <0.1 - 0.3	0.8 0.6 - 1.0	0.4 0.2 - 0.6	<0.4
trans-Chlordane	<0.1 <0.1 - <0.1	0.4 0.2 - 0.7	0.2 0.1 - 0.3	<0.1 <0.1 - 0.1
cis-Chlordane	0.2 0.1 - 0.3	1.9 1.0 - 3.2	1.3 0.9 - 1.7	0.1 0.1 - 0.2
trans-Nonachlor	1.1 0.4 - 1.4	3.6 2.5 - 5.3	2.1 1.6 - 2.9	0.4 0.3 - 0.5
cis-Nonachlor	0.3 0.1 - 0.5	1.3 0.9 - 1.9	0.7 0.5 - 0.9	0.1 0.1 - 0.2
Total Chlordane[4]	1.7 0.6 - 2.4	8.0 5.5 - 12.0	4.5 3.1 - 6.4	0.7 0.5 - 0.9
Hexachlorobenzene	0.1 <0.1 - 0.1	0.2 0.2 - 0.3	0.3 0.2 - 0.3	0.1 0.1 - 0.1
alpha HCH	<0.3	<0.1	<0.4	<0.1
beta HCH	<0.2	<0.2	<0.4	<0.2
gamma HCH	<0.3	<0.2	<0.5	<0.1
HCH, delta	<0.2	0.1 <0.1 - 0.1	0.1 0.1 - 0.1	0.1 <0.1 - 0.1
Heptachlor	<0.5	<0.2	<0.4	<0.5
Heptachlor epoxide	0.1 <0.1 - 0.1	0.1 0.1 - 0.2	0.2 0.1 - 0.3	0.1 0.1 - 0.2

Table 31. Continued.

	Largemouth Bass	Walleye	White Perch	Yellow Perch
o,p'-DDE	<0.1 <0.1 - 0.1	0.1 0.1 - 0.2	0.1 <0.1 - 0.2	<0.1 <0.1 - <0.1
p,p'-DDE	12.7 5.5 - 18.0	33.7 23.6 - 51.4	19.5 14.1 - 26.4	4.9 3.9 - 5.9
o,p'-DDD	0.1 <0.1 - 0.1	0.2 0.1 - 0.4	0.5 0.4 - 0.6	<0.1 <0.1 - <0.1
p,p'-DDD	1.5 0.5 - 2.4	5.8 3.7 - 9.7	5.0 4.0 - 6.8	0.5 0.4 - 0.6
o,p'-DDT	0.1 <0.1 - 0.1	0.3 0.2 - 0.4	0.2 0.1 - 0.3	<0.1 <0.1 - 0.1
p,p'-DDT	0.4 0.1 - 0.5	1.6 1.1 - 2.5	1.4 0.9 - 1.8	0.2 0.1 - 0.3
Total DDT[5]	14.8 6.1 - 21.2	41.7 28.8 - 64.5	26.7 19.8 - 36.1	5.6 4.5 - 6.8
Aldrin	<0.2	<0.1	<0.5	<0.1 <0.1 - 0.1
Dieldrin	0.1 <0.1 - 0.1	0.5 0.3 - 0.6	0.6 0.3 - 0.8	<0.1 <0.1 - 0.1
Endrin	<0.2	<0.1	0.1 <0.1 - 0.1	<0.1
Endrin ketone	<0.3	<0.1	0.1 <0.1 - 0.2	<0.1
Endosulphan, alpha	<0.1	<0.1	<0.1	<0.1
Endosulphan, beta	<0.2	<0.1	0.1 <0.1 - 0.2	<0.1
Endosulphan sulfate	<0.3	0.3 0.2 - 0.4	0.4 0.2 - 0.6	0.1 0.1 - 0.1
Methoxychlor	<1.1	<0.2	0.3 0.1 - 0.6	<0.2
Mirex	<0.1	0.1 0.1 - 0.1	0.1 <0.1 - 0.1	<0.1
Photomirex	<0.2	<0.1	<0.5	<0.1

[1] Mean values are reported with minimum and maximum values on the second line.
[2] When all samples were not detected only the maximum detection limit is reported. When at least one sample had detectable concentrations, half the detection limit of non-detects was used to calculate means and ranges.
[3] Total PCBs is the mean and range of the sums of Aroclors.
[4] Total Chlordane is the mean and range of the sums of Oxychlordane, trans-Chlordane, cis-Chlordane, trans-Nonachlor, and cis-Nonachlor.
[5] Total DDT is the mean and range of the sums of o,p'-DDE, p,p'-DDE, o,p'-DDD, p,p'-DDD, o,p'-DDT, and p,p'-DDT.

Table 32. Polychlorinated biphenyls and organochlorine pesticide concentrations (ng/g [ppb])[1] in fish taken from Cannonsville Reservoir, 2002.

	Brown bullhead	**Brown trout**	**Yellow perch**
No. analyzed	1	3	3
Length (mm)	300	586 528 - 640	312 293 - 340
Weight (g)	330	1,833 1,240 - 2,340	350 270 - 490
Lipid %	0.9	1.9 0.5 - 3.4	1.9 1.4 - 2.2
Aroclor 1016/1242	<0.2[2]	2.4 0.9 - 3.4	0.3 0.2 - 0.5
Aroclor 1248	<0.3	<0.2	<0.6
Aroclor 1254	12.1	290 176 - 423	67.3 56.0 - 75.5
Aroclor 1260	26.2	280 166 - 434	73.9 56.6 - 90.7
Total PCBs[3]	37.8	573 343 - 860	141 112 - 161
Oxychlordane	<0.2	1.0 0.4 - 1.5	<0.6
trans-Chlordane	<0.9	<0.1	0.1 0.1 - 0.1
cis-Chlordane	<0.2	1.0 0.1 - 1.7	0.5 0.5 - 0.6
trans-Nonachlor	0.5	5.4 2.2 - 8.2	1.6 1.4 - 1.9
cis-Nonachlor	0.2	2.1 1.0 - 3.2	0.5 0.4 - 0.6
Total Chlordane[4]	1.8	9.5 3.6 - 14.6	2.8 2.4 - 3.2
Hexachlorobenzene	0.1	0.4 0.1 - 0.5	0.2 0.2 - 0.2
alpha HCH	<0.1	<0.2	<0.1
beta HCH	<0.2	<0.1	<0.2
gamma HCH	0.3	0.3 0.1 - 0.7	0.1 0.1 - 0.2
HCH, delta	<0.3	<0.3	<0.4
Heptachlor	<0.3	<0.3	<0.5

Table 32. Continued

	Brown bullhead	Brown trout	Yellow perch
Heptachlor epoxide	<0.4	0.1 0.1 - 0.1	0.1 0.1 - 0.2
o,p'-DDE	<0.1	<0.1 <0.1 - <0.1	<0.1
p,p'-DDE	3.4	45.1 26.4 - 68.6	10.4 8.9 - 11.7
o,p'-DDD	<0.1	0.3 0.1 - 0.4	0.1 0.1 - 0.1
p,p'-DDD	0.5	8.1 2.8 - 11.4	2.1 1.8 - 2.2
o,p'-DDT	<0.1	0.4 0.2 - 0.5	0.1 0.1 - 0.2
p,p'-DDT	<0.1	0.7 0.2 - 1.1	0.5 0.5 - 0.6
Total DDT[5]	3.9	54.6 29.7 - 81.7	13.2 11.2 - 14.7
Aldrin	<0.1	<0.1	<0.2
Dieldrin	<0.3	0.3 <0.1 - 0.4	0.3 0.2 - 0.4
Endrin	<0.4	<0.2	<0.4
Endrin ketone	<0.3	<0.2	<0.3
Endosulphan, alpha	<0.1	<0.1	<0.1
Endosulphan, beta	<0.2	<0.1	<0.3
Endosulphan sulfate	<0.2	<0.2	<0.3
Methoxychlor	<1.0	<0.5	<1.0
Mirex	<0.1	0.4 0.2 - 0.6	0.1 <0.1 - 0.1
Photomirex	<0.2	<0.2	<0.2

[1] Mean values are reported with minimum and maximum values on the second line.
[2] When all samples were not detected only the maximum detection limit is reported. When at least one sample had detectable concentrations, half the detection limit of non-detects was used to calculate means and ranges.
[3] Total PCBs is the mean and range of the sums of Aroclors.
[4] Total Chlordane is the mean and range of the sums of Oxychlordane, trans-Chlordane, cis-Chlordane, trans-Nonachlor, and cis-Nonachlor.
[5] Total DDT is the mean and range of the sums of o,p'-DDE, p,p'-DDE, o,p'-DDD, p,p'-DDD, o,p'-DDT, and p,p'-DDT.

Table 33. Polychlorinated biphenyls and organochlorine pesticide concentrations (ng/g [ppb])[1] in fish taken from Cross River Reservoir, 2001.

	Brown Trout	**Common Carp**	**Largemouth Bass**	**Smallmouth Bass**	**White Catfish**	**White Perch**
No. analyzed	3	3	3	3	3	3
Length (mm)	525 475 - 595	700 695 - 706	479 461 - 495	434 427 - 442	422 392 - 458	365 360 - 370
Weight (g)	2,220 1,680 - 3,230	4,497 4,220 - 4,850	1,643 1,290 - 1,920	1,263 1,230 - 1,300	1,117 950 - 1,360	897 820 - 960
Lipid %	10.5 4.5 - 14	7.7 2.8 - 11	0.9 0.4 - 1.5	2.1 1.9 - 2.4	2.6 1.7 - 3.8	7.2 4.8 - 11
Aroclor 1016/1242	6.5 1.9 - 8.9	4.6 1.8 - 7.2	0.4 0.2 - 0.8	1.0 0.9 - 1.1	<0.2[2]	<0.2
Aroclor 1248	<0.3	<0.3	<0.3	<0.3	<0.4	<0.1
Aroclor 1254	339 293 - 406	298 246 - 359	42.3 14.1 - 81.8	89.4 76.7 - 97.2	298 221 - 378	207 81.8 - 441
Aroclor 1260	359 279 - 479	455 428 - 498	51.4 24.2 - 95.6	107 84.8 - 121	525 479 - 575	216 91.7 - 455
Total PCBs[3]	704 581 - 887	758 735 - 794	93.7 38.5 - 178	197 162 - 219	822 700 - 953	422 173 - 896
Oxychlordane	6.1 2.8 - 8.3	2.7 2.1 - 3.6	0.7 0.2 - 1.2	1.7 1.2 - 2.0	2.3 1.6 - 3.3	4.0 1.3 - 9.1
trans-Chlordane	0.9 0.8 - 1.0	3.6 1.4 - 5.0	0.1 <0.1 - 0.3	0.4 0.3 - 0.5	1.0 0.9 - 1.1	0.7 0.6 - 0.7
cis-Chlordane	12.3 9.4 - 14.2	9.9 5.2 - 13	0.7 0.3 - 1.6	2.5 1.6 - 3.2	6.5 4.9 - 7.7	9.7 5.8 - 16.3
trans-Nonachlor	31.3 29.9 - 33.5	18.9 15.1 - 23.2	3.9 1.8 - 7.9	9.3 8.2 - 10.6	24.7 17.5 - 32.7	18.6 9.1 - 36.0
cis-Nonachlor	12.2 11.7 - 13.0	7.0 5.6 - 8.5	1.4 0.5 - 2.8	3.3 2.9 - 3.7	8.9 6.6 - 12.0	7.9 3.2 - 16.8
Total Chlordane[4]	62.9 62.0 - 64.2	42.1 29.3 - 53.4	6.8 3.2 - 13.7	17.2 15.5 - 20.0	43.4 31.5 - 56.7	40.8 20.1 - 78.9
Hexachlorobenzene	1.1 0.4 - 1.5	0.6 0.3 - 0.9	0.1 0.1 - 0.2	0.2 0.2 - 0.3	0.3 0.2 - 0.3	0.7 0.3 - 1.5
alpha HCH	0.1 <0.1 - 0.2	<0.4	<0.2	<0.2	<0.1	0.1 <0.1 - 0.2
beta HCH	<0.2	<0.6	<0.3	<0.3	<0.1	<0.2
gamma HCH	0.1 <0.1 - 0.2	<0.5	0.1 <0.1 - 0.2	<0.2	<0.1	<0.1
HCH, delta	<0.1 <0.1 - 0.1	<0.1(1 sample anal.)	0.1 <0.1 - 0.1	0.1 <0.1 - 0.1	<0.3	0.1 0.1 - 0.1
Heptachlor	<0.2	<0.7	<0.3	<0.3	<0.1	<0.1

Table 33. Continued.

	Brown Trout	Common Carp	Largemouth Bass	Smallmouth Bass	White Catfish	White Perch
Heptachlor epoxide	0.8 0.4 - 1.2	0.5 0.1 - 0.7	0.1 <0.1 - 0.1	0.3 0.2 - 0.4	0.2 0.1 - 0.2	0.5 0.2 - 1.0
o,p'-DDE	0.5 0.2 - 1.0	0.7 0.2 - 1.1	0.1 <0.1 - 0.2	0.2 0.2 - 0.3	0.1 0.1 - 0.2	0.3 0.3 - 0.3
p,p'-DDE	170 143 - 225	248 205 - 306	31.2 10.2 - 61.0	64.5 52.4 - 71.8	238 206 -280	123 55.2 - 251
o,p'-DDD	2.0 1.8 - 2.2	3.1 1.0 - 4.6	0.3 0.1 - 0.6	0.6 0.5 - 0.7	0.2 0.2 - 0.4	1.4 0.9 - 1.9
p,p'-DDD	42.0 35.4 - 45.3	47.1 27.7 - 63.3	5.0 1.6 - 10.0	12.8 10.5 - 15.7	29.7 14.6 - 46.7	33.7 10.7 - 76.4
o,p'-DDT	1.6 1.3 - 2.2	0.6 0.4 - 0.8	0.2 0.1 - 0.4	0.2 0.1 - 0.4	0.8 0.5 - 1.2	1.1 0.8 - 1.6
p,p'-DDT	7.7 6.3 - 10.4	0.5 0.1 - 1.3	0.9 0.3 - 1.7	2.3 2.1 - 2.6	1.0 0.8 - 1.4	3.7 2.5 - 5.7
Total DDT[5]	224 198 - 276	300 234 - 377	37.7 12.2 - 73.9	80.8 66.1 - 91.5	270 222 - 329	163 70.5 - 337
Aldrin	<0.1	<2.9	<0.1	<0.1	<0.1	<0.1
Dieldrin	2.8 1.5 - 3.8	2.3 1.8 - 2.9	0.3 0.2 - 0.5	0.3 0.2 - 0.5	1.2 0.6 - 2.3	1.6 0.5 - 3.3
Endrin	<0.2	<0.3	<0.2	<0.1	<0.1	<0.2
Endrin ketone	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1
Endosulphan, alpha	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1
Endosulphan, beta	<0.1	<0.3	<0.1	<0.1	<0.1	<0.1
Endosulphan sulfate	0.6 0.2 - 0.8	<0.5	<0.2	<0.1 <0.1 - 0.1	<0.1	0.3 0.2 - 0.5
Methoxychlor	<0.4	<1.9	<0.4	<0.5	2.4 0.1 - 7.1	<0.4
Mirex	0.3 0.3 - 0.4	0.7 0.5 - 0.9	<0.1 <0.1 - 0.1	0.1 <0.1 - 0.1	0.4 0.4 - 0.5	0.2 0.1 - 0.5
Photomirex	0.1 0.1 - 0.2	0.1 0.1 - 0.1	<0.1	<0.1	0.1 0.1 - 0.2	<0.1

[1] Mean values are reported with minimum and maximum values on the second line.
[2] When all samples were not detected only the maximum detection limit is reported. When at least one sample had detectable concentrations, half the detection limit of non-detects was used to calculate means and ranges.
[3] Total PCBs is the mean and range of the sums of Aroclors.
[4] Total Chlordane is the mean and range of the sums of Oxychlordane, trans-Chlordane, cis-Chlordane, trans-Nonachlor, and cis-Nonachlor.
[5] Total DDT is the mean and range of the sums of o,p'-DDE, p,p'-DDE, o,p'-DDD, p,p'-DDD, o,p'-DDT, and p,p'-DDT.

Table 34. Polychlorinated biphenyls and organochlorine pesticide concentrations (ng/g [ppb])[1] in fish taken from Croton Falls Reservoir, 2001.

	Brown Trout	Chain Pickerel	Largemouth Bass	Smallmouth Bass	White Perch	Yellow Perch
No. analyzed	3	3	3	3	3	3
Length (mm)	601 507 - 656	557 518 - 627	473 456 - 488	444 425 - 456	304 293 - 320	246 236 - 253
Weight (g)	2,837 1,860 - 3,850	1,280 1,000 - 1,830	1,767 1,650 - 1,880	1,373 1,300 - 1,500	477 390 - 580	187 160 - 220
Lipid %	10.7 5.2 - 15	0.3 0.2 - 0.4	3.0 1.5 - 4.6	2.6 2.4 - 2.8	2.7 2.2 - 3.5	1.6 1.4 - 1.9
Aroclor 1016/1242	17.2 14.8 - 20.0	0.6 0.4 - 0.7	3.6 2.1 - 6.5	3.1 2.9 - 3.4	3.7 3.4 - 4.0	1.3 0.9 - 1.7
Aroclor 1248	<0.1[2]	<0.1	<0.2	<0.1	<0.5	<0.1
Aroclor 1254	310 260 - 342	10.1 5.1 - 17.8	136 70.1 - 222	91.9 86.3 - 95.4	91.3 89.9 - 92.3	33.2 21.2 - 48.3
Aroclor 1260	208 157 - 239	9.4 6.8 - 13.1	95.1 60.8 - 136	67.9 64.5 - 70.8	62.7 56.7 - 69.7	32.8 15.2 - 58.1
Total PCBs[3]	535 434 - 590	20.1 12.3 - 31.5	235 133 - 364	163 154 - 169	157 150 - 165	67.3 37.2 - 108
Oxychlordane	7.5 6.1 - 8.5	0.4 0.2 - 0.4	2.2 1.2 - 3.8	2.1 2.0 - 2.1	1.5 1.5 - 1.5	0.6 0.5 - 0.7
trans-Chlordane	0.5 0.2 - 0.6	<0.1 <0.1 - <0.1	0.5 0.3 - 0.9	0.4 0.3 - 0.4	0.5 0.4 - 0.7	0.2 0.2 - 0.2
cis-Chlordane	10.9 7.7 - 14.1	0.4 0.2 - 0.6	3.2 1.8 - 5.9	2.5 2.0 - 2.8	5.7 5.2 - 6.2	1.0 0.8 - 1.5
trans-Nonachlor	25.7 20.4 - 30.0	1.0 0.8 - 1.3	12.5 6.6 - 20.6	9.4 9.1 - 9.7	8.6 7.8 - 9.2	2.5 1.6 - 4.1
cis-Nonachlor	10.9 8.9 - 12	0.4 0.3 - 0.4	4.1 2.2 - 6.8	3.2 3.1 - 3.4	3.0 2.6 - 3.2	0.9 0.6 - 1.4
Total Chlordane[4]	55.5 46.9 - 65.3	2.2 1.5 - 2.7	22.6 12.0 - 38.0	17.6 16.6 - 18.4	19.2 17.9 - 20.8	5.2 3.7 - 7.9
Hexachlorobenzene	2.1 1.6 - 2.45	0.1 0.1 - 0.1	0.4 0.2 - 0.6	0.4 0.3 - 0.4	0.5 0.4 - 0.6	0.2 0.2 - 0.2
alpha HCH	0.2 0.1 - 0.2	<0.1	<0.1 <0.1 - 0.1	<0.1	<0.1*	<0.1 <0.1 - 0.1
beta HCH	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
gamma HCH	0.1 0.1 - 0.1	<0.1 <0.1 - 0.1	<0.1	0.1 <0.1 - 0.1	<0.1	<0.1
HCH, delta	1.1 0.1 - 2.7	0.6 <0.1 - 1.6	0.1 <0.1 - 0.3	0.7 0.1 - 1.9	0.3 0.1 - 0.6	<0.1 <0.1 - 0.1
Heptachlor	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Table 34. Continued.

	Brown Trout	Chain Pickerel	Largemouth Bass	Smallmouth Bass	White Perch	Yellow Perch
Heptachlor epoxide	1.2 0.6 - 1.6	<0.1 <0.1 - <0.1	0.2 0.1 - 0.5	0.3 0.2 - 0.3	0.3 0.2 - 0.4	0.1 <0.1 - 0.1
o,p'-DDE	0.3 0.1 - 0.5	<0.1 <0.1 - 0.1	0.3 0.1 - 0.5	0.2 0.2 - 0.3	0.3 0.3 - 0.3	<0.1 <0.1 - 0.1
p,p'-DDE	147 143 - 155	6.0 3.9 - 8.8	63.1 37.9 - 98.9	47.0 43.6 - 50.1	45.6 40.3 - 49.3	23.2 10.0 - 34.7
o,p'-DDD	2.3 1.7 - 2.8	0.1 0.1 - 0.2	1.1 0.6 - 1.9	0.6 0.6 - 0.6	1.2 1.1 - 1.2	0.2 0.1 - 0.5
p,p'-DDD	43.1 38.6 - 45.4	1.0 0.6 - 1.5	12.5 6.8 - 21.6	9.5 8.8 - 10.7	10.9 9.6 - 11.8	4.7 1.9 - 7.9
o,p'-DDT	1.4 1.1 - 1.7	<0.1 <0.1 - 0.1	0.8 0.5 - 1.4	0.4 0.4 - 0.4	0.7 0.6 - 0.7	0.1 0.1 - 0.2
p,p'-DDT	6.2 4.3 - 7.4	2.4 0.2 - 6.7	3.4 1.6 - 5.9	2.6 2.5 - 2.7	2.9 2.8 - 3.0	0.6 0.2 - 1.2
Total DDT[5]	201 196 - 204	9.7 4.9 - 13.1	81.1 47.5 - 130	60.3 56.2 - 64.7	61.5 54.6 - 66.3	28.9 12.5 - 40.6
Aldrin	<0.1	<0.1	<0.1	<0.1 <0.1 - <0.1	<0.1	<0.1
Dieldrin	3.9 2.2 - 5.0	<0.1 <0.1 - 0.1	0.8 0.4 - 1.6	0.8 0.7 - 0.9	1.0 0.7 - 1.4	0.3 0.2 - 0.3
Endrin	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin ketone	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulphan, alpha	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulphan, beta	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulphan sulfate	1.0 0.3 - 1.8	<0.1	<0.1	<0.1 <0.1 - 0.1	0.2 0.1 - 0.3	0.1 <0.1 - 0.2
Methoxychlor	0.2 0.1 - 0.3	<0.3	<0.3	<0.1	<0.2	<0.3
Mirex	0.3 0.2 - 0.4	<0.1 <0.1 - <0.1	0.1 0.1 - 0.2	0.1 0.1 - 0.1	<0.1*	<0.1 <0.1 - 0.1
Photomirex	<0.2	<0.1	<0.3	<0.1	<0.1	<0.1

[1] Mean values are reported with minimum and maximum values on the second line.
[2] When all samples were not detected only the maximum detection limit is reported. When at least one sample had detectable concentrations, half the detection limit of non-detects was used to calculate means and ranges.
[3] Total PCBs is the mean and range of the sums of Aroclors.
[4] Total Chlordane is the mean and range of the sums of Oxychlordane, trans-Chlordane, cis-Chlordane, trans-Nonachlor, and cis-Nonachlor.
[5] Total DDT is the mean and range of the sums of o,p'-DDE, p,p'-DDE, o,p'-DDD, p,p'-DDD, o,p'-DDT, and p,p'-DDT.

Table 35. Polychlorinated biphenyls and organochlorine pesticide concentrations (ng/g [ppb])[1] in fish taken from Diverting Reservoir, 2002.

	Brown Trout	Common Carp	Largemouth Bass	Smallmouth Bass	Walleye	White Perch	Yellow Perch
No. analyzed	1	3	3	3	3	2	3
Length (mm)	381	856 814 - 938	451 439 - 473	402 390 - 422	607 545 - 678	281 279 - 282	273 259 - 285
Weight (g)	600	10,415 8,920 - 13,404	1,447 1,320 - 1,650	907 830 - 1,050	2,530 1,880 - 3,340	325 320 - 330	245 220 - 270
Lipid %	5.9	6.3 4.7 - 8.5	0.6 0.4 - 0.9	1.0 0.7 - 1.4	3.9 3.0 - 5.2	1.5 0.6 - 2.4	0.7 0.6 - 0.8
Aroclor 1016/1242	2.5	5.0 2.2 - 7.6	<0.7[2]	0.7 0.2 - 1.4	4.6 3.7 - 6.5	1.7 0.3 - 3.1	0.3 0.2 - 0.5
Aroclor 1248	<0.3	<0.8	<0.4	<0.2	<0.5	<0.2	<0.5
Aroclor 1254	82.7	253 159 - 408	22.4 14.8 - 31.2	43.6 39 - 52	184.3 105 - 296	49.4 13.9 - 84.9	8.6 5.5 - 14.2
Aroclor 1260	60.3	322.7 192 - 539	22.9 15.5 - 29.6	45.4 33.2 - 57.4	135.3 65.8 - 228	46.0 17.8 - 74.1	7.7 4.7 - 13.0
Total PCBs[3]	145	580 353 - 954	44.5 29.5 - 59.8	89.4 73.5 - 111	324 174 - 530	96.4 30.9 - 162	16.3 10.1 - 27.0
Oxychlordane	2.3	1.4 0.1 - 2.9	0.4 0.2 - 0.6	0.9 0.3 - 1.2	2.5 2.0 - 3.3	<0.8	<0.5
trans-Chlordane	0.2	2.6 1.1 - 4.7	0.1 <0.1 - 0.1	0.2 <0.1 - 0.3	1.7 1.5 - 1.9	0.3 0.1 - 0.4	<0.1 <0.1 - 0.1
cis-Chlordane	1.8	8.4 4.0 - 15.2	0.3 0.2 - 0.4	0.6 0.2 - 1.0	7.6 5.7 - 9.6	1.8 0.9 - 2.7	0.2 0.1 - 0.4
trans-Nonachlor	4.9	13.4 8.1 - 20.8	1.4 0.8 - 2.1	3.1 2.3 - 4.6	13.3 7.5 - 20.8	2.9 1.1 - 4.6	0.6 0.4 - 1.0
cis-Nonachlor	2.1	5.1 2.8 - 8.2	0.5 0.4 - 0.7	1.1 0.8 - 1.7	4.9 2.9 - 7.7	1.0 0.4 - 1.7	0.2 0.1 - 0.4
Total Chlordane[4]	11.3	30.8 17.0 - 51.8	2.6 1.8 - 3.9	5.7 3.3 - 8.7	30.0 19.6 - 42.8	6.0 2.6 - 9.5	1.1 0.6 - 1.8
Hexachlorobenzene	0.4	0.6 0.3 - 0.7	<0.1 <0.1 - 0.1	0.1 0.1 - 0.2	0.5 0.4 - 0.5	0.2 <0.1 - 0.2	0.1 0.1 - 0.1
alpha HCH	<0.3	0.6 0.1 - 1.4	<0.3	<0.2	<0.1 <0.1 - 0.1	0.7 0.5 - 0.9	<0.1
beta HCH	<0.3	<0.8	<0.3	<0.3	<0.3	<0.5	<0.2
gamma HCH	<0.4	0.4 0.2 - 0.5	<0.3	<0.3	0.2 0.1 - 0.2	<0.7	<0.2

Table 35. Continued.

	Brown Trout	Common Carp	Largemouth Bass	Smallmouth Bass	Walleye	White Perch	Yellow Perch
HCH, delta	0.1	0.1 0.1 - 0.2	0.1 0.1 - 0.1	0.2 <0.1 - 0.3	<0.1	<0.7	0.1 0.1 - 0.1
Heptachlor	<0.2	<0.4	<0.2	<0.4	<0.5	<0.4	<0.2
Heptachlor epoxide	0.4	0.6 0.4 - 0.9	<0.1 <0.1 - 0.1	0.1 0.1 - 0.1	0.4 0.3 - 0.5	0.1 0.1 - 0.2	<0.1 <0.1 - 0.1
o,p'-DDE	0.1	0.2 0.1 - 0.3	<0.1 <0.1 - <0.1	<0.1 <0.1 - 0.1	0.3 0.2 - 0.3	0.2 <0.1 - 0.3	<0.1
p,p'-DDE	24.7	86.0 43.4 - 154.0	5.4 2.9 - 8.2	13.5 10.1 - 19.5	52.5 28.8 - 85.5	16.4 2.7 - 30.1	2.2 1.3 - 3.8
o,p'-DDD	0.5	0.8 0.4 - 1.5	0.1 <0.1 - 0.1	0.1 0.1 - 0.2	0.4 0.3 - 0.5	0.3 0.1 - 0.4	<0.1
p,p'-DDD	8.7	18.4 8.3 - 34.3	1.3 0.9 - 1.6	2.6 1.4 - 4.0	10.4 8.1 - 13.2	3.3 1.2 - 5.3	0.6 0.3 - 1.0
o,p'-DDT	0.8	0.5 0.3 - 0.9	0.1 <0.1 - 0.2	0.2 0.1 - 0.3	0.8 0.5 - 1.1	0.5 0.2 - 0.8	<0.1 <0.1 - 0.1
p,p'-DDT	4.0	0.5 0.2 - 0.8	0.5 0.2 - 0.7	1.6 0.9 - 2.4	4.2 3.0 - 5.6	1.6 0.6 - 2.6	0.2 0.2 - 0.3
Total DDT[5]	38.7	106 52.9 - 192	7.3 4.0 - 10.7	18.1 13.5 - 26.5	68.4 41.0 - 106	22.2 4.9 - 39.4	3.1 1.8 - 5.2
Aldrin	<0.2	<0.2	<0.2	<0.3	<0.5	<0.1	<0.1
Dieldrin	<0.9	1.5 1.4 - 1.8	0.1 <0.1 - 0.2	0.3 0.2 - 0.5	1.2 0.9 - 1.5	0.4 0.2 - 0.6	0.1 0.1 - 0.2
Endrin	<0.1	0.1 <0.1 - 0.2	<0.1	<0.3	<0.2	<0.3	<0.1
Endrin ketone	<0.1	0.1 0.1 - 0.2	<0.2	<0.4	0.1 0.1 - 0.2	<0.4	<0.2
Endosulphan, alpha	<0.1	<0.1 <0.1 - 0.1	<0.1	<0.2	<0.1 <0.1 - <0.1	<0.1	<0.1
Endosulphan, beta	<0.1	<0.2	<0.1	<0.3	<0.2	<0.3	<0.2
Endosulphan sulfate	0.3	<0.2	<0.1	<0.5	0.5 0.4 - 0.6	<0.4	0.1 0.1 - 0.1
Methoxychlor	<0.3	<0.8	<0.3	<0.4	0.2 0.1 - 0.3	<1.6	<0.6
Mirex	<0.1	0.5 0.4 - 0.8	<0.1 <0.1 - 0.1	0.1 0.1 - 0.1	0.2 0.1 - 0.3	<0.1 <0.1 - 0.1	<0.1
Photomirex	<0.2	<0.3	<0.1	<0.1	<0.1	<0.1	<0.1

[1] Mean values are reported with minimum and maximum values on the second line.
[2] When all samples were not detected only the maximum detection limit is reported. When at least one sample had detectable concentrations, half the detection limit of non-detects was used to calculate means and ranges.

Table 35. Continued.

[3] Total PCBs is the mean and range of the sums of Aroclors.
[4] Total Chlordane is the mean and range of the sums of Oxychlordane, trans-Chlordane, cis-Chlordane, trans-Nonachlor, and cis-Nonachlor.
[5] Total DDT is the mean and range of the sums of o,p'-DDE, p,p'-DDE, o,p'-DDD, p,p'-DDD, o,p'-DDT, and p,p'-DDT.

Table 36. Polychlorinated biphenyls and organochlorine pesticide concentrations (ng/g [ppb])[1] in fish taken from East Branch Reservoir, 2002.

	Black Crappie	Common Carp	Smallmouth Bass	Walleye	White Perch	Yellow Perch
No. analyzed	3	3	3	3	3	3
Length (mm)	249 248 - 250	731 718 - 743	366 320 - 394	656 636 - 672	294 279 - 317	240 228 - 263
Weight (g)	247 240 - 255	5,147 4,800 - 5,520	627 430 - 730	3,313 3,110 - 3,690	407 320 - 550	145 135 - 155
Lipid %	1.6 1.4 - 1.8	6.1 3.5 - 11.0	1.3 0.8 - 1.7	2.2 1.6 - 2.5	3.7 2.9 - 5.0	1.0 0.5 - 1.4
Aroclor 1016/1242	0.7 0.6 - 0.8	5.8 3.5 - 9.7	0.6 0.5 - 0.8	2.6 1.8 - 3.2	2.5 1.8 - 3.3	0.2 0.1 - 0.3
Aroclor 1248	<0.2[2]	<2.6	<0.3	<0.3	<0.3	<0.2
Aroclor 1254	12.0 11.1 - 12.7	210 93.6 - 407	30.2 25.4 - 33.0	68.2 58.3 - 75.6	57.0 21.6 - 98.0	5.2 4.5 - 6.5
Aroclor 1260	11.2 9.3 - 14.1	321 146 - 603	30.3 21.7 - 38.1	66.5 57.9 - 83.0	63.8 19.8 - 122	6.7 2.9 - 12.0
Total PCBs[3]	23.7 22.7 - 25.7	535 242 - 1017	61.0 47.6 - 71.5	137 119 - 162	123 42.9 - 222	11.9 7.6 - 16.1
Oxychlordane	<0.5	1.4 0.3 - 2.9	<0.7	0.8 0.8 - 0.9	0.7 0.5 - 0.8	0.2 0.2 - 0.3
trans-Chlordane	0.2 0.2 - 0.2	2.3 1.3 - 4.2	0.2 0.2 - 0.2	0.7 0.5 - 0.8	0.4 0.3 - 0.5	0.1 <0.1 - 0.1
cis-Chlordane	0.7 0.6 - 0.7	6.9 3.6 - 13.4	0.7 0.5 - 0.9	3.8 2.9 - 4.6	2.0 1.4 - 2.7	0.3 0.1 - 0.4
trans-Nonachlor	0.9 0.9 - 1.0	14.4 6.5 - 28.5	2.4 2.2 - 2.7	6.4 5.5 - 7.2	3.8 1.7 - 7.3	0.7 0.3 - 1.2
cis-Nonachlor	0.4 0.4 - 0.4	6.5 2.9 - 13.3	0.9 0.8 - 1.0	2.6 2.3 - 2.8	1.6 0.8 - 2.8	0.2 0.1 - 0.3
Total Chlordane[4]	2.1 2.0 - 2.2	31.5 15.3 - 62.3	4.2 4.1 - 4.3	14.3 12.0 - 16.2	8.4 4.5 - 14.1	1.4 0.6 - 2.1
Hexachlorobenzene	0.1 0.1 - 0.1	0.4 0.2 - 0.7	0.1 0.1 - 0.1	0.2 0.1 - 0.2	0.1 0.1 - 0.2	0.1 <0.1 - 0.1
alpha HCH	<0.2	0.1 0.1 - 0.1	<0.2	<0.2	0.1 0.1 - 0.2	<0.1
beta HCH	<0.2	0.1 <0.1 - 0.1	<0.2	<0.2	<0.3	<0.2
gamma HCH	<0.2	0.1 0.1 - 0.1	<0.2	<0.2	<0.5	<0.2
HCH, delta	<0.2	<0.6	<0.4	<0.2	<0.3	<0.2

Table 36. Continued.

	Black Crappie	Common Carp	Smallmouth Bass	Walleye	White Perch	Yellow Perch
Heptachlor	<0.2	0.1 <0.1 - 0.1	<0.3	<0.2	<0.4	<0.1
Heptachlor epoxide	<0.3	0.4 0.1 - 0.8	<0.3	0.2 0.2 - 0.3	0.2 0.1 - 0.3	<0.2
o,p'-DDE	0.1 0.1 - 0.1	0.5 0.3 - 0.8	0.1 <0.1 - 0.1	0.1 0.1 - 0.2	0.3 0.1 - 0.5	<0.1 <0.1 - <0.1
p,p'-DDE	5.2 5.0 - 5.4	166 56.2 - 324	13.7 11.2 - 15.4	35.7 31.9 - 37.6	32.6 9.8 - 54.7	4.4 3.3 - 6.4
o,p'-DDD	0.1 0.1 - 0.2	1.9 1.0 - 3.5	0.2 0.1 - 0.2	0.2 0.2 - 0.3	0.8 0.4 - 1.1	0.1 <0.1 - 0.1
p,p'-DDD	2.2 2.0 - 2.5	29.4 16.9 - 50.1	2.5 2.1 - 3.1	6.7 4.8 - 7.7	11.7 5.0 - 20.0	0.8 0.7 - 1.0
o,p'-DDT	0.1 0.1 - 0.1	0.2 0.2 - 0.3	0.1 0.1 - 0.1	0.2 0.2 - 0.3	0.2 0.1 - 0.4	<0.1 <0.1 - 0.1
p,p'-DDT	0.2 0.2 - 0.7	1.9 0.2 - 3.6	0.5 0.5 - 0.6	1.4 1.1- 1.5	0.7 0.3 - 1.5	0.2 <0.1 - 0.3
Total DDT[5]	8.0 7.5 - 8.5	200 76.6 - 379	17.0 15.3 - 18.4	44.4 41.8 - 47.4	46.3 15.9 - 67.6	5.6 4.0 - 7.9
Aldrin	<0.2	<0.1 <0.1 - 0.1	<0.1	<0.1	<0.3	<0.1
Dieldrin	0.2 0.1 - 0.2	0.9 0.5 - 1.8	0.2 0.1 - 0.3	0.6 0.4 - 0.7	0.4 0.3 - 0.6	<0.1
Endrin	<0.3	<0.3	<0.3	<0.2	<0.2	<0.2
Endrin ketone	<0.3	<0.4	<0.3	<0.2	<0.2	<0.1
Endosulphan, alpha	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulphan, beta	<0.2	<0.2	<0.3	<0.1	<0.1	<0.2
Endosulphan sulfate	<0.2	0.1 0.1 - 0.2	<0.3	0.2 0.1 - 0.2	0.2 0.2 - 0.3	0.2 0.1 - 0.2
Methoxychlor	<1.3	<1.1	<1.0	<1.0	<1.1	<0.3
Mirex	<0.1	0.5 0.2 - 1.0	<0.1 <0.1 - <0.1	0.1 0.1 - 0.1	<0.1 <0.1 - 0.1	<0.1
Photomirex	<0.1	<0.3	<0.1	<0.1	<0.2	<0.1

[1] Mean values are reported with minimum and maximum values on the second line.
[2] When all samples were not detected only the maximum detection limit is reported. When at least one sample had detectable concentrations, half the detection limit of non-detects was used to calculate means and ranges.
[3] Total PCBs is the mean and range of the sums of Aroclors.
[4] Total Chlordane is the mean and range of the sums of Oxychlordane, trans-Chlordane, cis-Chlordane, trans-Nonachlor, and cis-Nonachlor.
[5] Total DDT is the mean and range of the sums of o,p'-DDE, p,p'-DDE, o,p'-DDD, p,p'-DDD, o,p'-DDT, and p,p'-DDT.

Table 37. Polychlorinated biphenyls and organochlorine pesticide concentrations (ng/g [ppb])[1] in fish taken from Kensico Reservoir, 2001.

	Brown Trout	**Largemouth Bass**	**Lake Trout**	**Smallmouth Bass**	**Yellow Perch**
No. analyzed	3	3	3	3	3
Length (mm)	469 447 - 510	485 458 - 513	650 544 - 720	451 430 - 468	312 293 - 339
Weight (g)	1,440 1,160 - 1,910	2,003 1,660 - 2,420	3,003 1,710 - 3,670	1,400 1,120 - 1,680	360 300 - 450
Lipid %	9.9 8.2 - 12	1.8 0.8 - 2.8	10.2 7.5 - 12	1.5 1.3 - 1.8	1.6 1.0 - 2.0
Aroclor 1016/1242	<0.2[2]	<0.1	9.0 <0.1 - 14.1	<0.2	<0.1
Aroclor 1248	<0.1	<0.1	<0.3	<0.2	<0.2
Aroclor 1254	127 105 - 140	50.9 24.2 - 77.6	239 119 - 323	146 117 - 187	22.0 8.7 - 31.0
Aroclor 1260	118 92.6 - 145	61.0 38.1 - 83.9	222 115 - 283	170 139 - 192	18.8 7.5 - 25.2
Total PCBs[3]	245 197 - 285	143 62 - 204	470 233 - 620	315 256 - 379	40.5 16.0 - 55.9
Oxychlordane	4.6 3.9 - 5.4	1.1 0.4 - 1.8	3.8 1.6 - 5.7	2.8 2.5 - 3.2	0.8 0.5 - 1.4
trans-Chlordane	1.0 0.8 - 1.3	0.4 0.1 - 0.7	4.1 2.9 - 4.8	0.4 0.3 - 0.7	0.3 0.1 - 0.4
cis-Chlordane	7.0 5.4 - 7.8	2.2 0.5 - 3.5	15.0 9.7 - 18.6	1.2 0.5 - 1.8	1.1 0.5 - 1.9
trans-Nonachlor	15.2 12.0 - 17.6	6.9 2.5 - 10.6	16.5 10.0 - 21.0	16.5 10.0 - 21.0	2.6 1.4 - 3.9
cis-Nonachlor	5.2 4.2 - 5.8	2.1 0.8 - 3.2	7.9 4.4 - 10.5	4.3 2.8 - 5.6	0.8 0.4 - 1.2
Total Chlordane[4]	32.9 26.3 - 36.8	12.6 4.4 - 19.7	55.8 32.4 - 72.9	25.3 17.4 - 31.6	5.2 3.6 - 7.4
Hexachlorobenzene	1.6 1.4 - 1.8	0.3 0.1 - 0.6	2.6 1.6 - 3.4	0.3 0.2 - 0.4	0.2 0.2 - 0.3
alpha HCH	0.1 <0.1 - 0.2	<0.1	0.1 <0.1 - 0.1	<0.1	<0.1 <0.1 - <0.1
beta HCH	<0.1	<0.1	<0.4	<0.1	<0.1
gamma HCH	0.1 <0.1 - 0.2	<0.1	0.1 <0.1 - 0.2	<0.1	<0.1
HCH, delta	0.1 <0.1 - 0.2	0.3 0.1 - 0.5	0.2 <0.1 - 0.3	0.1 <0.1 - 0.1	<0.1 <0.1 - 0.1

Table 37. Continued.

	Brown Trout	Largemouth Bass	Lake Trout	Smallmouth Bass	Yellow Perch
Heptachlor	0.2 0.1 - 0.5	<0.1	0.2 0.1 - 0.4	<0.2	<0.1
Heptachlor epoxide	0.6 0.5 - 0.6	0.2 0.1 - 0.3	0.5 0.4 - 0.6	0.1 0.1 - 0.2	0.1 0.1 - 0.1
o,p'-DDE	0.3 0.2 - 0.4	0.2 <0.1 - 0.3	0.8 0.4 - 1.1	0.1 0.1 - 0.2	<0.1 <0.1 - <0.1
p,p'-DDE	98.2 76.5 - 113	52.1 25.2 - 72.5	174 91.1 - 242	79.0 55.9 - 102	12.7 6.6 - 18.9
o,p'-DDD	1.8 1.4 - 2.5	0.8 0.2 - 1.1	4.2 2.3 - 5.9	0.5 0.2 - 0.8	0.1 0.1 - 0.2
p,p'-DDD	27.3 23.5 - 31.0	9.7 3.5 - 13.2	57.7 29.9 - 72.7	10.5 5.8 - 16.0	2.3 1.1 - 3.3
o,p'-DDT	1.4 1.1 - 1.65	0.8 0.2 - 1.1	3.3 1.6 - 4.7	0.7 0.5 - 1.1	0.2 0.1 - 0.3
p,p'-DDT	7.4 5.9 - 9.2	4.6 1.5 - 6.7	15.0 7.5 - 19.3	7.9 4.8 - 11.7	1.4 0.8 - 2.0
Total DDT[5]	136 109 - 153	68.1 30.6 - 95.0	255 133 - 346	120 71.5 - 174	23.2 8.7 - 37.7
Aldrin	<0.1	<0.1	<0.2	<0.1	<0.1
Dieldrin	2.2 1.9 - 2.4	0.6 0.2 - 1.0	2.8 2.2 - 3.5	0.5 0.4 - 0.7	0.3 0.2 - 0.3
Endrin	<0.1	<0.1	<0.5	<0.1 <0.1 - <0.1	<0.1
Endrin ketone	<0.1	<0.1	<0.7	<0.1	<0.1
Endosulphan, alpha	<0.1	<0.1 <0.1 - <0.1	<0.3	<0.1	<0.1
Endosulphan, beta	<0.1	<0.1	<0.5	<0.1 <0.1 - <0.1	<0.1
Endosulphan sulfate	0.6 0.4 - 0.9	<0.1	0.4 0.3 - 0.4	0.1 0.1 - 0.1	0.2 0.1 - 0.2
Methoxychlor	<0.3	<0.2	<2.8	<0.1	<0.1
Mirex	0.2 0.2 - 0.2	0.1 0.1 - 0.2	0.3 0.2 - 0.4	0.3 0.3 - 0.4	<0.1 <0.1 - <0.1
Photomirex	<0.2	<0.2	0.1 <0.1 - 0.2	<0.3	<0.1

[1] Mean values are reported with minimum and maximum values on the second line.
[2] When all samples were not detected only the maximum detection limit is reported. When at least one sample had detectable concentrations, half the detection limit of non-detects was used to calculate means and ranges.
[3] Total PCBs is the mean and range of the sums of Aroclors.

Table 37. Continued.

[4] Total Chlordane is the mean and range of the sums of Oxychlordane, trans-Chlordane, cis-Chlordane, trans-Nonachlor, and cis-Nonachlor.
[5] Total DDT is the mean and range of the sums of o,p'-DDE, p,p'-DDE, o,p'-DDD, p,p'-DDD, o,p'-DDT, and p,p'-DDT.

Table 38. Polychlorinated biphenyls and organochlorine pesticide concentrations (ng/g [ppb])[1] in fish taken from Middle Branch Reservoir, 2002.

	Black Crappie	**Common Carp**	**Largemouth Bass**	**Smallmouth Bass**	**White Perch**	**Yellow Perch**
No. analyzed	3	3	3	3	3	3
Length (mm)	284 278 - 295	773 720 - 811	498 490 - 508	507 484 - 522	361 358 - 365	281 267 - 289
Weight (g)	347 330 - 380	5,640 4,480 - 6,640	1,893 1,820 - 1,960	1,747 1,570 - 1,840	597 570 - 640	243 200 - 290
Lipid %	1.9 1.6 - 2.4	2.0 0.99 - 3.85	5.1 1.5 - 9.2	3.6 1.9 - 4.6	0.3 0.1 - 0.5	0.7 0.6 - 0.8
Aroclor 1016/1242	0.8 0.6 - 1.0	1.5 0.5 - 3.3	8.4 2.6 - 13.9	2.7 1.4 - 3.7	1.2 0.1 - 2.1	0.2 0.1 - 0.3
Aroclor 1248	<0.2[2]	<0.4	<0.4	<0.3	<0.5	<0.2
Aroclor 1254	14.1 12.1 - 15.2	64.5 24.6 - 142	270 172 - 320	125 81.1 - 181	65.9 11.8 - 114	8.4 6.7 - 10.1
Aroclor 1260	8.4 7.0 - 9.4	113 23.5 - 285	222 186 - 248	117 96.9 - 156	65.2 21.9 - 96.9	6.5 5.1 - 7.9
Total PCBs[3]	23.1 19.8 - 24.8	179 48.4 - 430	500 360 - 576	245 179 - 340	132 33.5 - 213	15.0 11.8 - 18.1
Oxychlordane	<0.5	0.7 0.3 - 1.3	3.9 1.9 - 5.8	1.7 1.0 - 2.3	0.6 0.1 - 0.9	0.1 0.1 - 0.2
trans-Chlordane	0.2 0.2 - 0.3	0.6 0.2 - 1.3	1.5 0.4 - 2.4	0.6 0.3 - 0.8	0.3 <0.1 - 0.4	<0.1 <0.1 - <0.1
cis-Chlordane	1.2 1.0 - 1.4	1.8 0.8 - 3.5	9.3 2.3 - 14.1	3.4 2.2 - 4.4	3.2 0.1 - 5.4	0.2 0.2 - 0.3
trans-Nonachlor	1.5 1.3 - 1.7	3.5 1.4 - 7.2	28.1 17.8 - 34.5	13.1 9.0 - 17.1	5.5 0.6 - 9.1	0.8 0.6 - 0.9
cis-Nonachlor	0.6 0.5 - 0.6	1.6 0.6 - 3.4	10.2 6.3 - 12.7	4.8 2.8 - 6.7	2.2 0.2 - 3.7	0.3 0.2 - 0.4
Total Chlordane[4]	3.5 3.0 - 3.9	8.0 3.6 - 16.7	53.0 28.6 - 69.5	23.6 15.3 - 30.1	11.8 0.9 - 19.4	1.4 1.0 - 1.6
Hexachlorobenzene	0.1 0.1 - 0.1	0.2 0.1 - 0.4	0.7 0.2 - 1.3	0.3 0.2 - 0.4	0.1 <0.1 - 0.2	0.2 <0.1 - 0.6
alpha HCH	<0.2	<0.2	<0.5	<0.1	<0.4	<0.1
beta HCH	<0.2	<0.2	<0.8	<0.3	<0.3	<0.1
gamma HCH	<0.2	<0.3	<0.7	<0.2	<0.4	<0.1
HCH, delta	<0.2	<0.3	<0.4	<0.5	<0.2	<0.3
Heptachlor	<0.1	<0.4	<0.5	<0.2	<0.4	<0.2

Table 38. Continued.

	Black Crappie	Common Carp	Largemouth Bass	Smallmouth Bass	White Perch	Yellow Perch
Heptachlor epoxide	0.2 0.2 - 0.2	0.2 0.1 - 0.3	1.3 0.4 - 2.3	0.3 0.2 - 0.5	<0.6	<0.4
o,p'-DDE	0.1 0.1 - 0.3	0.1 <0.1 - 0.3	59.7 0.2 - 178	0.2 0.1 - 0.3	0.1 <0.1 - 0.2	<0.1 <0.1 - <0.1
p,p'-DDE	7.2 7.0 - 7.4	42.5 13.5 - 98.6	145 105 - 175	73.3 51.5 - 101	33.5 7.1 - 59.5	4.7 3.8 - 5.2
o,p'-DDD	0.2 0.1 - 0.4	0.4 0.1 - 0.8	1.5 0.5 - 2.3	0.3 0.2 - 0.5	0.4 <0.1 - 0.6	<0.1
p,p'-DDD	1.8 1.4 - 2.2	7.1 2.0 - 17.1	36.7 13.7 - 52.3	12.2 6.5 - 16.9	6.4 0.2 - 10.8	0.8 0.5 - 1.0
o,p'-DDT	0.3 0.1 - 0.5	0.1 <0.1 - 0.2	1.6 0.9 - 2.1	0.4 0.3 - 0.5	0.4 <0.1 - 0.7	<0.1 <0.1 - <0.1
p,p'-DDT	0.4 0.4 - 0.5	1.2 0.2 - 3.3	5.8 3.7 - 7.0	2.8 2.0 - 3.9	1.3 0.1 - 2.3	0.2 0.1 - 0.2
Total DDT[5]	9.4 8.4 - 10.3	51.4 16.1 - 120	251 124 - 388	89.4 60.5 - 119	42.2 7.4 - 74.1	5.6 4.4 - 6.4
Aldrin	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1
Dieldrin	0.4 0.3 - 0.4	0.2 0.1 - 0.4	2.4 0.6 - 4.0	0.8 0.4 - 1.1	<0.5	0.1 0.1 - 0.1
Endrin	<0.2	<0.4	<0.3	<0.5	<0.6	<0.4
Endrin ketone	<0.2	<0.5	<0.3	<0.5	<0.7	<0.4
Endosulphan, alpha	<0.1	<0.1	<0.1	<0.3	<0.3	<0.1
Endosulphan, beta	<0.2	<0.3	<0.2	<0.4	<0.4	<0.3
Endosulphan sulfate	<0.2	<0.3	<0.2	<0.5	<0.5	<0.3
Methoxychlor	<0.6	<1.3	<0.9	<1.4	<2.0	<1.2
Mirex	<0.2	0.2 <0.1 - 0.4	0.3 0.3 - 0.3	0.2 0.2 - 0.2	0.1 <0.1 - 0.1	<0.1
Photomirex	<0.6	<0.1	<0.1	<0.1	<0.2	<0.1

[1] Mean values are reported with minimum and maximum values on the second line.
[2] When all samples were not detected only the maximum detection limit is reported. When at least one sample had detectable concentrations, half the detection limit of non-detects was used to calculate means and ranges.
[3] Total PCBs is the mean and range of the sums of Aroclors.
[4] Total Chlordane is the mean and range of the sums of Oxychlordane, trans-Chlordane, cis-Chlordane, trans-Nonachlor, and cis-Nonachlor.
[5] Total DDT is the mean and range of the sums of o,p'-DDE, p,p'-DDE, o,p'-DDD, p,p'-DDD, o,p'-DDT, and p,p'-DDT.

Table 39. Polychlorinated biphenyls and organochlorine pesticide concentrations (ng/g [ppb])[1] in fish taken from Muscoot Reservoir, 2002.

	Black crappie	**Common carp**	**Largemouth bass**	**Smallmouth bass**	**White sucker**	**Yellow perch**
No. analyzed	3	3	3	3	3	3
Length (mm)	237 229 - 249	875 840 - 935	484 470 - 492	321 302 - 332	465 458 - 469	262 254 - 270
Weight (g)	167 150 - 190	9,493 8,400 - 11,200	1,890 1,740 - 2,030	367 300 - 400	1,230 1,140 - 1,360	183 170 - 200
Lipid %	0.6 0.5 - 0.7	6.3 2 - 11	0.8 0.8 - 0.9	0.7 0.7 - 0.8	4.9 4.3 - 5.5	1.7 1.2 - 2.3
Aroclor 1016/1242	0.5 0.1 - 0.7	7.3 2.5 - 13	0.6 0.5 - 0.7	0.5 0.4 - 0.53	3.1 2.3 - 4.2	0.9 0.7 - 1.1
Aroclor 1248	<0.3[2]	<1.5	<0.2	<0.1	<0.3	<0.2
Aroclor 1254	15 10.4 - 17.7	322.7 148 - 474	38.9 25.9 - 47.9	30.8 22.8 - 38.6	75.3 67.1 - 84.1	33.6 12.3 - 62.9
Aroclor 1260	15.1 6.5 - 24.0	330.0 161 - 464	44.8 25.8 - 59.5	41.0 31.0 - 59.2	48.6 43.6 - 52.5	23.2 7.1 - 41.7
Total PCBs[3]	30.3 16.3 - 42.2	659 310 - 951	84.1 52.3 - 108	72.2 54.1 - 98.2	127 113 - 141	57.5 19.9 - 105
Oxychlordane	0.3 0.3 - 0.4	4.2 2.1 - 7.4	0.9 0.6 - 1.6	0.7 0.5 - 0.8	2.5 2.3 - 2.8	1.1 0.6 - 1.8
trans-Chlordane	0.1 0.1 - 0.2	5.8 1.6 - 11.5	0.1 0.1 - 0.2	0.1 0.1 - 0.1	1.5 1.3 - 1.7	0.5 0.3 - 0.8
cis-Chlordane	0.7 0.4 - 0.8	18.0 5.4 - 34.6	0.7 0.6 - 0.8	0.3 0.3 - 0.4	6.0 5.1 - 6.6	2.5 1.5 - 4.1
trans-Nonachlor	1.3 0.9 - 1.6	21.8 9.0 - 38.0	3.1 2.1 - 4.2	2.4 1.6 - 3.2	6.2 5.2 - 7.2	3.5 1.5 - 6.4
cis-Nonachlor	0.5 0.3 - 0.6	7.8 3.1 - 13.7	1.1 0.7 - 1.4	0.8 0.6 - 1.0	2.2 1.8 - 2.5	1.3 0.5 - 2.3
Total Chlordane[4]	2.9 2.0 - 3.5	56.7 21.2 - 105	6.0 4.2 - 7.9	4.3 3.1 - 5.4	18.5 16.2 - 20.1	8.9 4.5 - 15.4
Hexachlorobenzene	0.1 0.1 - 0.1	1.2 0.2 - 2.6	0.1 0.1 - 0.2	0.1 0.1 - .01	1.0 0.8 - 1.1	0.3 0.2 - 0.3
alpha HCH	0.1 0.1 - 0.1	<0.1	<0.2	<0.1	0.3 0.1 - 0.4	<0.2
beta HCH	<0.3	<0.2	<0.2	<0.1	<0.2	<0.3
gamma HCH	<0.2	<0.6	<0.2	<0.1	<0.2	<0.2
HCH, delta	<0.3	0.2 0.1 - 0.5	0.1 <0.1 - 0.2	<0.1 <0.1 - <0.1	<0.1	<0.4

Table 39. Continued.

	Black crappie	Common carp	Largemouth bass	Smallmouth bass	White sucker	Yellow perch
Heptachlor	<0.1	<1.2	<1.2	<0.1	1.1 0.7 - 1.4	0.6 0.1 - 1.7
Heptachlor epoxide	0.1 0.1 - 0.2	1.3 0.3 - 2.9	0.1 0.1 - 0.2	0.6 0.4 - 0.8	0.6 0.4 - 0.8	0.4 0.3 - 0.4
o,p'-DDE	<0.1 <0.1 - 0.1	0.6 0.1 - 1.3	0.2 <0.1 - 0.6	0.1 <0.1 - 0.1	0.2 0.2 - 0.3	0.1 0.1 - 0.1
p,p'-DDE	7.1 5.2 - 8.3	112.0 44.1 - 182.0	16.9 10.3 - 24.2	13.6 11.2 - 16.9	28.4 26.3 - 30.0	10.0 5.1 - 13.1
o,p'-DDD	0.1 <0.1 - 0.1	1.9 0.3 - 4.2	0.2 0.1 - 0.3	0.1 <0.1 - 0.1	0.9 0.7 - 1.2	0.2 0.1 - 0.2
p,p'-DDD	1.6 0.9 - 2.2	32.9 7.3 - 62.1	3.0 2.1 - 3.4	2.1 1.6 - 2.7	12.8 10.8 - 15.3	3.6 2.2 - 4.6
o,p'-DDT	0.2 0.1 - 0.2	0.9 0.3 - 1.2	1.5 0.1 - 4.2	0.1 0.1 - 0.1	0.3 0.3 - 0.4	0.2 0.2 - 0.4
p,p'-DDT	1.1 0.9 - 1.4	1.7 0.4 - 3.1	1.3 1.0 - 1.6	1.5 1.3 - 1.9	2.0 1.6 - 2.2	1.2 0.8 - 1.8
Total DDT[5]	10.1 7.2 - 11.9	150 52.4 - 254	23.0 13.6 - 34.0	17.4 14.3 - 20.4	44.7 40.0 - 49.2	15.2 8.5 - 18.9
Aldrin	<0.3	<6.9	<0.1	<0.1	<0.2	<0.2
Dieldrin	0.3 0.2 - 0.4	1.9 0.8 - 3.4	0.2 0.2 - 0.2	0.1 0.1 - 0.1	1.2 1.0 - 1.5	0.7 0.5 - 0.8
Endrin	<0.2	0.1 <0.1 - 0.1	<0.1 <0.1 - 0.1	<0.1	<0.1 <0.1 - <0.1	<0.1 <0.1 - 0.1
Endrin ketone	<0.3	<0.1 <0.1 - 0.1	<0.1	<0.1	<0.1 <0.1 - <0.1	0.3 <0.1 - 0.5
Endosulphan, alpha	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulphan, beta	<0.2	0.1 <0.1 - 0.1	<0.1	<0.1	<0.1	<0.3
Endosulphan sulfate	<0.4	0.2 0.1 - 0.4	<0.1 <0.1 - 0.1	<0.1 <0.1 - <0.1	0.2 0.2 - 0.3	0.2 0.2 - 0.2
Methoxychlor	<1.2	0.1 <0.1 - 0.2	<0.5	<0.1	<0.1 <0.1 - <0.1	<1.4
Mirex	<0.1	0.2 0.1 - 0.4	0.1 <0.1 - 0.1	<0.1 <0.1 - 0.1	<0.1 <0.1 - 0.1	<0.1 <0.1 - 0.1
Photomirex	<0.1	<0.2	<0.4	<0.1	<0.1	<0.2

[1] Mean values are reported with minimum and maximum values on the second line.
[2] When all samples were not detected only the maximum detection limit is reported. When at least one sample had detectable concentrations, half the detection limit of non-detects was used to calculate means and ranges.
[3] Total PCBs is the mean and range of the sums of Aroclors.

Table 39. Continued.

[4] Total Chlordane is the mean and range of the sums of Oxychlordane, trans-Chlordane, cis-Chlordane, trans-Nonachlor, and cis-Nonachlor.
[5] Total DDT is the mean and range of the sums of o,p'-DDE, p,p'-DDE, o,p'-DDD, p,p'-DDD, o,p'-DDT, and p,p'-DDT.

Table 40. Polychlorinated biphenyls and organochlorine pesticide concentrations (ng/g [ppb])[1] in fish taken from New Croton Reservoir, 2001.

	Common Carp	Largemouth Bass	Smallmouth Bass	White Perch	Yellow Perch
No. analyzed	3	3	3	3	3
Length (mm)	793 782 - 812	475 462 - 498	464 456 - 471	263 250 - 273	246 243 - 247
Weight (g)	7,890 7,050 - 9,040	1,818 1,685 - 1,960	1,350 1,270 - 1,430	280 210 - 350	163 155 - 170
Lipid %	4.5 1.3 - 6.6	1.0 0.8 - 1.2	1.8 1.4 - 2.2	2.8 1.4 - 5.7	1.6 1.2 - 1.9
Aroclor 1016/1242	<0.1[2]	0.5 <0.1 - 1.3	2.3 2.0 - 2.9	2.2 0.9 - 4.4	0.6 0.6 - 0.7
Aroclor 1248	<0.1	<0.5	<0.7	<0.7	<0.1
Aroclor 1254	100 35.8 - 165	153 29.5 - 276	183 163 - 222	79.9 32 - 116	26.5 16.1 - 37.2
Aroclor 1260	107 42.6 - 172	222 54.9 - 390	186 156 - 212	83.1 38.3 - 106	32.4 16.7 - 53.3
Total PCBs[3]	230 78.3 - 337	305 83.2 - 666	371 321 - 436	165 71.2 - 225	59.4 33.2 - 91.0
Oxychlordane	2.0 0.6 - 3.0	1.5 0.3 - 2.5	3.7 3.2 - 4.3	1.7 0.7 - 3.0	1.0 0.9 - 1.2
trans-Chlordane	3.2 1.0 - 4.3	0.4 0.3 - 0.5	1.0 0.7 - 1.4	1.0 0.3 - 2.0	0.4 0.4 - 0.5
cis-Chlordane	9.3 3.0 - 13.1	3.0 2.4 - 3.6	6.22 4.65 - 8.66	8.3 2.9 - 16.4	2.0 1.7 - 2.3
trans-Nonachlor	11.8 3.6 - 17.2	18.5 5.0 - 32	22.1 20.0 - 26.2	9.6 3.6 - 16.4	3.8 3.4 - 4.6
cis-Nonachlor	4.4 1.4 - 6.4	6.2 1.5 - 10.9	7.9 7.2 - 9.2	3.5 1.3 - 6.1	1.3 1.0 - 1.6
Total Chlordane[4]	30.7 9.6 - 44.0	26.1 9.2 - 49.5	41.0 36.1 - 49.8	24.1 8.9 - 43.9	8.5 7.4 - 10.1
Hexachlorobenzene	0.5 0.2 - 0.7	0.3 0.2 - 0.4	0.3 0.2 - 0.4	0.4 0.2 - 0.7	0.2 0.2 - 0.2
alpha HCH	<0.2	<0.4	<0.6	<0.2	<0.6
beta HCH	<0.1	<0.5	<0.6	<0.2	<0.6
gamma HCH	<0.3	<0.5	<0.7	<0.2	0.1 <0.1 - 0.2
HCH, delta	0.1 0.1 - 0.3	0.5 (2) 0.2 - 0.8	0.1 <0.1 - 0.1	0.8 (1)	0.3 0.2 - 0.3
Heptachlor	<0.5	0.7 <0.1 - 1.8	<0.3	<0.3	<0.3

Table 40. Continued.

	Common Carp	Largemouth Bass	Smallmouth Bass	White Perch	Yellow Perch
Heptachlor epoxide	0.6 0.2 - 0.9	0.3 <0.1 - 0.5	0.6 0.4 - 0.9	1.0 0.4 - 2.2	0.3 0.2 - 0.4
o,p'-DDE	0.2 0.1 - 0.4	0.2 0.1 - 0.3	0.4 0.3 - 0.4	0.3 0.1 - 0.5	<0.1 <0.1 - <0.1
p,p'-DDE	68.4 23.7 - 94.2	78.5 24.1 - 160	115 104 - 135	52.4 21.8 - 77.5	18.6 12.5 - 24.6
o,p'-DDD	0.9 0.3 - 1.3	0.4 0.2 - 0.7	0.8 0.7 - 1.0	0.8 0.3 - 1.5	0.1 0.1 - 0.2
p,p'-DDD	10.7 2.8 - 15.2	7.6 1.2 - 14.1	14.5 12.4 - 17.5	8.2 2.9 - 15.8	2.3 1.5 - 3.0
o,p'-DDT	0.5 0.2 - 0.7	0.7 0.3 - 1.2	0.9 0.7 - 1.0	0.6 0.3 - 0.9	0.2 0.1 - 0.2
p,p'-DDT	0.5 0.1 - 0.8	4.6 1.1 - 8.1	6.9 6.0 - 8.2	3.3 1.5 - 4.9	1.1 0.9 - 1.4
Total DDT[5]	81.3 27.2 - 111	91.5 26.9 - 184	138 126 - 163	65.6 26.9 - 101	22.4 15.1 - 29.4
Aldrin	<0.1	<0.3	<0.5	<0.1	<0.5
Dieldrin	1.7 0.4 - 2.5	0.6 0.2 - 0.9	1.4 1.1 - 1.7	1.8 0.8 - 3.8	0.7 0.4 - 0.9
Endrin	<0.1	<0.2	<0.1	<0.3	<0.4
Endrin ketone	<0.1	<0.3	<0.1	0.7 0.1 - 1.7	<0.3
Endosulphan, alpha	<0.1 <0.1 - 0.1	0.1 <0.1 - 0.2	<0.4	<0.2	<0.2
Endosulphan, beta	<0.1	<0.5	0.1 <0.1 - 0.2	<0.3	<0.2
Endosulphan sulfate	0.2 0.1 - 0.3	<0.6	0.2 <0.1 - 0.3	0.2 0.2 - 0.3	0.4 0.3 - 0.4
Methoxychlor	<0.1	<1.4	0.3 0.2 - 0.5	<1.9	<0.8
Mirex	0.1 0.1 - 0.2	0.1 0.1 - 0.3	0.2 0.1 - 0.2	<0.1 <0.1 - 0.1	<0.1 <0.1 - 0.1
Photomirex	<0.1	<0.3	<0.1	<0.1	<0.1

[1] Mean values are reported with minimum and maximum values on the second line.
[2] When all samples were not detected only the maximum detection limit is reported. When at least one sample had detectable concentrations, half the detection limit of non-detects was used to calculate means and ranges.
[3] Total PCBs is the mean and range of the sums of Aroclors.
[4] Total Chlordane is the mean and range of the sums of Oxychlordane, trans-Chlordane, cis-Chlordane, trans-Nonachlor, and cis-Nonachlor.
[5] Total DDT is the mean and range of the sums of o,p'-DDE, p,p'-DDE, o,p'-DDD, p,p'-DDD, o,p'-DDT, and p,p'-DDT.

Table 41. Polychlorinated biphenyls and organochlorine pesticide concentrations (ng/g [ppb])[1] in fish taken from Pepacton Reservoir, 2002.

	Brown Trout	**Smallmouth Bass**	**Yellow Perch**
No. analyzed	3	1	3
Length (mm)	629 621 - 637	405	253 227 - 269
Weight (g)	2,957 2,710 - 3,120	1,000	173 110 - 210
Lipid %	5.7 4.1 - 7.1	4.3	1.1 0.7 - 1.4
Aroclor 1016/1242	3.4 3.1 - 3.8	1.1	0.2 <0.1 - 0.5
Aroclor 1248	19.4 14.4 - 28.9	<0.1[2]	3.2 1.4 - 5.0
Aroclor 1254	104 72.8 - 153	55	23.4 6.6 - 32.4
Aroclor 1260	444 295 - 606	236	202 27.3 - 414
Total PCBs[3]	571 386 - 791	292	229 35.2 - 449
Oxychlordane	2.7 1.5 - 3.4	0.8	<0.5
trans-Chlordane	0.2 0.1 - 0.3	0.2	0.1 0.1 - 0.2
cis-Chlordane	2.3 1.6 - 2.7	1.1	0.7 0.4 - 1.0
trans-Nonachlor	8.9 7.0 - 11.9	4.5	1.8 0.7 - 2.6
cis-Nonachlor	3.8 2.7 - 5.1	1.4	0.6 0.3 - 1.0
Total Chlordane[4]	16.7 12.1 - 23.3	8.0	3.2 1.4 - 4.8
Hexachlorobenzene	1.2 0.8 - 1.6	0.3	0.2 0.1 - 0.3
alpha HCH	<0.1	<0.1	<0.1
beta HCH	<0.2	<0.1	<0.1
gamma HCH	0.2 0.2 - 0.3	<0.1	0.2 0.2 - 0.2
HCH, delta	<0.2	<0.1	<0.1
Heptachlor	<0.3	<0.1	<1.6

Table 41. Continued.

	Brown bullhead	Brown trout	Yellow perch
Heptachlor epoxide	0.2 0.1 - 0.3	0.2	<0.1
o,p'-DDE	0.1 <0.1 - 0.1	0.1	<0.1
p,p'-DDE	50.1 35.5 - 76.4	22.3	12.3 3.4 - 18.6
o,p'-DDD	0.9 0.7 - 1.2	0.6	0.2 0.1 - 0.2
p,p'-DDD	13.1 10.5 - 17.5	5.5	1.8 0.9 - 2.6
o,p'-DDT	0.7 0.5 - 1.0	0.3	0.2 0.1 - 0.2
p,p'-DDT	2.0 1.6 - 2.8	1.6	0.7 0.2 - 1.0
Total DDT[5]	66.8 48.9 - 98.9	30.4	15.1 4.7 - 21.6
Aldrin	<0.1	<0.1	<0.2
Dieldrin	1.2 0.8 - 1.6	0.7	0.2 <0.1 - 0.3
Endrin	<0.2	<0.1	<0.1
Endrin ketone	<0.2	<0.1	<0.1
Endosulphan, alpha	<0.1	<0.1	<0.1
Endosulphan, beta	<0.2	<0.1	<0.1
Endosulphan sulfate	0.1 0.1 - 0.2	<0.1	<0.2
Methoxychlor	<0.5	<0.2	<0.4
Mirex	0.5 0.3 - 0.7	0.2	0.1 <0.1 - 0.3
Photomirex	0.2 0.2 - 0.3	<0.1	<0.1

[1] Mean values are reported with minimum and maximum values on the second line.
[2] When all samples were not detected only the maximum detection limit is reported. When at least one sample had detectable concentrations, half the detection limit of non-detects was used to calculate means and ranges.
[3] Total PCBs is the mean and range of the sums of Aroclors.
[4] Total Chlordane is the mean and range of the sums of Oxychlordane, trans-Chlordane, cis-Chlordane, trans-Nonachlor, and cis-Nonachlor.
[5] Total DDT is the mean and range of the sums of o,p'-DDE, p,p'-DDE, o,p'-DDD, p,p'-DDD, o,p'-DDT, and p,p'-DDT.

Table 42. Polychlorinated biphenyls and organochlorine pesticide concentrations (ng/g [ppb])[1] in fish taken from Schoharie Reservoir, 2001.

	Cisco	**Smallmouth Bass**	**Walleye**	**Yellow Perch**
No. analyzed	3	3	3	3
Length (mm)	457 455 - 460	407 402 - 415	411 395 - 429	283 267 - 300
Weight (g)	837 760 - 890	880 860 - 900	593 480 - 680	260 220 - 310
Lipid %	4.3 2.3 - 5.8	1.7 0.7 - 2.6	1.1 0.6 - 1.7	1.2 0.8 - 1.4
Aroclor 1016/1242	0.3 <0.1 - 0.9	0.1 <0.1 - 0.2	<0.1[2]	<0.2
Aroclor 1248	<0.1	2.2 0.6 - 3.0	<0.1	<0.1
Aroclor 1254	11.7 5.8 - 19.7	12.2 4.3 - 17.5	2.6 2.2 - 3.0	2.6 0.9 - 3.7
Aroclor 1260	17.7 10.1 - 27.6	26.2 11.7 - 33.6	3.5 3.5 - 3.7	3.8 2.1 - 5.0
Total PCBs[3]	29.6 15.7 - 48.1	40.5 16.5 - 53.8	6.0 5.5 - 6.6	6.2 2.8 - 7.9
Oxychlordane	0.4 0.3 - 0.5	<0.7	0.1 <0.1 - 0.2	<0.3
trans-Chlordane	0.7 0.4 - 1.0	0.1 <0.1 - 0.2	0.1 <0.1 - 0.1	0.1 <0.1 - 0.1
cis-Chlordane	1.5 0.8 - 2.0	0.4 0.1 - 0.6	0.2 0.1 - 0.3	0.2 0.1 - 0.2
trans-Nonachlor	2.2 1.3 - 3.0	1.7 0.5 - 2.5	0.3 0.3 - 0.5	0.4 0.2 - 0.5
cis-Nonachlor	0.7 0.4 - 0.9	0.5 0.2 - 0.8	0.1 <0.1 - 0.2	0.1 <0.1 - 0.1
Total Chlordane[4]	5.5 3.2 - 7.4	2.8 0.8 - 3.9	0.8 0.5 - 1.2	0.7 0.4 - 0.9
Hexachlorobenzene	0.4 0.2 - 0.6	0.2 0.1 - 0.3	0.1 0.1 - 0.2	0.1 <0.1 - 0.2
alpha HCH	<0.1	<0.2	<0.1	<0.1
beta HCH	<0.1	<0.4	<0.1	<0.1
gamma HCH	0.1 <0.1 - 0.2	0.2 0.1 - 0.3	<0.1	<0.2
HCH, delta	<0.1	<0.2	0.1 <0.1 - 0.1	0.2 0.1 - 0.6
Heptachlor	<0.2	<3.0	<0.1	<0.2

Table 42. Continued.

	Cisco	Smallmouth Bass	Walleye	Yellow Perch
Heptachlor epoxide	0.1	<0.2	<0.1	<0.1
o,p'-DDE	<0.1	0.1 <0.1 - 0.1	<0.1	<0.4
p,p'-DDE	7.0 4.1 - 10.3	8.0 3.1 - 11.3	1.3 1.1 - 1.7	1.4 0.6 - 1.8
o,p'-DDD	<0.1 <0.1 - 0.1	0.2 <0.1 - 0.3	<0.1	<0.1
p,p'-DDD	1.4 0.8 - 2.0	1.0 0.2 - 1.5	0.2 0.2 - 0.3	0.2 0.1 - 0.3
o,p'-DDT	0.4 0.2 - 0.6	0.2 <0.1 - 0.3	<0.1	0.1 <0.1 - 0.3
p,p'-DDT	2.4 1.4 - 3.3	0.9 0.3 - 1.3	0.3 0.2 - 0.4	0.3 0.1 - 0.4
Total DDT[5]	11.3 6.6 - 16.4	10.2 3.6 - 14.3	1.9 1.4 - 2.5	2.1 0.9 - 2.8
Aldrin	<0.1	<0.1	<0.1	<0.1
Dieldrin	0.4 0.2 - 0.6	0.4 0.2 - 0.6	0.2 0.1 - 0.3	0.1 0.1 - 0.2
Endrin	<0.2	<0.2	<0.2	<0.4
Endrin ketone	<0.3	<0.2	<0.1	<0.2
Endosulphan, alpha	<0.1	<0.3	<0.1	<0.1
Endosulphan, beta	<0.2	<0.4	<0.1	<0.2
Endosulphan sulfate	<0.3	<0.4	<0.1	<0.3
Methoxychlor	<0.2	<0.6	<0.4	<0.7
Mirex	0.1 <0.1 - 0.1	0.1 0.1 - 0.2	<0.1	<0.1
Photomirex	<0.2	<0.1	<0.1	<0.1

[1] Mean values are reported with minimum and maximum values on the second line.
[2] When all samples were not detected only the maximum detection limit is reported. When at least one sample had detectable concentrations, half the detection limit of non-detects was used to calculate means and ranges.
[3] Total PCBs is the mean and range of the sums of Aroclors.
[4] Total Chlordane is the mean and range of the sums of Oxychlordane, trans-Chlordane, cis-Chlordane, trans-Nonachlor, and cis-Nonachlor.
[5] Total DDT is the mean and range of the sums of o,p'-DDE, p,p'-DDE, o,p'-DDD, p,p'-DDD, o,p'-DDT, and p,p'-DDT.

Table 43. Polychlorinated biphenyls and organochlorine pesticide concentrations (ng/g [ppb])[1] in fish taken from Titicus Reservoir, 2002.

	Black Crappie	Brown Trout	Common Carp	Largemouth Bass	Smallmouth Bass	White Perch	Yellow Perch
No. analyzed	2	3	3	3	1	3	3
Length (mm)	243 240 - 246	494 476 - 512	742 701 - 783	451 441 - 460	325	383 380 - 385	239 228 - 255
Weight (g)	235 220 - 250	1,933 1540 - 2,550	5,903 4,500 - 7,290	1,300 1,220 - 1,400	500	867 770 - 920	160 150 - 180
Lipid %	1.8 1.3 - 2.3	10.3 8.9 - 12.0	7.7 5.8 - 9.9	1.5 0.9 - 2.0	1.97	3.4 1.0 - 4.8	0.8 0.7 - 0.8
Aroclor 1016/1242	0.7 0.5 - 0.9	8.3 6.4 - 11.3	6.5 5.0 - 8.6	1.6 0.9 - 2.3	1.0	3.2 0.6 - 4.8	0.2 0.1 - 0.2
Aroclor 1248	<0.3[2]	<4.6	<0.5	<0.3	<0.3	<0.5	<0.4
Aroclor 1254	15.7 14.6 - 16.7	280 188 - 394	298 222 - 355	117 112 - 124	78.5	258 63 - 489	12.7 8.4 - 21.1
Aroclor 1260	5.9 5.8 - 6.1	150 97 - 227	223 149 - 300	78.2 62.9 - 106	47.3	187 53.6 - 343	6.5 4.0 - 10.7
Total PCBs[3]	22.0 21.0 - 23.1	437 292 - 628	526 377 - 621	196 179 - 221	126	447 117 - 837	18.9 12.2 - 31.8
Oxychlordane	<0.7	3.9 2.2 - 6.2	<6.4	0.8 0.2 - 1.3	<0.8	<1.9	<0.6
trans-Chlordane	0.2 0.1 - 0.2	0.7 0.5 - 0.8	2.5 2.3 - 2.8	0.3 0.2 - 0.4	0.2	0.7 0.1 - 1.3	<0.1 <0.1 - 0.1
cis-Chlordane	0.8 0.7 - 0.9	5.8 4.3 - 8.1	6.8 5.6 - 8.6	2.0 1.3 - 2.4	0.9	8.2 1.7 - 13.8	0.2 0.2 - 0.4
trans-Nonachlor	1.0 0.9 - 1.1	19.0 13.4 - 26.3	12.6 8.9 - 16.3	7.6 6.3 - 8.8	4.7	17.4 4.7 - 31.3	0.6 0.4 - 1.1
cis-Nonachlor	0.3 0.3 - 0.4	7.9 5.3 - 11.4	5.4 3.9 - 7.0	2.7 2.3 - 3	1.8	6.8 1.9 - 12.0	0.2 0.1 - 0.4
Total Chlordane[4]	2.3 2.0 - 2.6	36.6 26.8 - 52.8	27.3 20.6 - 34.7	13.4 10.1 - 15.9	7.6	33.0 8.4 - 58.4	1.1 0.7 - 1.9
Hexachlorobenzene	0.1 0.1 - 0.1	0.9 0.5 - 1.3	0.4 0.3 - 0.5	0.2 0.1 - 0.2	0.2	0.3 0.1 - 0.4	0.1 0.1 - 0.1
alpha HCH	<0.2	0.2 0.1 - 0.5	0.1 0.1 - 0.2	<0.1	<0.2	<0.8	<0.2
beta HCH	<0.1	<0.9	<0.2	<0.2	<0.2	<0.8	<0.2
gamma HCH	<0.2	<1.0	0.2 0.1 - 0.2	<0.1	<0.2	0.6 <0.1 - 1.2	0.3 0.1 - 0.7
HCH, delta	<1.3	0.1 0.1 - 0.1	0.1 <0.1 - 0.1	<1.0	<0.9	<0.2	<0.9

Table 43. Continued.

	Black Crappie	Brown Trout	Common Carp	Largemouth Bass	Smallmouth Bass	White Perch	Yellow Perch
Heptachlor	<0.2	<1.5	0.8 0.4 - 1.3	<0.3	<0.3	<1.2	<0.1
Heptachlor epoxide	0.3 0.2 - 0.3	1.1 0.8 - 1.3	0.5 0.5 - 0.7	0.2 0.1 - 0.4	0.4	0.3 0.1 - 0.4	<0.2
o,p'-DDE	<0.1	0.3 0.2 - 0.3	0.8 0.7 - 0.9	0.3 0.2 - 0.3	0.1	0.7 0.1 - 1.2	<0.1
p,p'-DDE	7.1 6.1 - 8.2	168 110 - 246	191 122 - 246	73.2 70.3 - 74.7	45.7	174 42.8 - 334	6.7 3.5 - 11.5
o,p'-DDD	0.2 0.2 - 0.2	2.1 1.6 - 2.8	3.4 2.8 - 4.0	1.0 0.6 - 1.3	0.3	2.7 0.6 - 4.4	<0.1
p,p'-DDD	3.2 3.0 - 3.4	111 83.7 - 164	79.1 70.9 - 95.2	23.4 13.1 - 31.4	11.9	75.4 15.0 - 125	1.8 1.2 - 3.0
o,p'-DDT	0.1 0.1 - 0.1	1.1 0.6 - 1.7	0.2 0.1 - 0.2	0.4 0.3 - 0.5	0.1	1.4 0.5 - 2.3	<0.1
p,p'-DDT	0.3 0.3 - 0.3	4.9 4.1 - 6.3	0.7 0.2 - 1.0	1.6 1.3 - 1.8	1.1	5.3 1.2 - 10.1	0.2 0.1 - 0.3
Total DDT[5]	10.9 10.0 - 11.9	288 201 - 421	275 198 - 321	99.9 90.2 - 110	59.2	259 60.2 - 477	8.7 4.7 - 14.7
Aldrin	<0.1	<0.4	<3.7	<0.1	<0.1	<0.2	<0.2
Dieldrin	0.5 0.4 - 0.5	3.0 2.3 - 3.4	1.2 1.0 - 1.6	1.1 0.8 - 1.8	0.9	0.9 0.2 - 1.3	0.1 0.1 - 0.2
Endrin	<0.2	0.1 0.1 - 0.1	0.1 0.1 - 0.1	<0.2	<0.2	<0.2	<0.2
Endrin ketone	<0.3	<0.1	<0.1	<0.4	<0.4	<0.1	<0.2
Endosulphan, alpha	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulphan, beta	<0.2	<0.2	<0.1	<0.3	<0.3	<0.2	<0.2
Endosulphan sulfate	<0.3	0.4 0.3 - 0.4	0.1 0.1 - 0.2	<0.4	<0.3	<0.2	<0.3
Methoxychlor	<1.0	<0.5	<0.7	<1.0	<1.0	<0.4	<1.1
Mirex	<0.1	0.2 0.1 - 0.3	0.3 0.2 - 0.5	0.1 <0.1 - 0.1	<0.1	0.2 <0.1 - 0.4	<0.1
Photomirex	<0.1	<0.2	<0.3	<0.1	<0.1	<0.2	<0.1

[1] Mean values are reported with minimum and maximum values on the second line.
[2] When all samples were not detected only the maximum detection limit is reported. When at least one sample had detectable concentrations, half the detection limit of non-detects was used to calculate means and ranges.
[3] Total PCBs is the mean and range of the sums of Aroclors.
[4] Total Chlordane is the mean and range of the sums of Oxychlordane, trans-Chlordane, cis-Chlordane, trans-Nonachlor, and cis-Nonachlor.
[5] Total DDT is the mean and range of the sums of o,p'-DDE, p,p'-DDE, o,p'-DDD, p,p'-DDD, o,p'-DDT, and p,p'-DDT.

Table 44. Polychlorinated biphenyls and organochlorine pesticide concentrations (ng/g [ppb])[1] in fish taken from West Branch Reservoir, 2002.

	Brown Trout	**Common Carp**	**Largemouth Bass**	**Smallmouth Bass**	**Walleye**	**White Perch**	**Yellow Perch**
No. analyzed	3	3	3	1	3	2	3
Length (mm)	475 451 - 522	829 810 - 843	432 403 - 471	400	635 580 - 710	316 310 - 322	239 237 - 243
Weight (g)	1,497 1,200 - 1,960	10,244 10,100 - 10,433	1,360 930 - 1,910	990	2,543 1,860 - 3,060	468 450 - 485	147 140 - 160
Lipid %	8.6 8.0 - 9.9	11.0 7.7 - 15.4	2.6 1.6 - 4.3	2.0	6.1 5.7 - 6.9	1.4 1.4 - 1.4	0.7 0.6 - 0.8
Aroclor 1016/1242	22.4 20.3 - 24.6	52.1 39.9 - 67.2	6.9 3.5 - 12.7	5.1	12.9 9.9 - 16.7	5.9 4.5 - 7.4	1.7 0.4 - 3.4
Aroclor 1248	<2.2[2]	<1.0	<0.4	<0.2	<0.3	<0.3	<0.4
Aroclor 1254	149 131 - 165	572 439 - 655	84.0 49.9 - 109	87.8	144 118 - 163	87.1 38.2 - 136	19.4 6.8 - 31.4
Aroclor 1260	79.2 72.7 - 85.5	360 273 - 419	60.0 43.2 - 74.1	61.7	106 79.2 - 136	91.7 31.3 - 152	11.9 5.4 - 18.8
Total PCBs[3]	250 229 - 273	984 751 - 1141	151 96.2 - 196	154	262 209 - 296	184 73.8 - 295	32.8 12.4 - 53.2
Oxychlordane	2.5 2.4 - 2.6	1.3 0.6 - 2.6	0.8 0.2 - 1.5	1.1	2.1 1.4 - 2.5	<0.4	<0.5
trans-Chlordane	0.4 0.3 - 0.4	3.5 3.1 - 4.1	0.4 0.2 - 0.6	0.2	1.2 0.8 - 1.7	0.4 0.3 - 0.4	0.1 <0.1 - 0.2
cis-Chlordane	2.3 1.7 - 3.0	9.4 8.4 - 10.9	1.5 1.0 - 2.6	0.9	4.0 3.1 - 5.2	2.3 1.8 - 2.8	0.3 0.1 - 0.6
trans-Nonachlor	6.5 6.1 - 6.9	14.3 11.9 - 16.8	4.5 2.6 - 6.5	4.3	6.4 5.4 - 6.9	4.0 2.4 - 5.5	19.1 0.2 - 56.0
cis-Nonachlor	2.5 2.3 - 2.7	5.2 4.5 - 5.9	1.6 1.0 - 2.3	1.5	2.4 2.0 - 2.7	1.6 0.9 - 2.3	0.2 0.1 - 0.4
Total Chlordane[4]	13.3 10.3 - 14.9	33.4 27.9 - 40.3	8.8 4.9 - 13.5	7.9	16.0 13.4 - 18.8	8.1 5.3 - 11.0	19.7 0.4 - 56.5
Hexachlorobenzene	1.2 1.1 - 1.2	1.3 1.0 - 1.7	0.4 0.3 - 0.7	0.3	0.8 0.6 - 0.9	0.3 0.2 - 0.3	0.1 0.1 - 0.2
alpha HCH	0.1 <0.1 - 0.1	<0.3	<0.2	<0.1	<0.2	<0.2	<0.2
beta HCH	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2
gamma HCH	0.1 0.1 - 0.1	<0.4	<0.2	<0.1	<0.2	<0.2	<0.2
HCH, delta	<0.3	<0.3	<0.2	<0.1	<0.1	<0.2	<0.1

Table 44. Continued.

	Brown Trout	Common Carp	Largemouth Bass	Smallmouth Bass	Walleye	White Perch	Yellow Perch
Heptachlor	<0.2	<0.5	<0.2	<0.2	<0.5	<0.3	<0.3
Heptachlor epoxide	0.4 0.2 - 0.5	0.6 0.4 - 0.8	0.2 0.1 - 0.3	0.2	0.6 0.5 - 0.6	<0.2	<0.6
o,p'-DDE	0.2 0.2 - 0.2	0.7 0.6 - 0.8	0.3 0.1 - 0.4	0.2	0.3 0.2 - 0.3	0.4 0.2 - 0.5	<0.1
p,p'-DDE	80.6 67.5 - 92.8	228 189 - 276	62.3 34.1 - 92.4	48.4	66.2 54.7 - 81.5	67.6 32.2 - 103	9.1 3.3 - 16.4
o,p'-DDD	2.1 1.9 - 2.3	3.9 3.1 - 4.4	1.1 0.5 - 2.3	0.6	0.9 0.6 - 1.1	1.1 0.9 - 1.4	0.1 <0.1 - 0.1
p,p'-DDD	49.9 43.2 - 57.1	76.2 58.5 - 100	27.8 10.4 - 57.6	13.0	24.8 17.2 - 32.7	19.0 13.1 - 24.8	2.0 0.6 - 3.8
o,p'-DDT	0.8 0.7 - 0.9	0.3 0.3 - 0.3	0.4 0.2 - 0.8	0.2	0.5 0.4 - 0.7	0.4 0.3 - 0.4	<0.1 <0.1 - 0.1
p,p'-DDT	3.5 3.3 - 3.9	1.1 0.7 - 1.7	2.4 1.3 - 3.5	2.3	3.8 2.9 - 4.8	2.4 1.7 - 3.2	0.2 0.1 - 0.4
Total DDT[5]	137 117 - 156	311 252 - 382	94.3 46.7 - 157	64.7	96.5 83.8 - 121.2	90.8 48.4 - 133	11.4 4.0 - 20.8
Aldrin	<0.2	<0.3	<0.1	<0.1	<0.2	<0.1	<0.1
Dieldrin	1.1 0.8 - 1.4	1.4 1.0 - 2.1	0.4 0.2 - 0.8	0.5	1.3 1.2 - 1.5	0.3 0.2 - 0.3	0.2 <0.1 - 0.4
Endrin	<0.3	<0.4	<0.2	<0.1	<0.3	<0.2	<0.5
Endrin ketone	<0.3	<0.3	<0.2	<0.1	<0.3	<0.2	<0.5
Endosulphan, alpha	<0.3	<0.3	<0.2	<0.1	0.2 0.1 - 0.2	<0.1	<0.4
Endosulphan, beta	<0.6	<0.4	<0.2	<0.1	<0.2	<0.5	<0.8
Endosulphan sulfate	0.3 0.2 - 0.5	<0.5	<0.2	<0.2	0.5 0.4 - 0.6	<0.6	<0.9
Methoxychlor	<0.8	<0.8	<0.4	<0.3	<0.9	<0.5	<1.2
Mirex	0.1 0.1 - 0.1	0.6 0.6 - 0.7	0.1 0.1 - 0.1	0.1	0.2 0.1 - 0.2	0.2 0.1 - 0.3	<0.1
Photomirex	<0.1	<0.2	<0.1	<0.1	<0.2	<0.1	<0.2

[1] Mean values are reported with minimum and maximum values on the second line.
[2] When all samples were not detected only the maximum detection limit is reported. When at least one sample had detectable concentrations, half the detection limit of non-detects was used to calculate means and ranges.
[3] Total PCBs is the mean and range of the sums of Aroclors.
[4] Total Chlordane is the mean and range of the sums of Oxychlordane, trans-Chlordane, cis-Chlordane, trans-Nonachlor, and cis-Nonachlor.
[5] Total DDT is the mean and range of the sums of o,p'-DDE, p,p'-DDE, o,p'-DDD, p,p'-DDD, o,p'-DDT, and p,p'-DDT.

Table 45. Criteria for the evaluation of chemical residue concentrations in fish.

Analyte	Criteria (ng/g [ppb] wet weight)		
	Human health		Wildlife
	USEPA[1]	USFDA[2]	NYSDEC[3]
Methyl mercury	300[4]	1000 [6]	NR [11,12]
Chlorinated dioxins/furans	0.00031[5]	NR[13]	0.0023
PCBs	23.1[5]	2000 [7]	110
DDT [9]	141[5]	5000 [8]	266
Chlordane [10]	131[5]	300 [8]	370
Aldrin	NR	300 [8]	22
Dieldrin	2.91[5]	300 [8]	22
Endrin	1410[5]	NR	25
Heptachlor	5.21[5]	300 [8]	210
Heptachlor epoxide	5.21[5]	300 [8]	210
Hexachlorobenzene	29.1[5]	NR	330
HCH	NR	NR	510
Endosulphan	28100[5]	NR	NR
Mirex	941[5]	100 [8]	373

[1] Recommended risk-based consumption limits
[2] Commercial enforcement criteria
[3] Source: Newell et al. (1987); 1 in 100 cancer risk criteria
[4] Source: USEPA (2001)
[5] Source: USEPA (2000b); Based on the most conservative recommended consumption limit for no more than 1 fish meal/month
[6] Source: Compliance Policy Guidance (CPG) 7108.07
[7] Sources: CPG 7108.19 and CFR 109.30
[8] Source: CPG 7141.01
[9] The criterion applies to the sum of concentrations for DDT and its metabolites (o,p'-DDE, p,p'-DDE, o,p'-DDD, p,p'-DDD, o,p'-DDT, p,p'-DDT)
[10] The criterion applies to the sum of the concentrations of chlordane and related analytes (cis-chlordane, trans-chlordane, cis-nonachlor, trans-nonachlor)
[11] NR = No recommended criteria.
[12] USEPA (1997b) suggested that the adverse effects level for mercury in forage fish consumed by piscivorous wildlife lied somewhere between 77 - 300 ng/g; the wildlife criterion for higher trophic level fish was 346 ng/g.
[13] The New York State Department of Health uses 10 pg/g as the health advisory guideline.

Table 46. Existing health advisories based on high mercury levels ($\geq$1000 ng/g [ppb]) to restrict human consumption of recreationally caught fish taken from New York City water supply reservoirs (NYSDOH 2004).

Reservoir	**Species**	**Recommendations**
Amawalk	Largemouth and smallmouth bass over 16 inches	Eat no more than one meal per month
Ashokan	Smallmouth bass over 16 inches and walleye (all sizes)[1]	Eat no more than one meal per month
Bog Brook	Walleye over 21 inches	Eat no more than one meal per month
Boyds Corner	Largemouth bass over 16 inches and walleye (all sizes)	Eat no more than one meal per month
Cannonsville	Smallmouth bass over 15 inches[1] and yellow perch (all sizes)	Eat no more than one meal per month
Cross River	Largemouth and smallmouth bass over 16 inches	Eat no more than one meal per month
Diverting	Walleye (all sizes)	Eat no more than one meal per month
East Branch	Walleye (all sizes)	Eat no more than one meal per month
Neversink	Brown trout over 24 inches and smallmouth bass (all sizes)[1, 2]	Eat no more than one meal per month
Pepacton	Brown trout over 24 inches, smallmouth bass over 15 inches[1], and yellow perch (all sizes)	Eat no more than one meal per month
Rondout	Smallmouth bass over 16 inches[1]	Eat no more than one meal per month
Schoharie	Smallmouth bass over 15 inches and walleye over 18 inches	Eat none
	Smaller smallmouth bass and walleye	Eat no more than one meal per month
Titicus	White perch (all sizes)	Eat no more than one meal per month
West Branch	Walleye (all sizes)	Eat no more than one meal per month

[1] Advisories issued prior to this study (NYSDOH 2000), from 1998-1999 data (NYSDEC, unpublished data).
[2] Advisories issued in 2004 (NYSDOH 2004) based on 2003 data (NYSDEC, unpublished data).

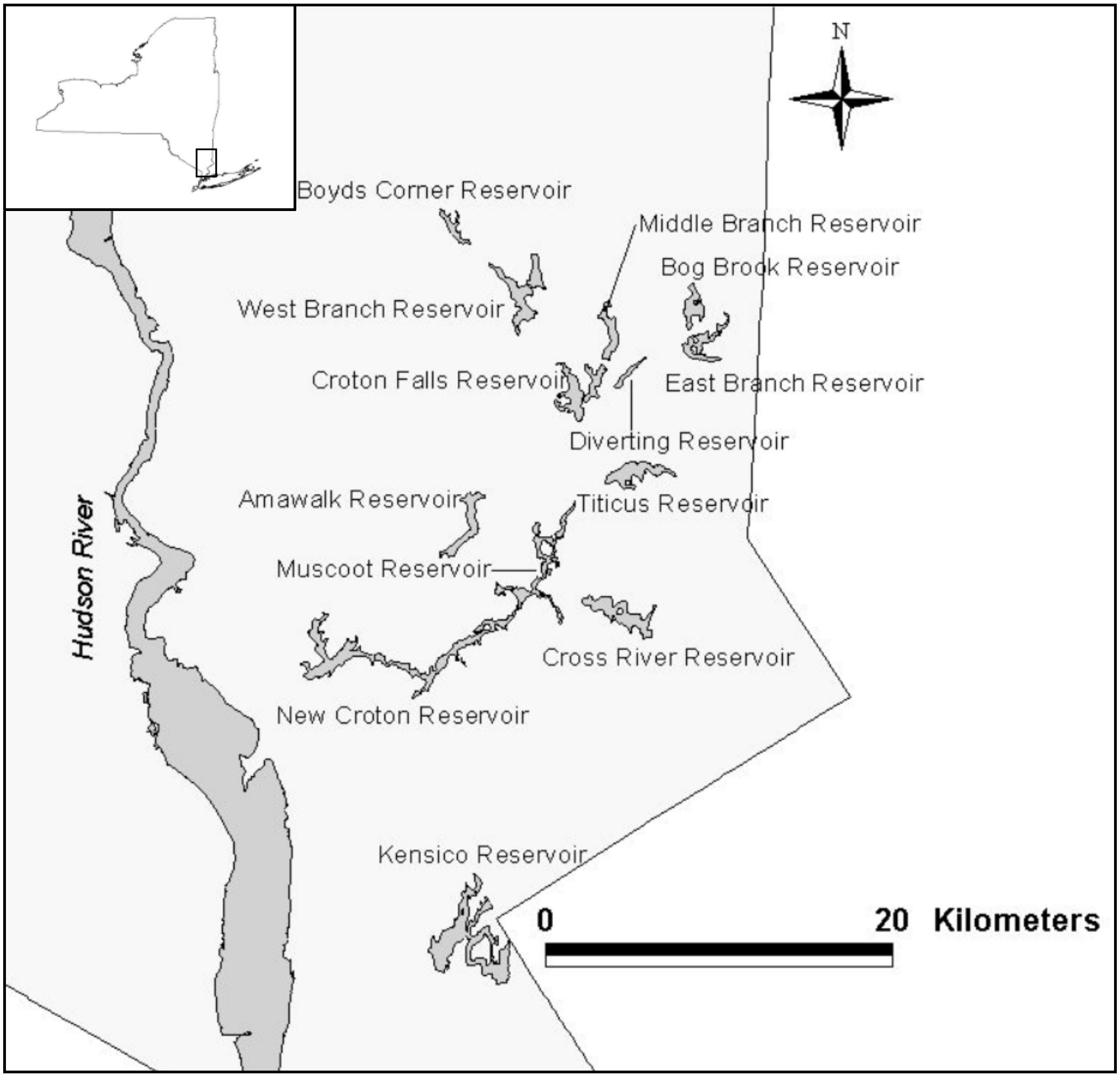

Figure 1. New York City reservoirs east of the Hudson River.

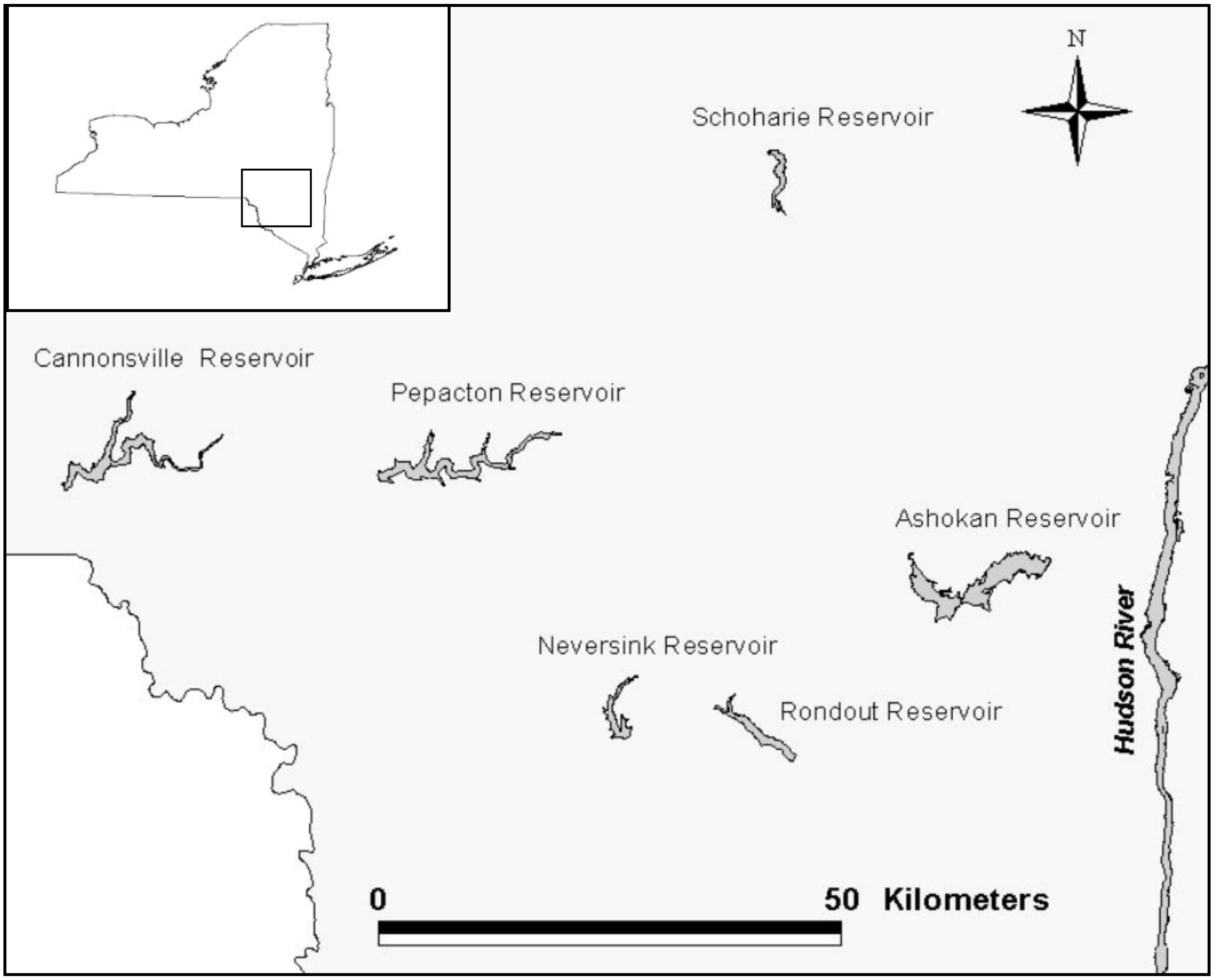

Figure 2. New York City reservoirs west of the Hudson River.

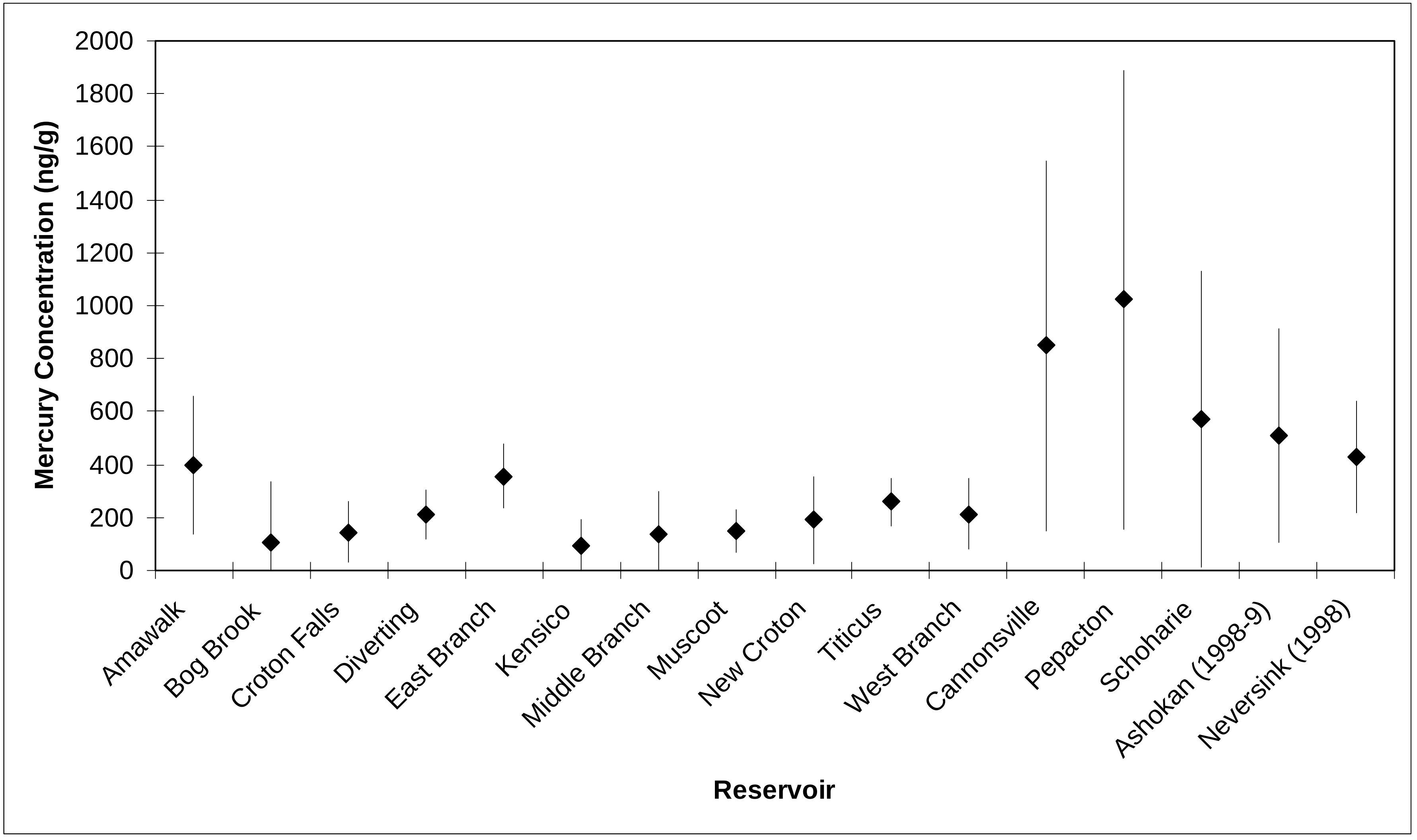

Figure 3. Predicted mercury concentrations ($\bar{x}$ = 352 ng/g) and 95% prediction intervals for 250 mm yellow perch from the New York City reservoirs, 1998 - 2003.

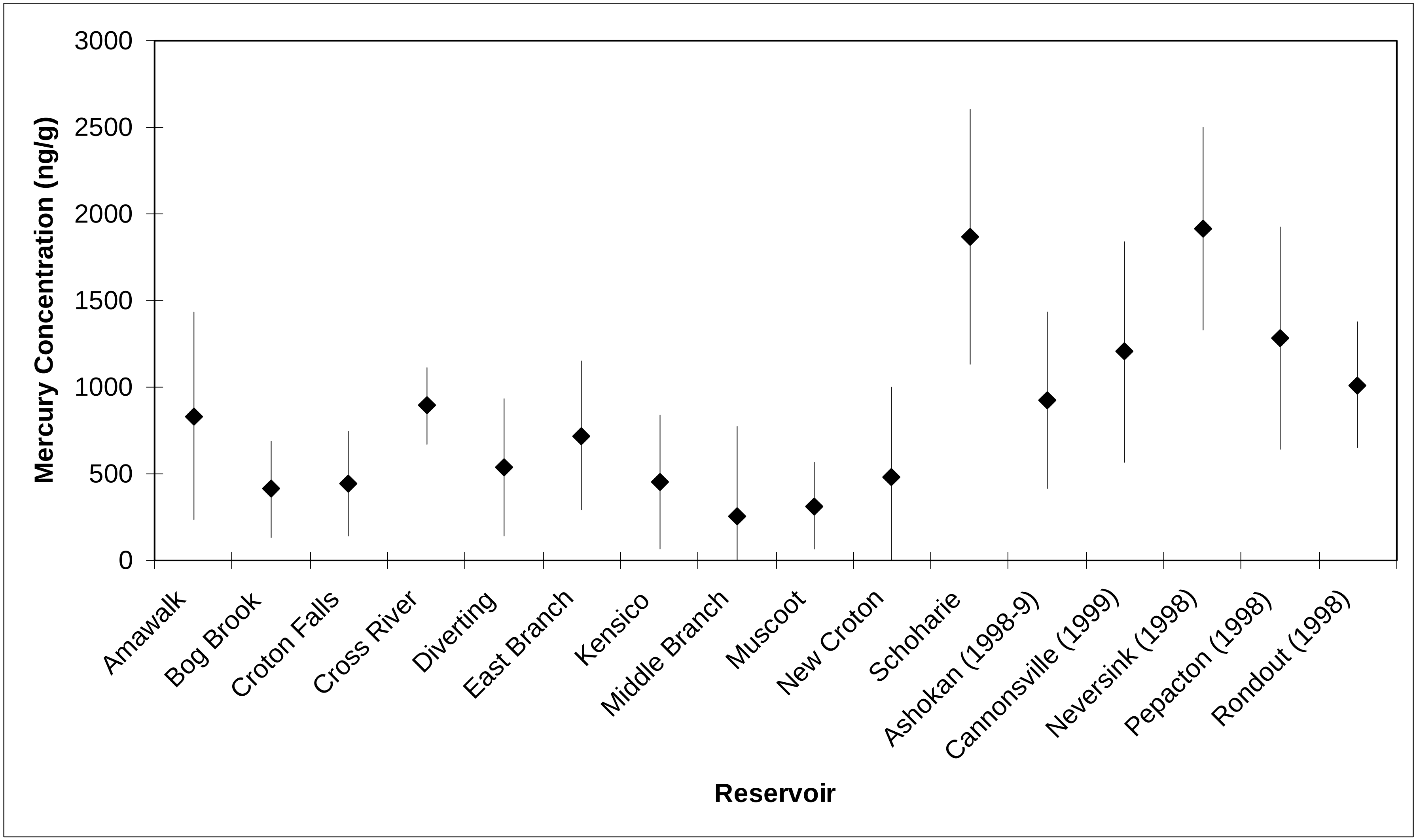

Figure 4. Predicted mercury concentrations ($\bar{x}$ = 848 ng/g) and 95% prediction intervals in 395 mm smallmouth bass from the New York City reservoirs, 1998 - 2003.

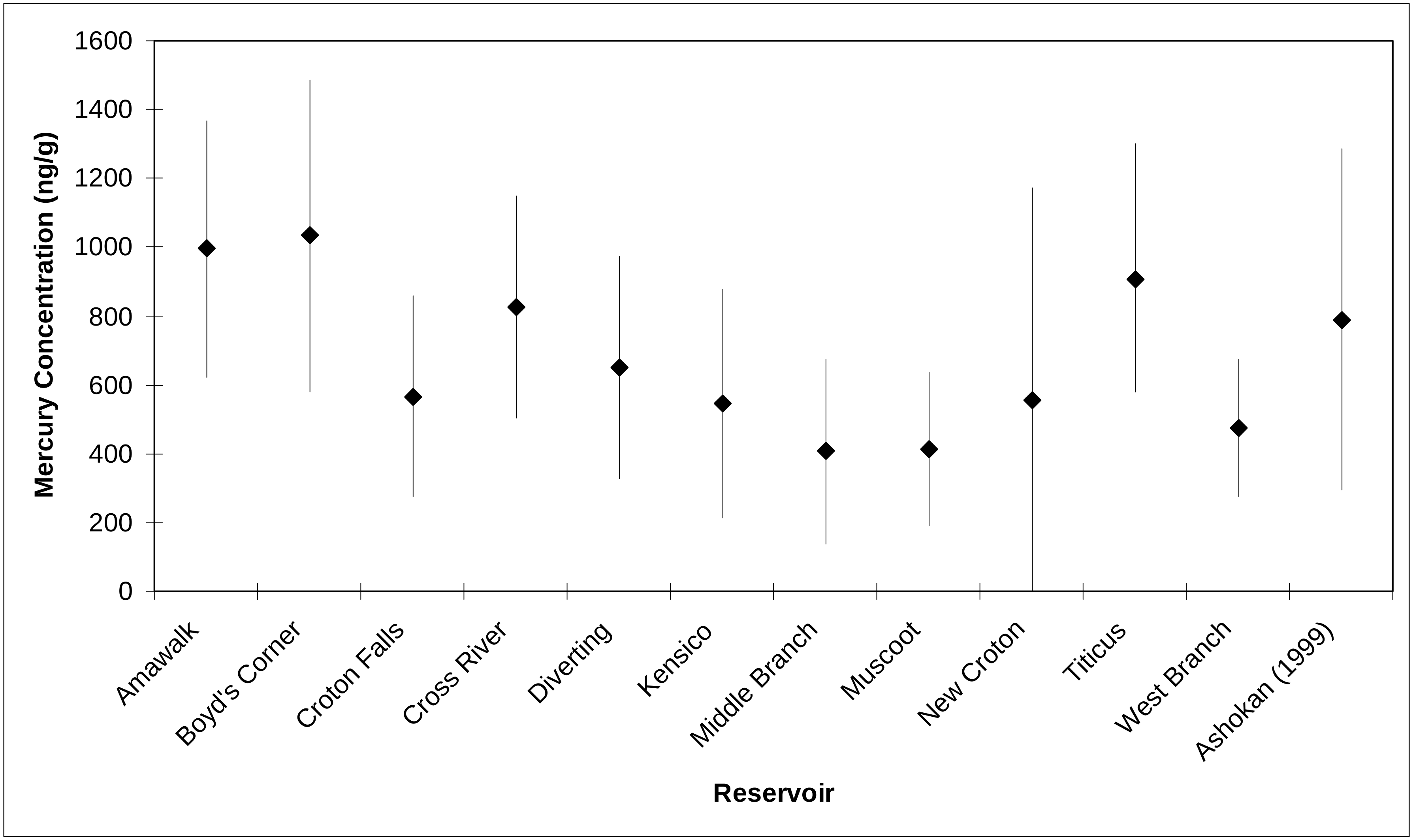

Figure 5. Predicted mercury concentrations ($\bar{x}$ = 681 ng/g) and 95% prediction intervals in 425 mm largemouth bass from the New York City reservoirs, 1999 - 2003**.**

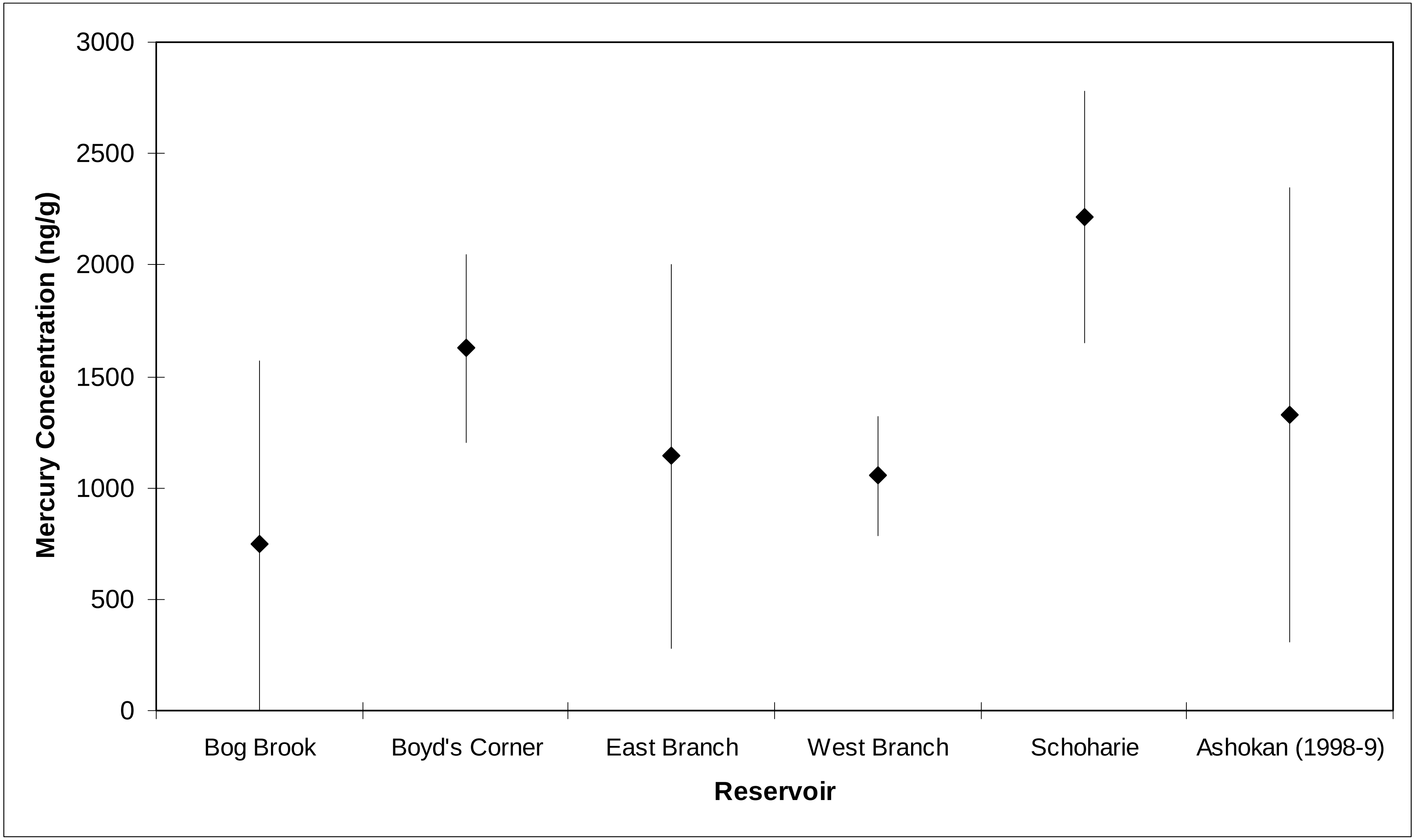

Figure 6. Predicted mercury concentrations ($\bar{x}$ = 1353 ng/g) and 95% prediction intervals in 527 mm walleye from the New York City reservoirs, 1998 - 2003.

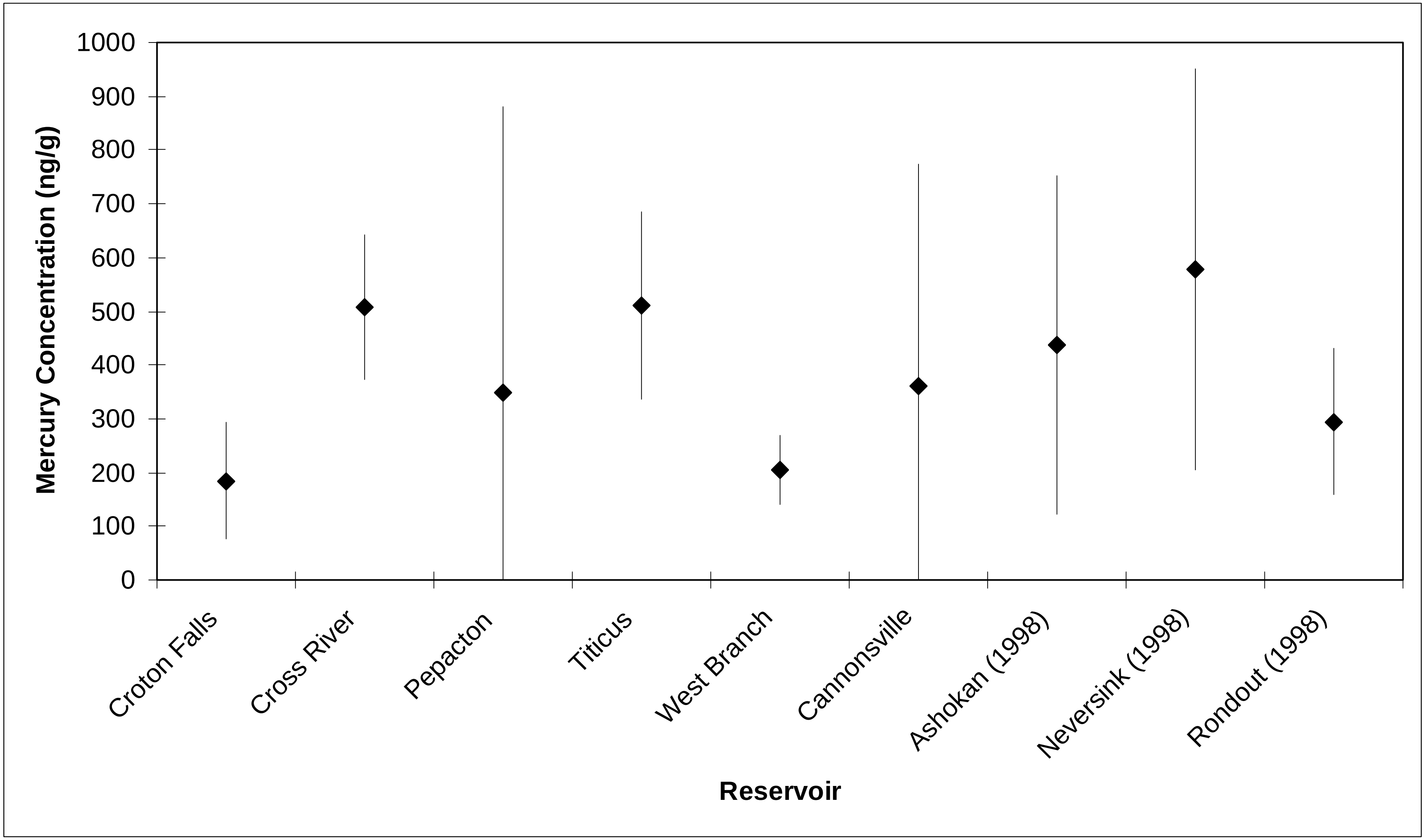

Figure 7. Predicted mercury concentrations ($\bar{x}$ = 380 ng/g) and 95% prediction intervals in 457 mm brown trout from the New York City reservoirs, 1998 - 2003.

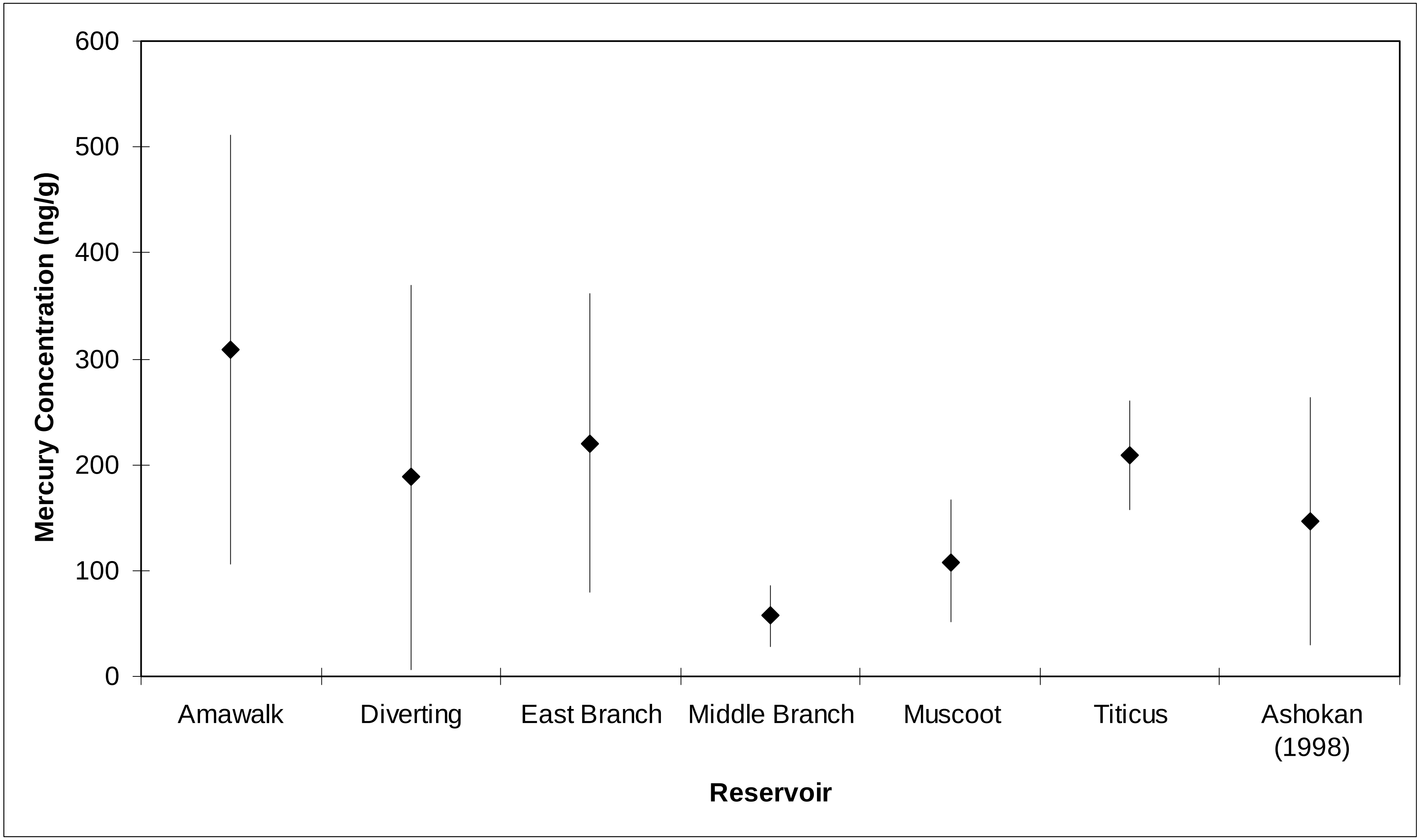

Figure 8. Predicted mercury concentrations ($\bar{x}$ = 177 ng/g) and 95% prediction intervals in 253 mm black crappie from the New York City reservoirs, 1998 - 2003.

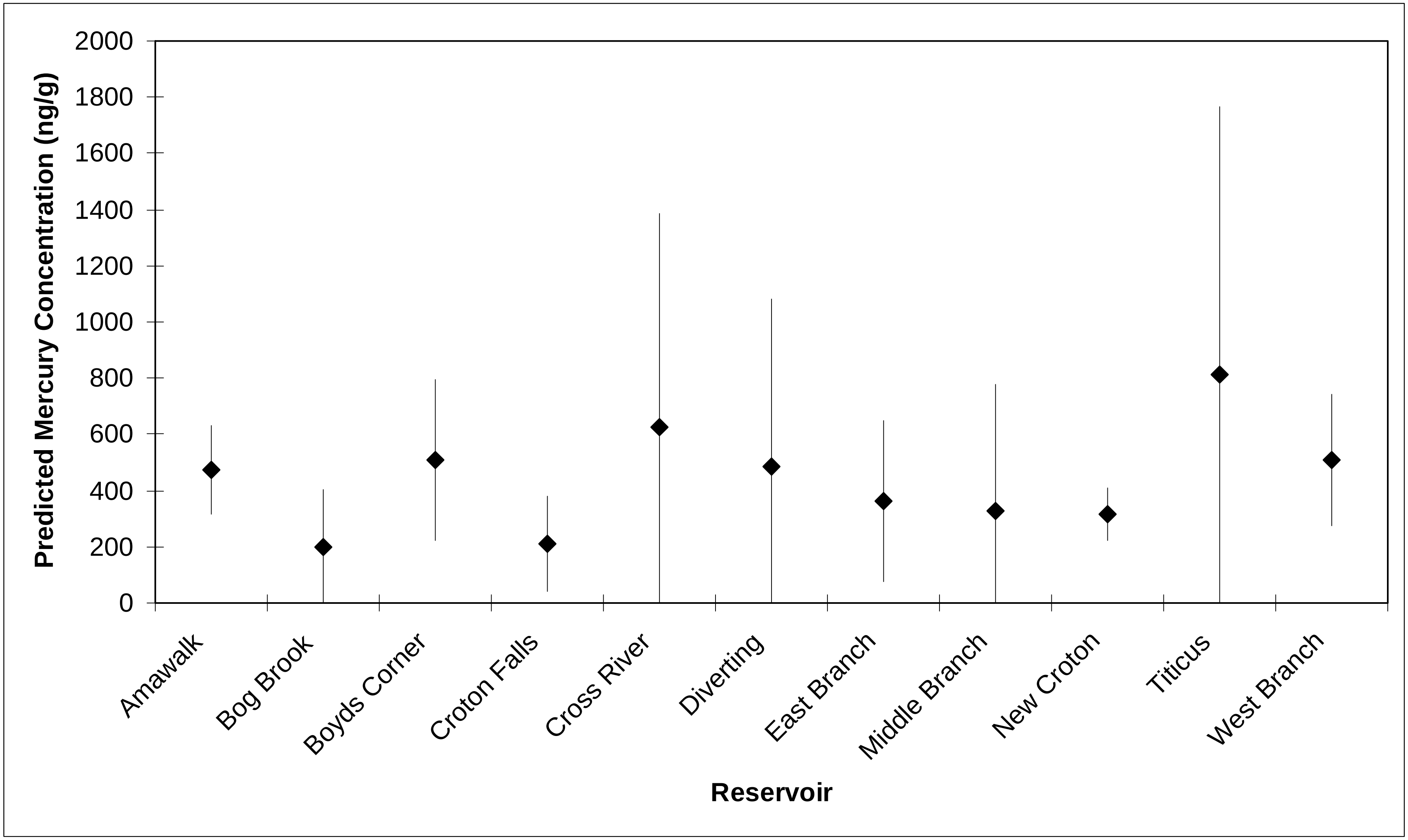

Figure 9. Predicted mercury concentrations ($\bar{x}$ = 506 ng/g) and 95% prediction intervals in 305 mm white perch from the New York City reservoirs, 2001 - 2003.

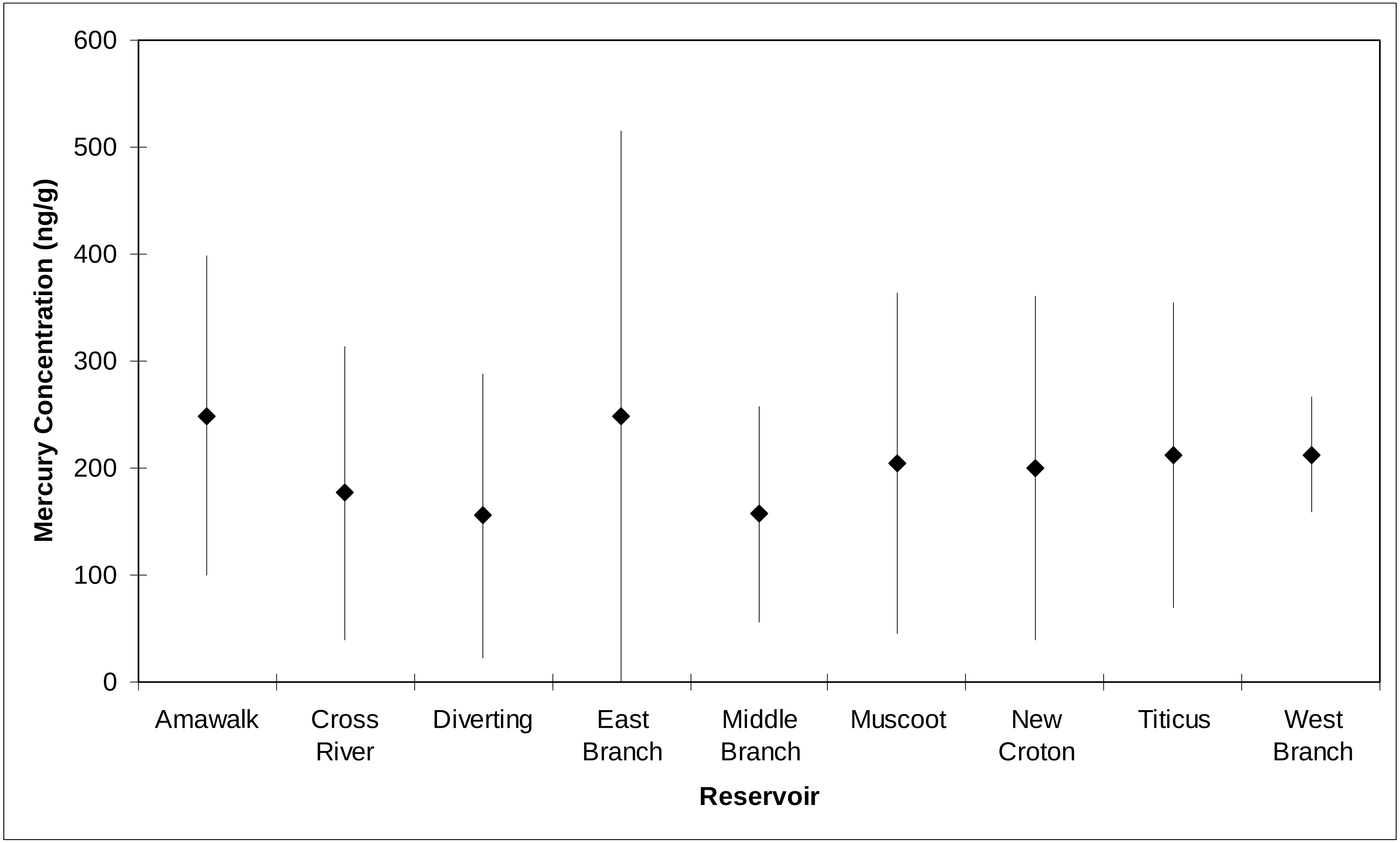

Figure 10. Predicted mercury concentrations (×=202 ng/g) and 95% prediction intervals in 709 mm common carp from the New York City reservoirs, 2001 - 2003.

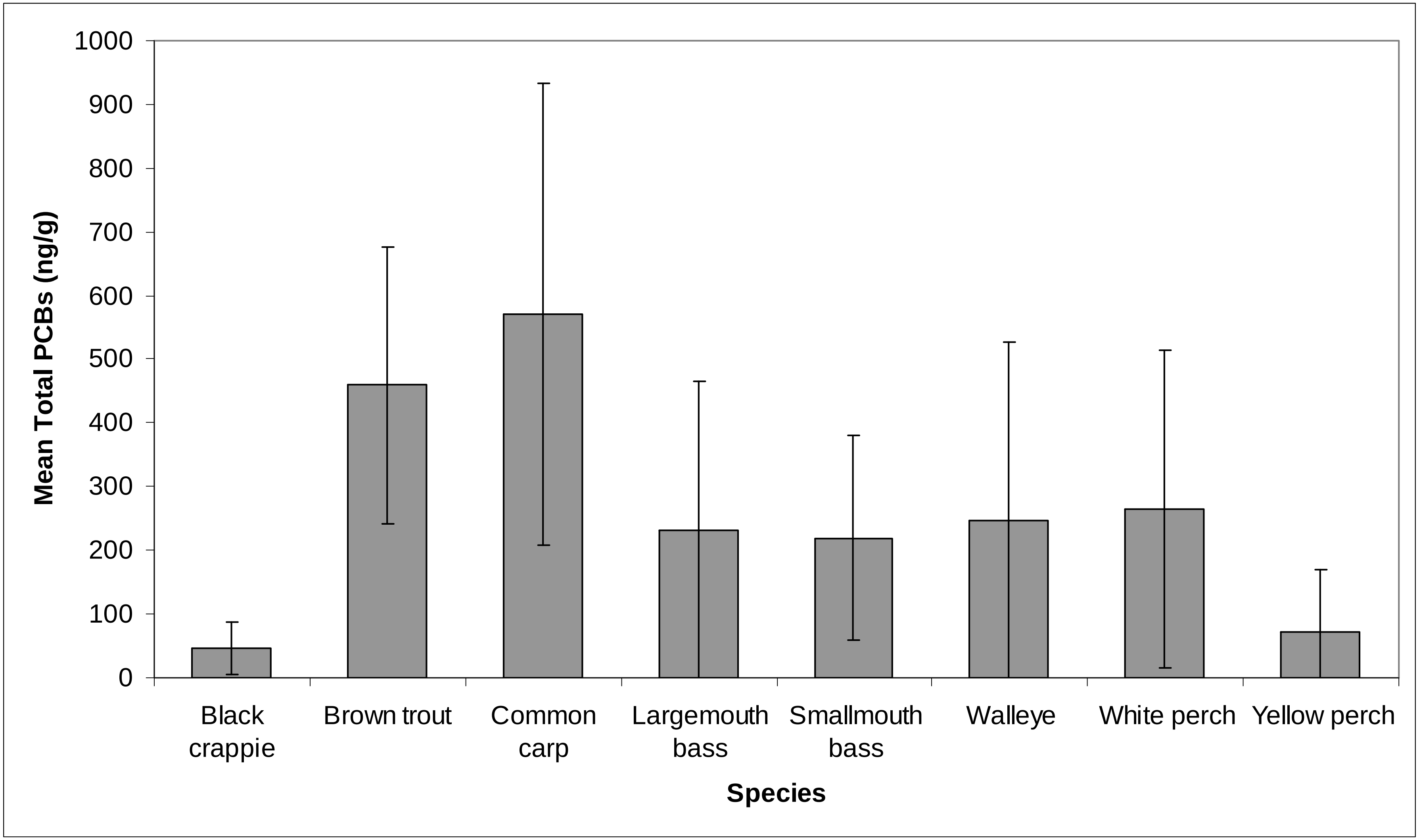

Figure 11. Mean total PCBs (sum of Aroclors) and standard deviations for 8 fish species from the New York City reservoir system, 2001-2003.

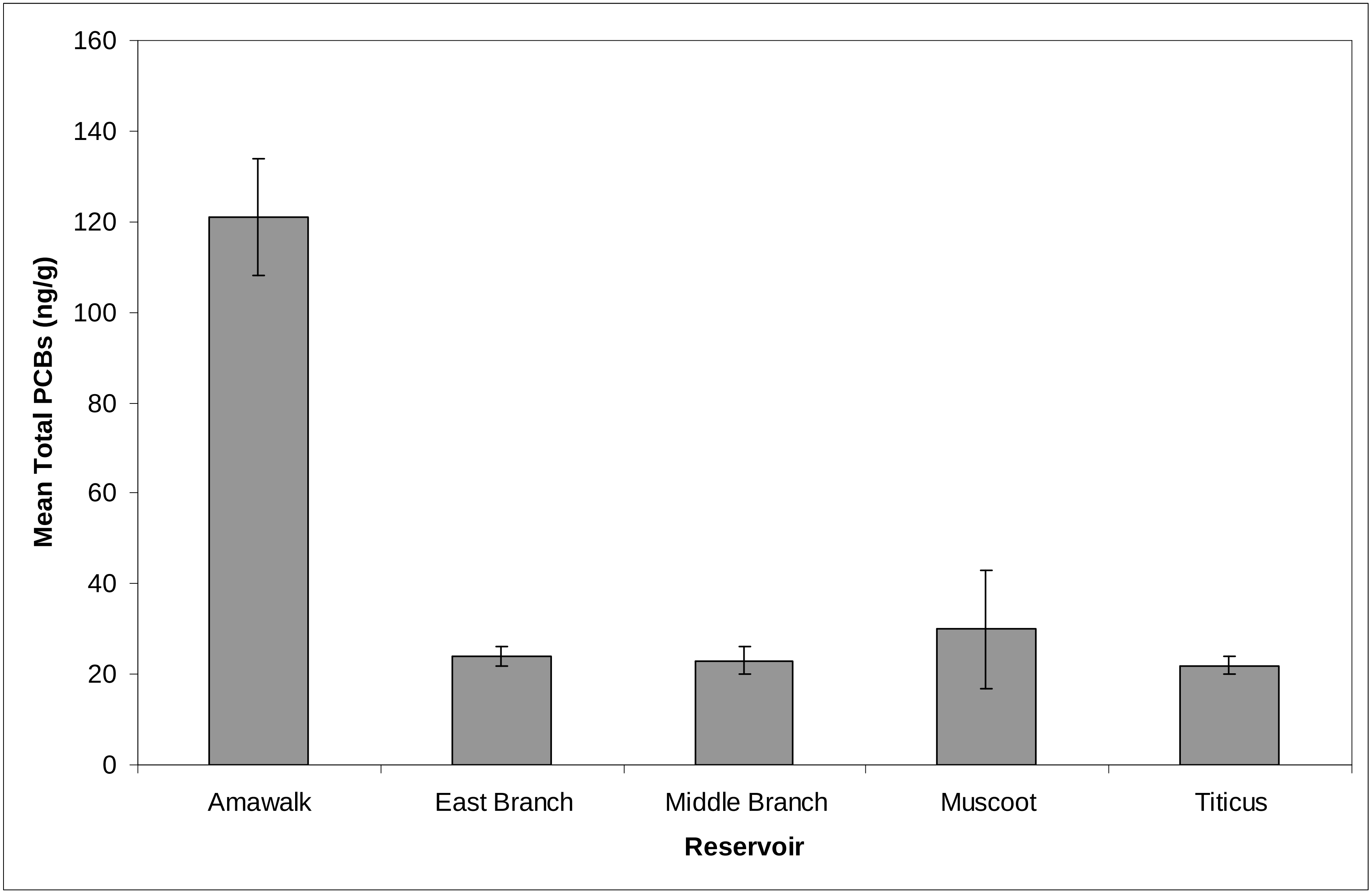

Figure 12. Mean total PCBs (sum of Aroclors) and standard deviations in black crappie from the New York City reservoirs , 2001-2003.

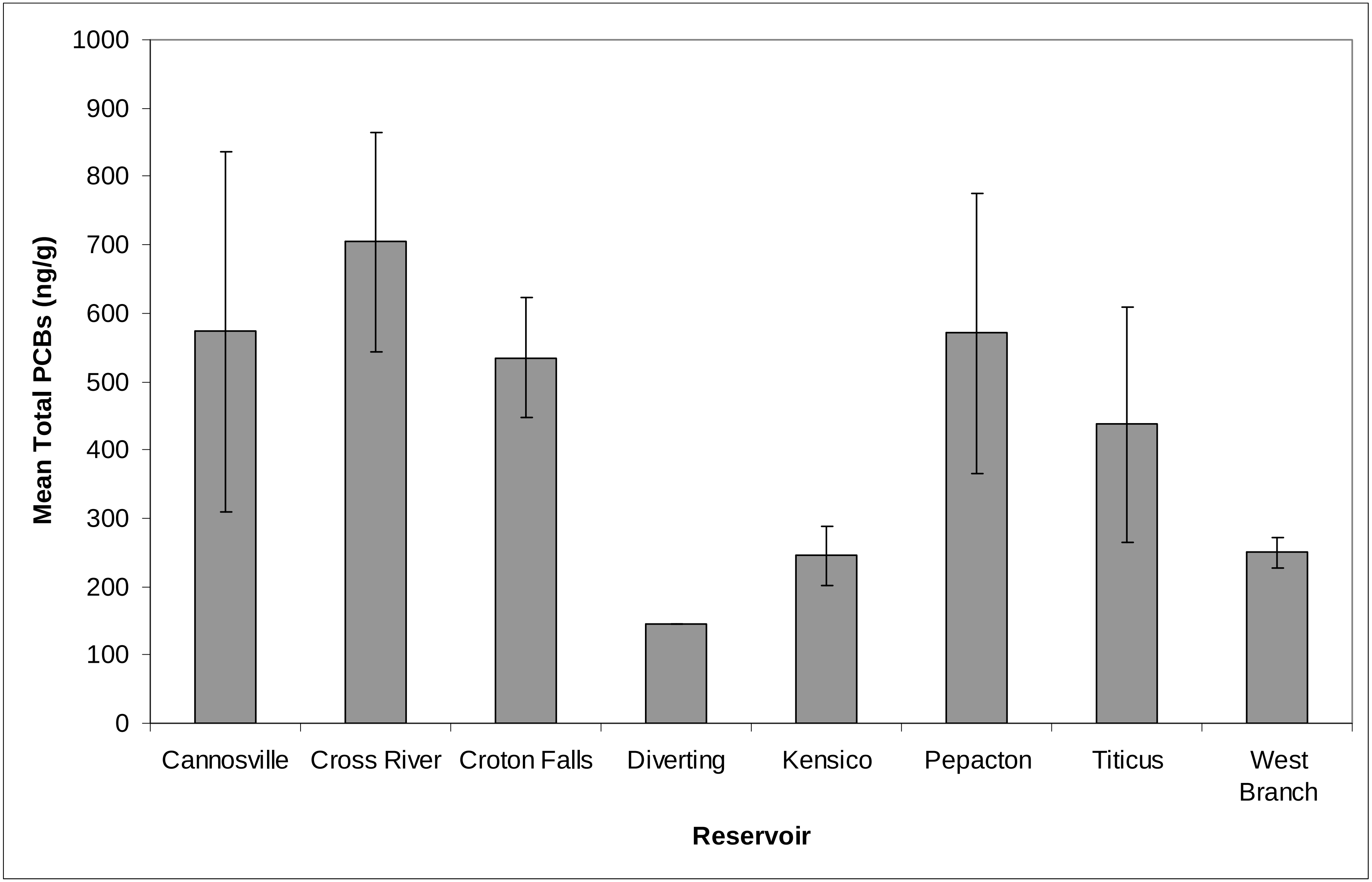

Figure 13. Mean total PCBs (sum of Aroclors) and standard deviations in brown trout from the New York City reservoirs, 2001-2003.

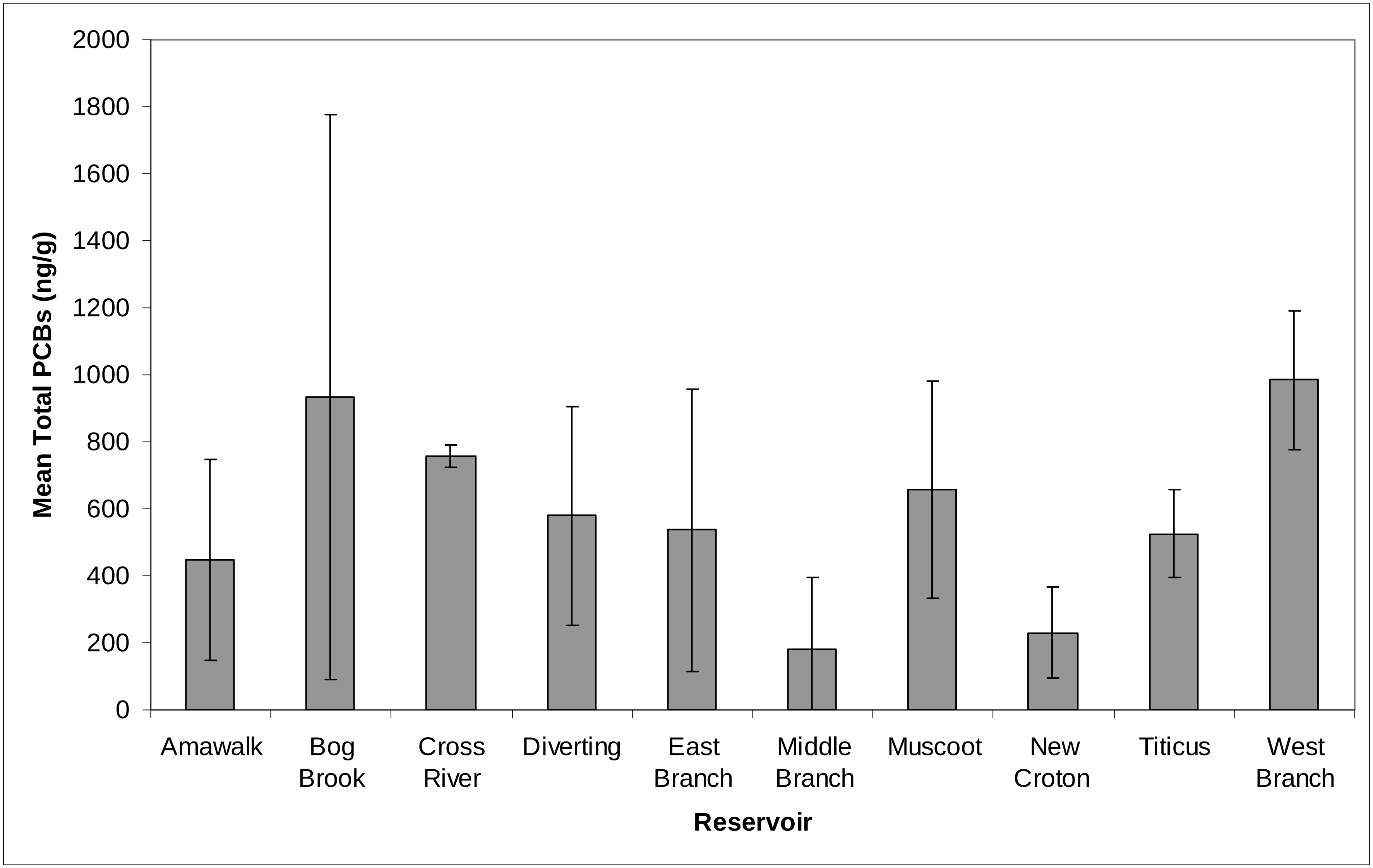

Figure 14. Mean total PCBs (sum of Aroclors) and standard deviations in common carp from the New York City reservoirs, 2001-2003.

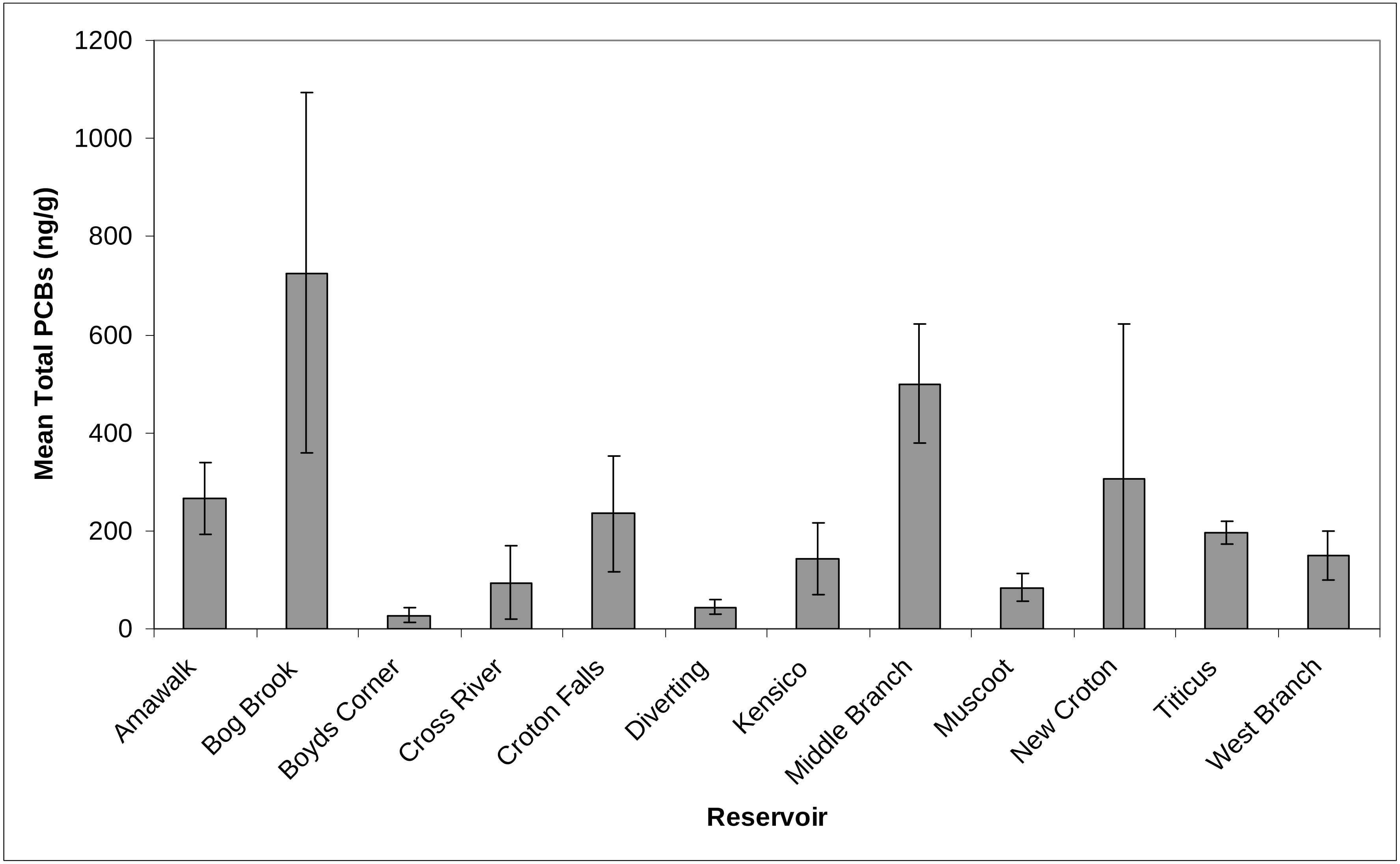

Figure 15. Mean total PCBs (sum of Aroclors) and standard deviations in largemouth bass from the New York City reservoirs, 2001-2003.

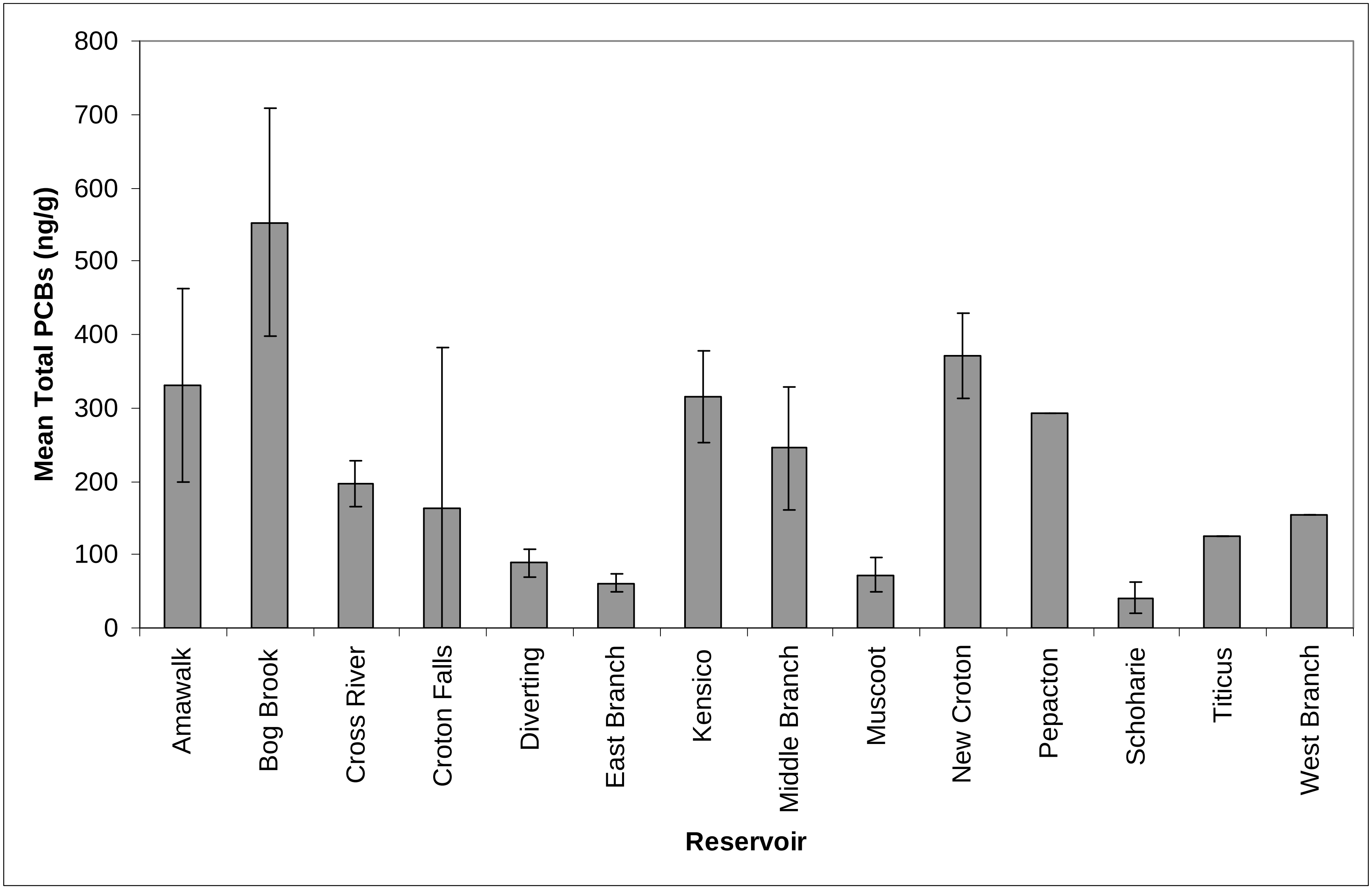

Figure 16. Mean total PCBs (sum of Aroclors) and standard deviations in smallmouth bass from the New York City reservoirs, 2001-2003.

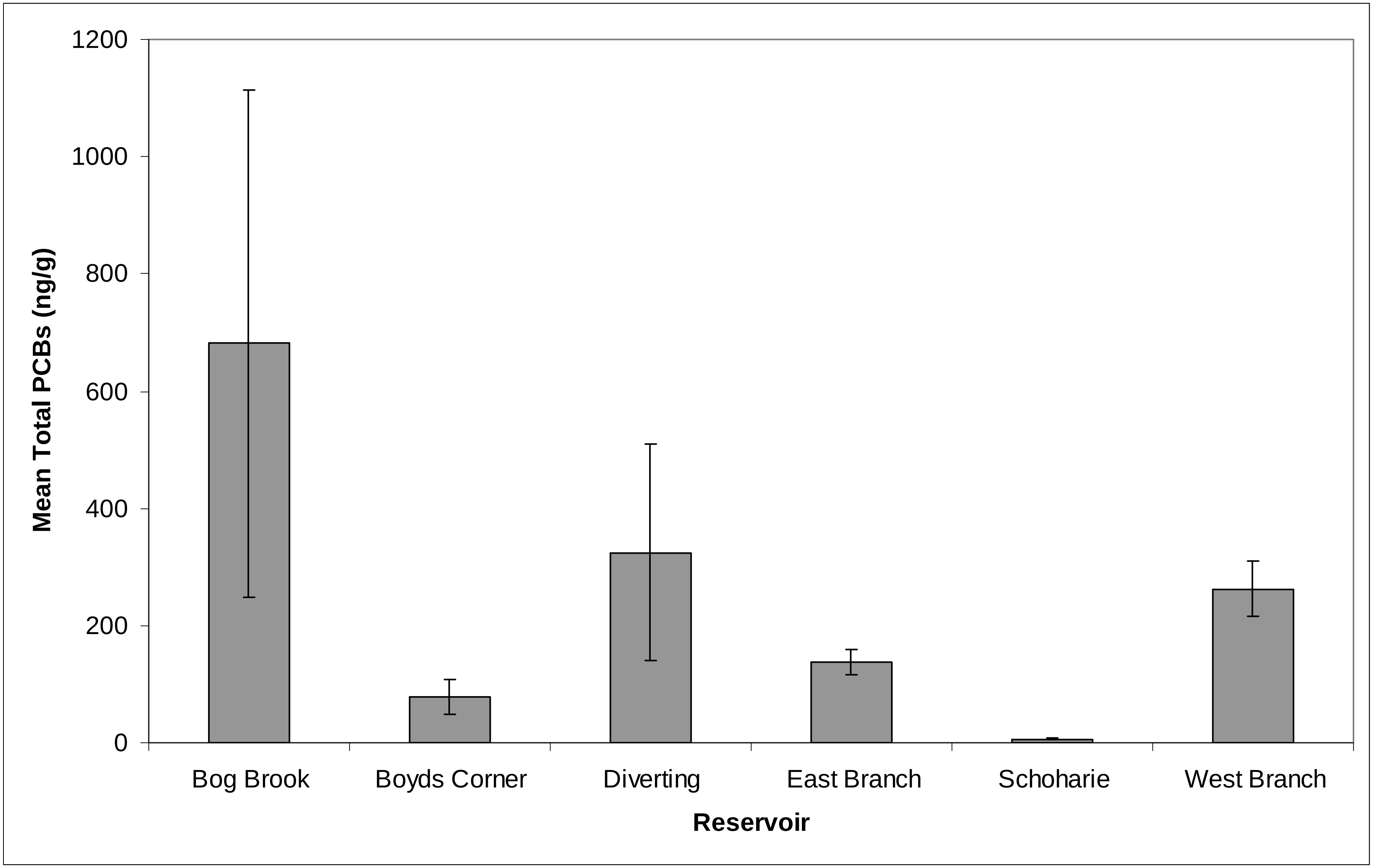

Figure 17. Mean total PCBs (sum of Aroclors) and standard deviations in walleye from the New York City reservoirs, 2001-2003.

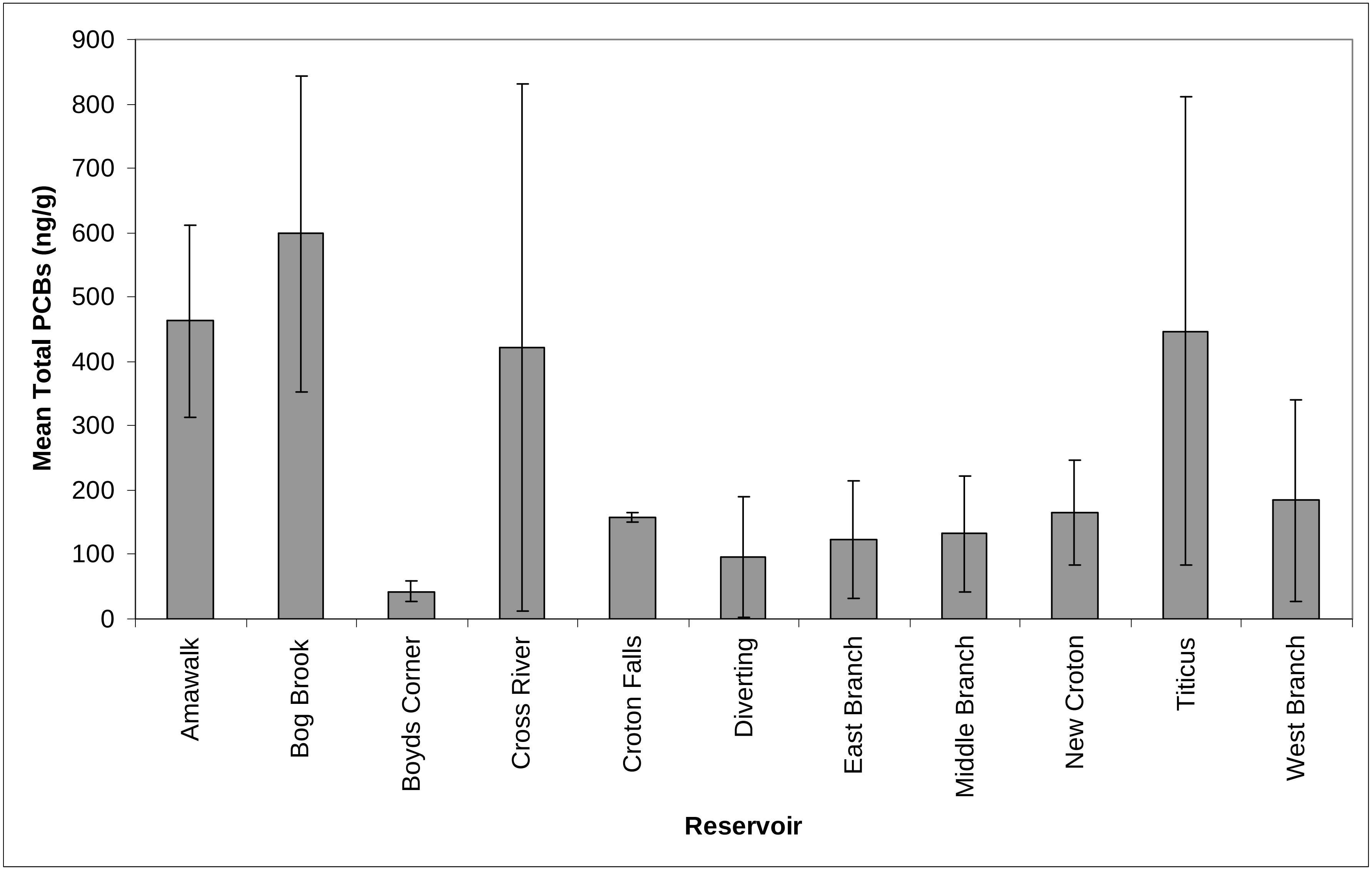

Figure 18. Mean total PCBs (sum of Aroclors) and standard deviations in white perch from the New York City reservoirs, 2001-2003.

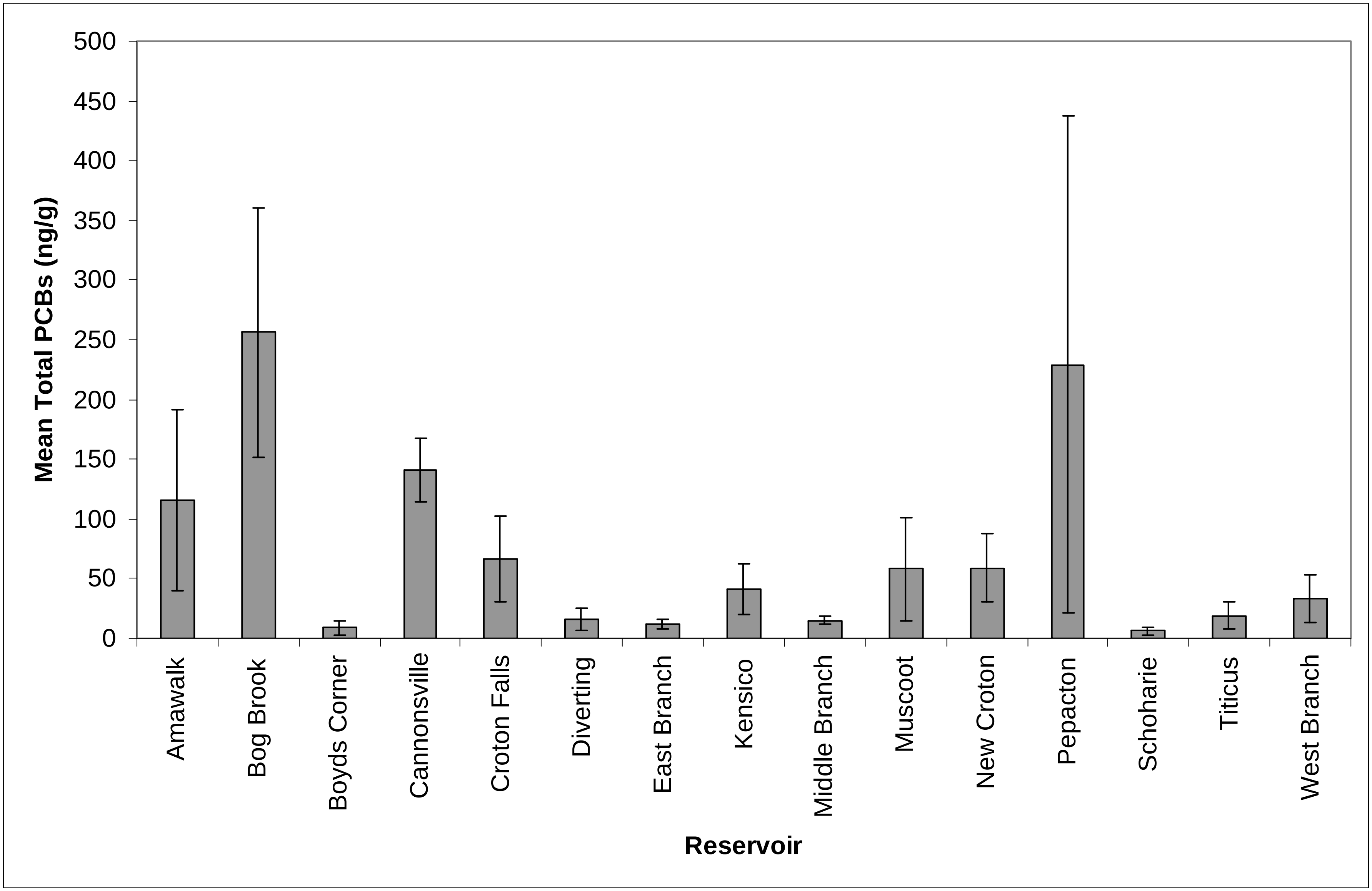

Figure 19. Mean total PCBs (sum of Aroclors) and standard deviations in yellow perch from the New York City reservoirs, 2001-2003.

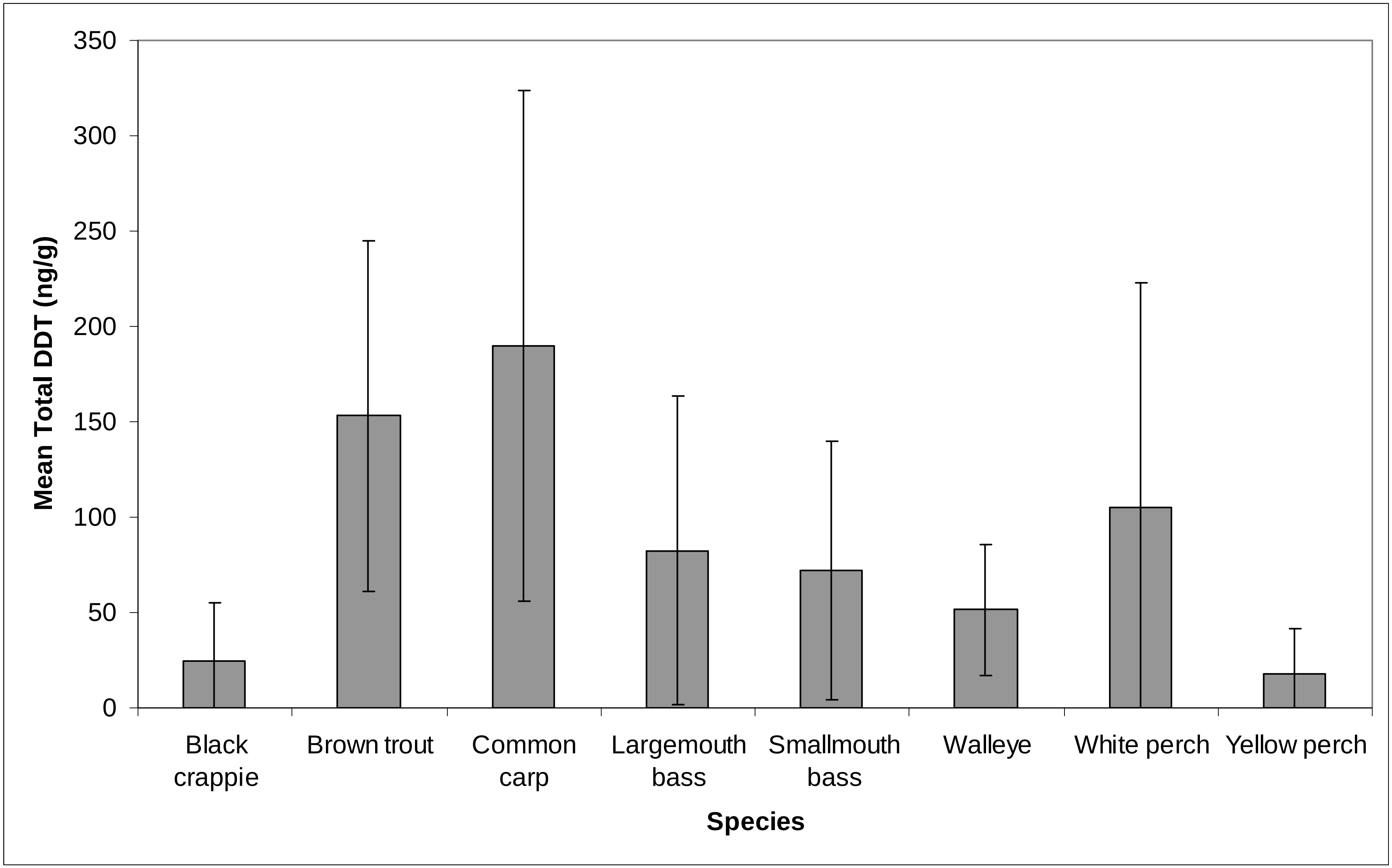

Figure 20. Mean total DDT (sum of metabolites) and standard deviations in 8 fish species from the New York City reservoir system, 2001-2003.

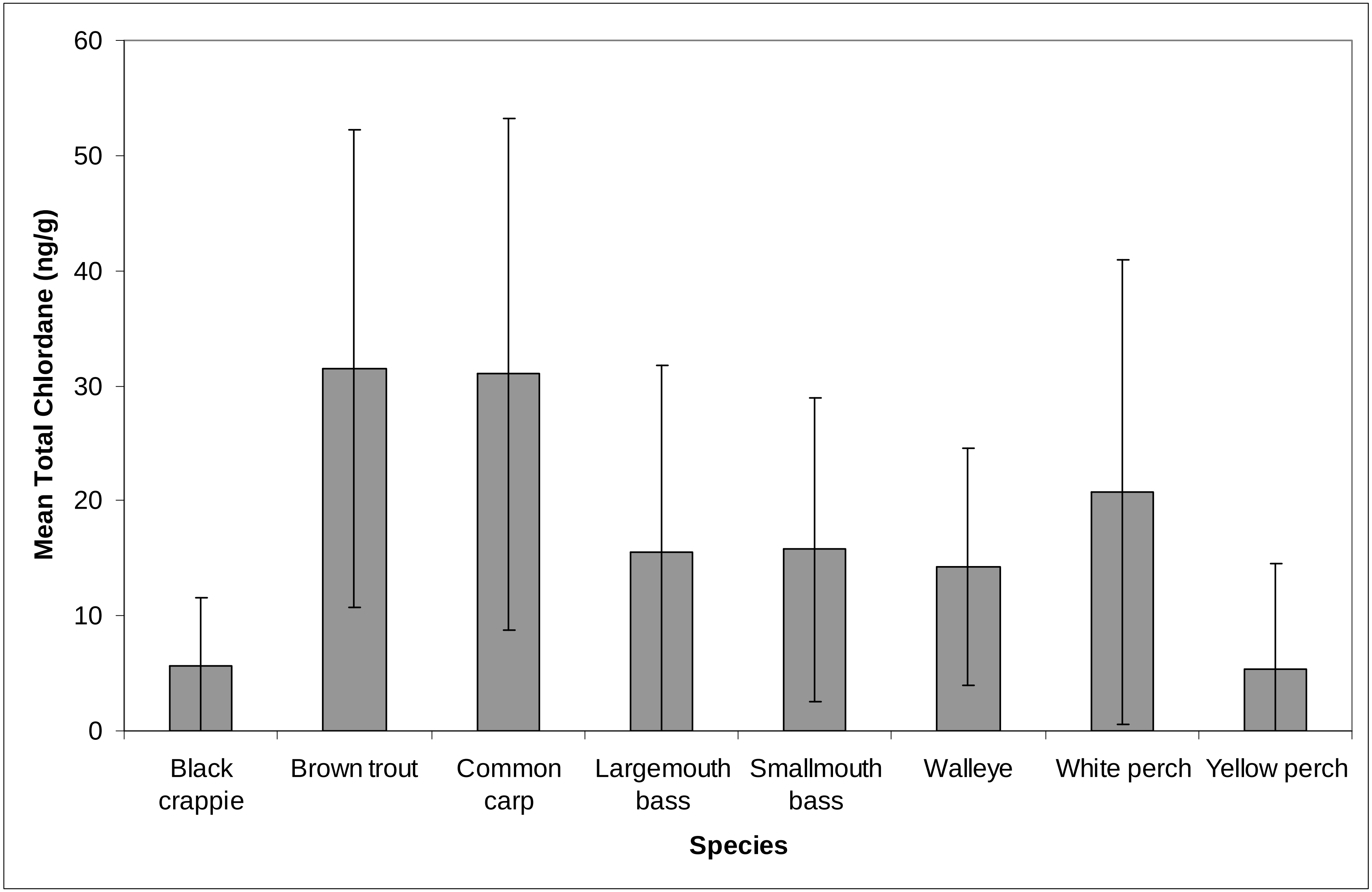

Figure 21. Mean total chlordane (sum of chlordane analytes) and standard deviations in 8 fish species from the New York City reservoir system, 2001-2003.

APPENDICES

APPENDIX A. Standard NYSDEC fish handling and processing forms

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

GENERAL FISH COLLECTION PROCEDURES

A. Following data are to be taken on each fish collected:

1. Date collected

2. Species identification (please be explicit enough to enable assigning genus and species)

3. Total length (nearest mm or smallest sub-unit on measuring instrument) and weight (nearest g or smallest sub-unit of weight on weighing instrument). Take all measures as soon as possible with calibrated, protected instruments (e.g. from wind and upsets) and prior to freezing.

4. Method of collection (gill net, hook and line, etc.)

5. Sample location (Waterway and nearest prominent identifiable landmark).

6. Sex **-** fish may be cut enough to allow sexing, but do not eviscerate.

7. Tag number (each specimen to be individually tagged, immediately upon collection, with jaw tag). Must be a unique number, NYSDEC can supply bags and tags, if necessary. For composites of small fish, double bag with tag inside bag. If compositing small fish, try to group similar species together.

Record length and weight as soon as possible after collection and before freezing. Other data are recorded in the field upon collection. An age determination of each fish is optional, but if done, 't is recorded in the appropriate "Age" column.

The original of all collection record and continuity of evidence forms shall accompany delivery of fish to the lab. A copy shall be directed to Larry Skinner or Ron Sloan. All necessary forms will be supplied by the Bureau of Habitat.

Please submit photocopies of topographic maps or good quality navigation charts indicating sampling locations. These records are of immense help to us (and hopefully you) in providing documented location records which are not dependent on memory and/or the same collection crew. In addition, they may be helpful for contaminant source trackdown and control efforts of the Department.

B. Each fish to be wrapped in a plastic bag. The Bureau of Habitat will supply the bags.

C. Groups of fish, by species, to be placed in one large plastic bag per sampling location. The Bureau of Habitat will supply the larger bags.

D. Do not eviscerate.

E. All fish must be kept at a temperature below 45(degrees)F immediately following data processing as soon as possible, freeze at 0 (degrees)F + 10 F. Due to occasional freezer failures, daily freezer temperature logs are required.

F. Prior to any delivery of fish, coordinate delivery with, and send copies of the collection records, continuity of evidence forms, and freezer temperature logs, to:

Larry Skinner or Ron Sloan
Bureau of Habitat
625 Broadway
Albany, New-York 12233-4756

Samples will then be directed to:

The analytical facility and personnel noted on specific project descriptions.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

I,____________________, of ____ have collected the following
(Print Name) (Print Address)
on _______________, 20____ from _________________________ in the vicinity of
________________________ Town of ______________________, ________________ County.

Item(s):____
____
____

said sample(s) were in my possession and handled according to standard procedures provided to me prior to collection. The sample(s) were placed in the custody of a representative of the New York State Department of Environmental Conservation on _______________________, 20____.

____________________________________ ________________
Signature Date

I, ________________________, have received the above mentioned same(s) on the date specified and have assigned identification number(s) ____________________________ to the sample(s). I have recorded pertinent data for the sample(s) on the attached collection records. The sample(s) remained in my custody until subsequently transferred, prepared or shipped at times and data as attested to below.

________________________________ ______________
Signature Date

SECOND RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
THIRD RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
FOURTH RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
RECEIVED IN LABORATORY BY (Print Name)		TIME & DATE
SIGNATURE	UNIT	
LOGGED IN BY (Print Name)	TIME & DATE	ACCESSION NUMBERS
SIGNATURE	UNIT	

NOTICE OF WARRANTY

By signature to the chain of custody (reverse) , the signator warrants that the information provided is truthful and accurate to the best of his/her* ability. The signator affirms that he/she is willing to testify to those 'facts provided and the circumstances surrounding same. Nothing in this warranty or chain of custody negates responsibility nor liability of the signators for the truthfulness and accuracy of the statements provided.

HANDLING INSTRUCTIONS

On day of collection, collector(s) name(s), address(es), date, geographic location of capture (attach a copy 'of topographic map or navigation chart), species, number kept of each species, and description of capture vicinity (proper noun, if possible) along with name of Town and County must be indicated on reverse.

Retain organisms in manila tagged plastic bags to avoid mixing capture locations. Note appropriate information on each bag tag.

Keep samples as cool as possible. Put on ice if fish cannot be frozen within 12 hours. If fish are held more than 24 hours without freezing, they will not be retained or analyzed.

Initial recipient (either DEC or designated agent) of samples from collector(s) is responsible for obtaining and recording information on the collection record forms which will accompany the chain of custody. This person will seal the container using packing tape and writing his signature, time and date across the tape onto the container with indelible marker. Any time a seal is broken, for whatever purpose, the incident must be recorded on the Chain of Custody (reason, time and date) in the purpose of transfer block container then is resealed using new tape and rewriting signature, with time and date.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF FISH, WILDLIFE AND MARINE RESOURCES

FROM REGION ________ FOR ____ TOXIC SUBSTANCE MONITORING PROGRAM ______
BY COLLECTOR(S) ____ USING ________________________ COLLECTION METHOD. ___
SPECIMENS PRESERVED BY ________________________________ METHOD.

FILL IN APPROPRIATE BLANKS AS COMPLETELY AS POSSIBLE.

FOR LAB USE ONLY - LAB ENTRY NO.	COLLECTION OR TAG NO.	SPECIES	DATE TAKEN	LOCATION	AGE	SEX &/OR REPROD. CONDIT.	LENGTH ( )	WEIGHT ( )	REMARKS

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
BUREAU OF HABITAT

FISH PREPARATION PROCEDURES FOR CONTAMINANT ANALYSIS

Background

New York State Department of Environmental Conservation (DEC) conducts studies requiring chemical analysis on fish tissues. Routine monitoring and surveillance studies develop data on contaminants in fish for several reasons:

1. To identify sources of environmental contamination;

2. To identify the geographic extent of environmental contamination;.

3. To identify temporal trends of contaminants in fish and wildlife; and

4. To provide information regarding human consumption advisories.

Chemical analyses of edible-fish flesh have been determined to be the most appropriate analyses for satisfying all of these objectives. The following methodology has been developed in order to standardize the tissues under analysis and to adequately represent the contaminant levels of fish flesh. The methodology is slightly modified from the U.S. Food and Drug Administration procedures. The portion of edible flesh analyzed will be referred to as the standard fillet unless otherwise noted. For some species, the procedure is modified as indicated below.

Procedures for Standard Filleting

1. Remove scales from fish. Do not remove the skin.

2. Make a cut along the ventral midline of the fish from the vent to the base of the jaw.

3. Make diagonal cut from base of cranium following just behind gill to the ventral side just behind pectoral fin.

4. Remove the flesh and ribcage from one-half of the fish by cutting from the cranium along the spine and dorsal rays to the caudal fin. The ribs should remain on the fillet.

5. Score the skin and homogenize the entire fillet.

Modifications to Standard Fillet

Four modifications of the standard fillet procedure are designed to account for variations in fish size or known preferred preparation-methods of the fish for human consumption.

1. Some fish are too small to fillet by the above procedure. Fish less than approximately 6 inches long and rainbow smelt are prepared by cutting the head off from behind the pectoral fin and eviscerating the fish. Ensure that the belly flap is retained on the carcass to be analyzed. When this modification is used, it should be noted when reporting analytical results.

2. Some species are generally eaten by skinning the fish. The skin from these species is also relatively difficult to homogenize in the sample. Hence, for the following list of species, the fish is first skinned prior to filleting:

Brown bullhead	White catfish
Yellow bullhead	Channel catfish
Atlantic sturgeon	Lake sturgeon
Black bullhead	

3. American eel are analyzed by removing the head, skin, and viscera; filleting is not attempted.

4. Forage fish and young-of-year fish are analyzed whole. This category is considered to be less than 150mm (6 inches).

APPENDIX B. Individual fish sample data from NYC Reservoirs, 2001 - 2003

Appendix B. Individual fish sample data from NYC Reservoirs, 2001 - 2003.

NYSDEC Lab ID No.	Species	Location	NYTMN	NYTME	Tag No.	Collection Date	Length (mm)	Weight (g)
01-0809-H	WEYE	Schoharie Reservoir	4691036	546164	9640989	6/26/2001	395	480
01-0810-H	CIS	Schoharie Reservoir	4691036	546164	9640990	6/26/2001	457	760
01-0811-H	CIS	Schoharie Reservoir	4691036	546164	9641000	6/26/2001	425	800
01-0812-H	CIS	Schoharie Reservoir	4691036	546164	9640991	6/26/2001	419	870
01-0813-H	YP	Schoharie Reservoir	4691036	546164	9640992	6/26/2001	245	150
01-0814-H	WEYE	Schoharie Reservoir	4691036	546164	9640993	6/26/2001	381	520
01-0815-H	WEYE	Schoharie Reservoir	4691036	546164	9640994	6/26/2001	384	520
01-0816-H	YP	Schoharie Reservoir	4691036	546164	9640995	6/26/2001	253	185
01-0817-H	YP	Schoharie Reservoir	4691036	546164	9640996	6/26/2001	300	310
01-0818-H	YP	Schoharie Reservoir	4691036	546164	9640997	6/26/2001	251	170
01-0819-H	CIS	Schoharie Reservoir	4691036	546164	9640998	6/26/2001	432	840
01-0820-H	CIS	Schoharie Reservoir	4691036	546164	9640999	6/26/2001	424	940
01-0821-H	CIS	Schoharie Reservoir	4691036	546164	9640910	6/26/2001	441	850
01-0822-H	WEYE	Schoharie Reservoir	4691036	546164	9640980	6/26/2001	410	620
01-0823-H	CIS	Schoharie Reservoir	4691036	546164	4A2569	6/26/2001	326	385
01-0824-H	CIS	Schoharie Reservoir	4691036	546164	4A2570	6/26/2001	428	770
01-0825-H	CIS	Schoharie Reservoir	4691036	546164	9649181	6/27/2001	460	860
01-0826-H	CIS	Schoharie Reservoir	4691036	546164	9649182	6/27/2001	455	890
01-0827-H	YP	Schoharie Reservoir	4691036	546164	9649183	6/27/2001	255	195
01-0828-H	WEYE	Schoharie Reservoir	4691036	546164	9649184	6/27/2001	429	680
01-0829-H	WEYE	Schoharie Reservoir	4691036	546164	9649185	6/27/2001	377	460
01-0830-H	YP	Schoharie Reservoir	4691036	546164	9649186	6/27/2001	265	195
01-0831-H	YP	Schoharie Reservoir	4691036	546164	9649187	6/27/2001	283	250
01-0832-H	YP	Schoharie Reservoir	4691036	546164	9649188	6/27/2001	267	220
01-0833-H	YP	Schoharie Reservoir	4691036	546164	9649189	6/27/2001	241	165
01-0834-H	YP	Schoharie Reservoir	4691036	546164	9649190	6/27/2001	265	190
01-1123-H	WP	Croton Falls Reservoir	4580603	611364	3C1562	4/25/2001	252	230
01-1124-H	WP	Croton Falls Reservoir	4580603	611364	3C1563	4/25/2001	320	580
01-1125-H	WP	Croton Falls Reservoir	4580603	611364	3C1564	4/25/2001	286	330
01-1126-H	WP	Croton Falls Reservoir	4580603	611364	3C1565	4/25/2001	298	460
01-1127-H	WP	Croton Falls Reservoir	4580603	611364	3C1566	4/25/2001	274	320
01-1128-H	WP	Croton Falls Reservoir	4580603	611364	3C1567	4/25/2001	275	330
01-1129-H	WP	Croton Falls Reservoir	4580603	611364	3C1568	4/25/2001	293	390
01-1130-H	WP	Croton Falls Reservoir	4580603	611364	3C1569	4/25/2001	282	320
01-1131-H	WP	Croton Falls Reservoir	4580603	611364	3C1570	4/25/2001	252	220
01-1132-H	WP	Croton Falls Reservoir	4580603	611364	3C1571	4/25/2001	278	330
01-1133-H	CHP	Croton Falls Reservoir	4580603	611364	3C1572	4/25/2001	503	800
01-1134-H	CHP	Croton Falls Reservoir	4580603	611364	3C1573	4/25/2001	525	1010
01-1135-H	CHP	Croton Falls Reservoir	4580603	611364	3C1574	4/25/2001	469	680
01-1136-H	CHP	Croton Falls Reservoir	4580603	611364	3C1575	4/25/2001	418	450
01-1137-H	CHP	Croton Falls Reservoir	4580603	611364	3C1576	4/25/2001	518	1000
01-1138-H	CHP	Croton Falls Reservoir	4580603	611364	3C1577	4/25/2001	440	520
01-1139-H	CHP	Croton Falls Reservoir	4580603	611364	3C1578	4/25/2001	497	810
01-1140-H	CHP	Croton Falls Reservoir	4580603	611364	3C1579	4/25/2001	518	960
01-1141-H	CHP	Croton Falls Reservoir	4580603	611364	3C1580	4/25/2001	627	1830
01-1142-H	CHP	Croton Falls Reservoir	4580603	611364	3C1581	4/25/2001	493	800
01-1143-H	BT	Croton Falls Reservoir	4580603	611364	3C1582	4/25/2001	370	600

01-1144-H	BT	Croton Falls Reservoir	4580603	611364	3C1583	4/25/2001	353	410
01-1145-H	BT	Croton Falls Reservoir	4580603	611364	3C1584	4/25/2001	640	2800
01-1146-H	BT	Croton Falls Reservoir	4580603	611364	3C1585	4/25/2001	392	800
01-1147-H	BT	Croton Falls Reservoir	4580603	611364	3C1586	4/25/2001	373	750
01-1148-H	BT	Croton Falls Reservoir	4580603	611364	3C1587	4/25/2001	408	860
01-1149-H	BT	Croton Falls Reservoir	4580603	611364	3C1588	4/25/2001	415	950
01-1150-H	BT	Croton Falls Reservoir	4580603	611364	3C1589	4/25/2001	488	1870
01-1151-H	BT	Croton Falls Reservoir	4580603	611364	3C1590	4/25/2001	507	1860
01-1152-H	BT	Croton Falls Reservoir	4580603	611364	3C1591	4/25/2001	656	3850
01-1153-H	SMB	Croton Falls Reservoir	4580603	611364	3C1223	4/25/2001	456	1500
01-1154-H	SMB	Croton Falls Reservoir	4580603	611364	3C1224	4/25/2001	364	740
01-1155-H	SMB	Croton Falls Reservoir	4580603	611364	3C1225	4/25/2001	423	1330
01-1156-H	SMB	Croton Falls Reservoir	4580603	611364	3C1226	4/25/2001	425	1300
01-1157-H	SMB	Croton Falls Reservoir	4580603	611364	3C1227	4/25/2001	451	1320
01-1158-H	SMB	Croton Falls Reservoir	4580603	611364	3C1228	4/25/2001	378	790
01-1159-H	SMB	Croton Falls Reservoir	4580603	611364	3C1229	4/25/2001	414	1200
01-1160-H	SMB	Croton Falls Reservoir	4580603	611364	3C1230	4/25/2001	392	930
01-1161-H	SMB	Croton Falls Reservoir	4580603	611364	3C1231	4/25/2001	332	570
01-1162-H	SMB	Croton Falls Reservoir	4580603	611364	3C1232	4/25/2001	403	1040
01-1163-H	LMB	Croton Falls Reservoir	4580603	611364	3C1233	4/25/2001	475	1770
01-1164-H	LMB	Croton Falls Reservoir	4580603	611364	3C1234	4/25/2001	422	1380
01-1165-H	LMB	Croton Falls Reservoir	4580603	611364	3C1235	4/25/2001	422	1100
01-1166-H	LMB	Croton Falls Reservoir	4580603	611364	3C1236	4/25/2001	456	1650
01-1167-H	LMB	Croton Falls Reservoir	4580603	611364	3C1237	4/25/2001	488	1880
01-1168-H	LMB	Croton Falls Reservoir	4580603	611364	3C1238	4/25/2001	372	710
01-1169-H	LMB	Croton Falls Reservoir	4580603	611364	3C1239	4/25/2001	363	730
01-1170-H	LMB	Croton Falls Reservoir	4580603	611364	3C1240	4/25/2001	448	1380
01-1171-H	LMB	Croton Falls Reservoir	4580603	611364	3C1241	4/25/2001	461	1640
01-1172-H	LMB	Croton Falls Reservoir	4580603	611364	3C1242	4/25/2001	360	700
01-1173-H	YP	Croton Falls Reservoir	4580603	611364	3C1243	4/25/2001	249	180
01-1174-H	YP	Croton Falls Reservoir	4580603	611364	3C1244	4/25/2001	212	100
01-1175-H	YP	Croton Falls Reservoir	4580603	611364	3C1245	4/25/2001	227	140
01-1176-H	YP	Croton Falls Reservoir	4580603	611364	3C1246	4/25/2001	213	110
01-1177-H	YP	Croton Falls Reservoir	4580603	611364	3C1247	4/25/2001	253	220
01-1178-H	YP	Croton Falls Reservoir	4580603	611364	3C1248	4/25/2001	213	100
01-1179-H	YP	Croton Falls Reservoir	4580603	611364	3C1249	4/25/2001	212	100
01-1180-H	YP	Croton Falls Reservoir	4580603	611364	3C1250	4/25/2001	224	120
01-1181-H	YP	Croton Falls Reservoir	4580603	611364	3C1251	4/25/2001	236	160
01-1182-H	YP	Croton Falls Reservoir	4580603	611364	3C1252	4/25/2001	na	na
01-1183-H	BT	Cross River Reservoir	4568103	614214	3T3901	5/1/2001	396	890
01-1184-H	BT	Cross River Reservoir	4568103	614214	3T3902	5/1/2001	403	970
01-1185-H	BT	Cross River Reservoir	4568103	614214	3T3903	5/1/2001	423	1090
01-1186-H	BT	Cross River Reservoir	4568103	614214	3T3904	5/1/2001	505	1680
01-1187-H	BT	Cross River Reservoir	4568103	614214	3T3905	5/1/2001	408	970
01-1188-H	BT	Cross River Reservoir	4568103	614214	3T3906	5/1/2001	406	1030
01-1189-H	BT	Cross River Reservoir	4568103	614214	3T3907	5/1/2001	475	1750
01-1190-H	BT	Cross River Reservoir	4568103	614214	3T3908	5/1/2001	405	950
01-1191-H	BT	Cross River Reservoir	4568103	614214	3T3909	5/1/2001	595	3230
01-1192-H	BT	Cross River Reservoir	4568103	614214	3T3910	5/1/2001	515	2160
01-1193-H	LMB	Cross River Reservoir	4568103	614214	3T3911	5/1/2001	371	770
01-1194-H	LMB	Cross River Reservoir	4568103	614214	3T3913	5/1/2001	405	1090
01-1195-H	LMB	Cross River Reservoir	4568103	614214	3T3914	5/1/2001	461	1290
01-1196-H	LMB	Cross River Reservoir	4568103	614214	3T3915	5/1/2001	450	1640
01-1197-H	LMB	Cross River Reservoir	4568103	614214	3T3916	5/1/2001	435	1450
01-1198-H	LMB	Cross River Reservoir	4568103	614214	3T3917	5/1/2001	495	1920

01-1199-H	LMB	Cross River Reservoir	4568103	614214	3T3918	5/1/2001	480	1720
01-1200-H	LMB	Cross River Reservoir	4568103	614214	3T3919	5/1/2001	373	830
01-1201-H	LMB	Cross River Reservoir	4568103	614214	3T3920	5/1/2001	353	650
01-1202-H	SMB	Cross River Reservoir	4568103	614214	3T3921	5/1/2001	439	1350
01-1203-H	SMB	Cross River Reservoir	4568103	614214	3T3922	5/1/2001	415	1150
01-1204-H	SMB	Cross River Reservoir	4568103	614214	3T3923	5/1/2001	410	930
01-1205-H	SMB	Cross River Reservoir	4568103	614214	3T3924	5/1/2001	349	550
01-1206-H	SMB	Cross River Reservoir	4568103	614214	3T3925	5/1/2001	423	1000
01-1207-H	SMB	Cross River Reservoir	4568103	614214	3T3926	5/1/2001	434	1230
01-1208-H	SMB	Cross River Reservoir	4568103	614214	3T3927	5/1/2001	365	710
01-1209-H	SMB	Cross River Reservoir	4568103	614214	3T3928	5/1/2001	372	680
01-1210-H	SMB	Cross River Reservoir	4568103	614214	3T3929	5/1/2001	427	1260
01-1211-H	SMB	Cross River Reservoir	4568103	614214	3T3930	5/1/2001	442	1300
01-1212-H	CARP	Cross River Reservoir	4568103	614214	3T3931	5/1/2001	706	4220
01-1213-H	CARP	Cross River Reservoir	4568103	614214	3T3932	5/1/2001	680	4080
01-1214-H	CARP	Cross River Reservoir	4568103	614214	3T3933	5/1/2001	635	3850
01-1215-H	CARP	Cross River Reservoir	4568103	614214	3T3934	5/1/2001	670	3870
01-1216-H	CARP	Cross River Reservoir	4568103	614214	3T3935	5/1/2001	680	4190
01-1217-H	CARP	Cross River Reservoir	4568103	614214	3T3936	5/1/2001	658	3910
01-1218-H	CARP	Cross River Reservoir	4568103	614214	3T3937	5/1/2001	695	4420
01-1219-H	CARP	Cross River Reservoir	4568103	614214	3T3938	5/1/2001	700	4850
01-1220-H	CARP	Cross River Reservoir	4568103	614214	3T3939	5/1/2001	683	4330
01-1221-H	CARP	Cross River Reservoir	4568103	614214	3T3940	5/1/2001	595	3000
01-1222-H	SMB	New Croton Reservoir	4564555	603053	3T3802	5/16/2001	462	1250
01-1223-H	SMB	New Croton Reservoir	4564555	603053	3T3803	5/16/2001	445	1280
01-1224-H	SMB	New Croton Reservoir	4564555	603053	3T3804	5/16/2001	450	1070
01-1225-H	SMB	New Croton Reservoir	4564555	603053	3T3805	5/16/2001	464	1350
01-1226-H	SMB	New Croton Reservoir	4564555	603053	3T3806	5/16/2001	451	1310
01-1227-H	SMB	New Croton Reservoir	4564555	603053	3T3807	5/16/2001	433	1230
01-1228-H	SMB	New Croton Reservoir	4564555	603053	3T3808	5/16/2001	456	1270
01-1229-H	SMB	New Croton Reservoir	4564555	603053	3T3809	5/16/2001	399	940
01-1230-H	SMB	New Croton Reservoir	4564555	603053	3T3810	5/16/2001	471	1430
01-1231-H	SMB	New Croton Reservoir	4564555	603053	3T3811	5/16/2001	437	1100
01-1232-H	YP	New Croton Reservoir	4564555	603053	3T3813	5/16/2001	247	170
01-1233-H	YP	New Croton Reservoir	4564555	603053	3T3814	5/16/2001	206	95
01-1234-H	YP	New Croton Reservoir	4564555	603053	3T3815	5/16/2001	210	115
01-1235-H	YP	New Croton Reservoir	4564555	603053	3T3816	5/16/2001	261	190
01-1236-H	YP	New Croton Reservoir	4564555	603053	3T3817	5/16/2001	247	165
01-1237-H	YP	New Croton Reservoir	4564555	603053	3T3818	5/16/2001	235	160
01-1238-H	YP	New Croton Reservoir	4564555	603053	3T3819	5/16/2001	236	135
01-1239-H	YP	New Croton Reservoir	4564555	603053	3T3820	5/16/2001	232	165
01-1240-H	YP	New Croton Reservoir	4564555	603053	3T3821	5/16/2001	241	155
01-1241-H	YP	New Croton Reservoir	4564555	603053	3T3822	5/16/2001	243	155
01-1242-H	WP	New Croton Reservoir	4564555	603053	3T3823	5/16/2001	273	350
01-1243-H	WP	New Croton Reservoir	4564555	603053	3T3824	5/16/2001	267	280
01-1244-H	WP	New Croton Reservoir	4564555	603053	3T3825	5/16/2001	250	210
01-1245-H	WP	New Croton Reservoir	4564555	603053	3T3826	5/16/2001	232	165
01-1246-H	WP	New Croton Reservoir	4564555	603053	3T3827	5/16/2001	223	145
01-1247-H	WP	New Croton Reservoir	4564555	603053	3T3828	5/16/2001	247	210
01-1248-H	WP	New Croton Reservoir	4564555	603053	3T3829	5/16/2001	208	145
01-1249-H	WP	New Croton Reservoir	4564555	603053	3T3830	5/16/2001	222	155
01-1250-H	LMB	New Croton Reservoir	4564555	603053	3T3831	5/16/2001	450	1435
01-1251-H	LMB	New Croton Reservoir	4564555	603053	3T3832	5/16/2001	424	1090
01-1252-H	LMB	New Croton Reservoir	4564555	603053	3T3833	5/16/2001	414	1095
01-1253-H	LMB	New Croton Reservoir	4564555	603053	3T3834	5/16/2001	498	1960

01-1254-H	LMB	New Croton Reservoir	4564555	603053	3T3835	5/16/2001	466	1685
01-1255-H	LMB	New Croton Reservoir	4564555	603053	3T3836	5/16/2001	462	1810
01-1256-H	LMB	New Croton Reservoir	4564555	603053	3T3837	5/16/2001	408	1075
01-1257-H	LMB	New Croton Reservoir	4564555	603053	3T3838	5/16/2001	423	1410
01-1258-H	LMB	New Croton Reservoir	4564555	603053	3T3839	5/16/2001	455	1435
01-1259-H	LMB	New Croton Reservoir	4564555	603053	3T3840	5/16/2001	443	1300
01-1260-H	CARP	New Croton Reservoir	4564555	603053	3T3841	5/16/2001	727	6000
01-1261-H	CARP	New Croton Reservoir	4564555	603053	3T3842	5/16/2001	784	7580
01-1262-H	CARP	New Croton Reservoir	4564555	603053	3T3843	5/16/2001	778	10442
01-1263-H	CARP	New Croton Reservoir	4564555	603053	3T3844	5/16/2001	675	4380
01-1264-H	CARP	New Croton Reservoir	4564555	603053	3T3845	5/16/2001	705	6000
01-1265-H	CARP	New Croton Reservoir	4564555	603053	3T3846	5/16/2001	782	7050
01-1266-H	CARP	New Croton Reservoir	4564555	603053	3T3847	5/16/2001	749	6100
01-1267-H	CARP	New Croton Reservoir	4564555	603053	3T3848	5/16/2001	708	5220
01-1268-H	CARP	New Croton Reservoir	4564555	603053	3T3849	5/16/2001	812	9040
01-1269-H	CARP	New Croton Reservoir	4564555	603053	3T3850	5/16/2001	762	7600
01-1270-H	LMB	Kensico Reservoir	4549439	605635	3T3951	5/8/2001	392	1020
01-1271-H	LMB	Kensico Reservoir	4549439	605635	3T3952	5/8/2001	427	1260
01-1272-H	LMB	Kensico Reservoir	4549439	605635	3T3953	5/8/2001	410	1120
01-1273-H	LMB	Kensico Reservoir	4549439	605635	3T3954	5/8/2001	458	1660
01-1274-H	LMB	Kensico Reservoir	4549439	605635	3T3955	5/8/2001	439	1530
01-1275-H	LMB	Kensico Reservoir	4549439	605635	3T3956	5/8/2001	484	1930
01-1276-H	LMB	Kensico Reservoir	4549439	605635	3T3957	5/8/2001	378	850
01-1277-H	LMB	Kensico Reservoir	4549439	605635	3T3958	5/8/2001	513	2420
01-1278-H	LMB	Kensico Reservoir	4549439	605635	3T3959	5/8/2001	412	1150
01-1279-H	LMB	Kensico Reservoir	4549439	605635	3T3960	5/8/2001	417	1050
01-1280-H	SMB	Kensico Reservoir	4549439	605635	3T3961	5/8/2001	454	1400
01-1281-H	SMB	Kensico Reservoir	4549439	605635	3T3962	5/8/2001	393	950
01-1282-H	SMB	Kensico Reservoir	4549439	605635	3T3963	5/8/2001	468	1680
01-1283-H	SMB	Kensico Reservoir	4549439	605635	3T3964	5/8/2001	402	1000
01-1284-H	SMB	Kensico Reservoir	4549439	605635	3T3965	5/8/2001	302	430
01-1285-H	SMB	Kensico Reservoir	4549439	605635	3T3966	5/8/2001	423	1100
01-1286-H	SMB	Kensico Reservoir	4549439	605635	3T3967	5/8/2001	331	510
01-1287-H	SMB	Kensico Reservoir	4549439	605635	3T3968	5/8/2001	430	1120
01-1288-H	SMB	Kensico Reservoir	4549439	605635	3T3969	5/8/2001	330	570
01-1289-H	SMB	Kensico Reservoir	4549439	605635	3T3970	5/8/2001	427	1120
01-1290-H	YP	Kensico Reservoir	4549439	605635	3T3971	5/8/2001	339	450
01-1291-H	YP	Kensico Reservoir	4549439	605635	3T3972	5/8/2001	281	250
01-1292-H	YP	Kensico Reservoir	4549439	605635	3T3973	5/8/2001	293	330
01-1293-H	YP	Kensico Reservoir	4549439	605635	3T3974	5/8/2001	270	240
01-1294-H	YP	Kensico Reservoir	4549439	605635	3T3975	5/8/2001	257	200
01-1295-H	YP	Kensico Reservoir	4549439	605635	3T3976	5/8/2001	283	280
01-1296-H	YP	Kensico Reservoir	4549439	605635	3T3977	5/8/2001	233	150
01-1297-H	YP	Kensico Reservoir	4549439	605635	3T3978	5/8/2001	303	300
01-1298-H	YP	Kensico Reservoir	4549439	605635	3T3979	5/8/2001	233	150
01-1299-H	YP	Kensico Reservoir	4549439	605635	3T3980	5/8/2001	230	160
01-1302-H	BT	Kensico Reservoir	4549439	605635	3T3983	5/8/2001	450	1160
01-1303-H	BT	Kensico Reservoir	4549439	605635	3T3984	5/8/2001	447	1250
01-1304-H	LMB	Cross River Reservoir	4568103	614214	3T3912	5/1/2001	326	590
01-1646-H	LT	Kensico Reservoir	4549439	605635	3C1420	8/30/2001	560	1750
01-1647-H	LT	Kensico Reservoir	4549439	605635	3C1421	8/30/2001	597	2110
01-1648-H	LT	Kensico Reservoir	4549439	605635	3C1422	8/30/2001	639	2525
01-1649-H	LT	Kensico Reservoir	4549439	605635	3C1423	8/30/2001	544	1710
01-1650-H	LT	Kensico Reservoir	4549439	605635	3C1424	8/30/2001	616	2345
01-1651-H	LT	Kensico Reservoir	4549439	605635	3C1425	8/30/2001	590	2090

01-1652-H	LT	Kensico Reservoir	4549439	605635	3C1426	8/30/2001	720	3630
01-1653-H	LT	Kensico Reservoir	4549439	605635	3C1427	8/30/2001	687	3670
01-1654-H	LT	Kensico Reservoir	4549439	605635	3C1428	8/30/2001	626	2640
01-1655-H	LT	Kensico Reservoir	4549439	605635	3C1429	8/30/2001	573	2290
01-1656-H	BT	Kensico Reservoir	4549439	605635	3C1430	8/30/2001	510	1910
01-1657-H	LMB	Boyds Corner Reservoir	4590396	604353	3C2217	10/4/2001	369	730
01-1658-H	LMB	Boyds Corner Reservoir	4590396	604353	3C2218	10/4/2001	387	870
01-1659-H	LMB	Boyds Corner Reservoir	4590396	604353	3C2219	10/4/2001	360	780
01-1660-H	LMB	Boyds Corner Reservoir	4590396	604353	3C2220	10/4/2001	350	620
01-1661-H	LMB	Boyds Corner Reservoir	4590396	604353	3C2221	10/4/2001	510	2350
01-1662-H	LMB	Boyds Corner Reservoir	4590396	604353	3C2222	10/4/2001	387	910
01-1663-H	LMB	Boyds Corner Reservoir	4590396	604353	3C2223	10/4/2001	387	870
01-1664-H	LMB	Boyds Corner Reservoir	4590396	604353	3C2224	10/4/2001	377	800
01-1665-H	LMB	Boyds Corner Reservoir	4590396	604353	3C2225	10/4/2001	365	760
01-1666-H	LMB	Boyds Corner Reservoir	4590396	604353	3C2226	10/4/2001	405	1000
01-1667-H	WP	Boyds Corner Reservoir	4590396	604353	3C2227	10/4/2001	243	210
01-1668-H	WP	Boyds Corner Reservoir	4590396	604353	3C2228	10/4/2001	250	220
01-1669-H	WP	Boyds Corner Reservoir	4590396	604353	3C2229	10/4/2001	253	230
01-1670-H	WP	Boyds Corner Reservoir	4590396	604353	3C2230	10/4/2001	255	250
01-1671-H	WP	Boyds Corner Reservoir	4590396	604353	3C2231	10/4/2001	260	260
01-1672-H	WP	Boyds Corner Reservoir	4590396	604353	3C2232	10/4/2001	277	320
01-1673-H	WP	Boyds Corner Reservoir	4590396	604353	3C2233	10/4/2001	251	250
01-1674-H	WP	Boyds Corner Reservoir	4590396	604353	3C2234	10/4/2001	277	310
01-1675-H	WP	Boyds Corner Reservoir	4590396	604353	3C2235	10/4/2001	275	310
01-1676-H	WP	Boyds Corner Reservoir	4590396	604353	3C2236	10/4/2001	265	300
01-1677-H	WEYE	Boyds Corner Reservoir	4590396	604353	3C2237	10/4/2001	450	800
01-1678-H	WEYE	Boyds Corner Reservoir	4590396	604353	3C2238	10/4/2001	498	1060
01-1679-H	WEYE	Boyds Corner Reservoir	4590396	604353	3C2239	10/4/2001	445	910
01-1680-H	WEYE	Boyds Corner Reservoir	4590396	604353	3C2240	10/4/2001	540	1720
01-1681-H	WEYE	Boyds Corner Reservoir	4590396	604353	3C2241	10/4/2001	449	980
01-1682-H	WEYE	Boyds Corner Reservoir	4590396	604353	3C2242	10/4/2001	499	1360
01-1683-H	WEYE	Boyds Corner Reservoir	4590396	604353	3C2243	10/4/2001	462	1040
01-1684-H	WEYE	Boyds Corner Reservoir	4590396	604353	3C2244	10/4/2001	545	1630
01-1685-H	WEYE	Boyds Corner Reservoir	4590396	604353	3C2245	10/4/2001	505	1280
01-1686-H	WEYE	Boyds Corner Reservoir	4590396	604353	3C2246	10/4/2001	651	2780
01-1687-H	YP	Boyds Corner Reservoir	4590396	604353	3C2247	10/4/2001	264	190
01-1688-H	YP	Boyds Corner Reservoir	4590396	604353	3C2248	10/4/2001	232	160
01-1689-H	YP	Boyds Corner Reservoir	4590396	604353	3C2249	10/4/2001	255	190
01-1690-H	YP	Boyds Corner Reservoir	4590396	604353	3C2250	10/4/2001	200	90
01-1691-H	WP	Cross River Reservoir	4568103	614214	3C2251	10/26/2001	360	820
01-1692-H	WP	Cross River Reservoir	4568103	614214	3C2252	10/26/2001	337	680
01-1693-H	WP	Cross River Reservoir	4568103	614214	3C2253	10/26/2001	370	910
01-1694-H	WP	Cross River Reservoir	4568103	614214	3C2254	10/26/2001	356	800
01-1695-H	WP	Cross River Reservoir	4568103	614214	3C2255	10/26/2001	347	780
01-1696-H	WP	Cross River Reservoir	4568103	614214	3C2256	10/26/2001	365	960
01-1697-H	WP	Cross River Reservoir	4568103	614214	3C2257	10/26/2001	322	620
01-1698-H	WP	Cross River Reservoir	4568103	614214	3C2258	10/26/2001	343	700
01-1699-H	WP	Cross River Reservoir	4568103	614214	3C2259	10/26/2001	352	760
01-1700-H	WP	Cross River Reservoir	4568103	614214	3C2260	10/26/2001	333	650
01-1701-H	WC	Cross River Reservoir	4568103	614214	3C2261	10/26/2001	458	1360
01-1702-H	WC	Cross River Reservoir	4568103	614214	3C2262	10/26/2001	372	640
01-1703-H	WC	Cross River Reservoir	4568103	614214	3C2263	10/26/2001	320	400
01-1704-H	WC	Cross River Reservoir	4568103	614214	3C2264	10/26/2001	392	950
01-1705-H	WC	Cross River Reservoir	4568103	614214	3C2265	10/26/2001	430	840
01-1706-H	WC	Cross River Reservoir	4568103	614214	3C2266	10/26/2001	333	440

01-1707-H	WC	Cross River Reservoir	4568103	614214	3C2267	10/26/2001	333	450
01-1708-H	WC	Cross River Reservoir	4568103	614214	3C2268	10/26/2001	318	420
01-1709-H	WC	Cross River Reservoir	4568103	614214	3C2269	10/26/2001	299	330
01-1710-H	WC	Cross River Reservoir	4568103	614214	3C2270	10/26/2001	416	1040
02-0848-H	LMB	Titicus Reservoir	4576507	614903	3C1705	4/24/2002	445	1340
02-0849-H	LMB	Titicus Reservoir	4576507	614903	3C1706	4/24/2002	460	1400
02-0850-H	LMB	Titicus Reservoir	4576507	614903	3C1707	4/24/2002	417	1200
02-0851-H	LMB	Titicus Reservoir	4576507	614903	3C1708	4/24/2002	503	2300
02-0852-H	LMB	Titicus Reservoir	4576507	614903	3C1709	4/24/2002	451	1280
02-0853-H	LMB	Titicus Reservoir	4576507	614903	3C1710	4/24/2002	441	1220
02-0854-H	LMB	Titicus Reservoir	4576507	614903	3C1711	4/24/2002	403	1170
02-0855-H	LMB	Titicus Reservoir	4576507	614903	3C1712	4/24/2002	395	1010
02-0856-H	LMB	Titicus Reservoir	4576507	614903	3C1713	4/24/2002	386	920
02-0857-H	LMB	Titicus Reservoir	4576507	614903	3C1714	4/24/2002	423	1180
02-0858-H	SMB	Titicus Reservoir	4576507	614903	3C1715	4/24/2002	325	500
02-0869-H	BCR	Titicus Reservoir	4576507	614903	3C1726	4/24/2002	220	170
02-0870-H	BCR	Titicus Reservoir	4576507	614903	3C1727	4/24/2002	238	210
02-0871-H	BCR	Titicus Reservoir	4576507	614903	3C1728	4/24/2002	246	250
02-0872-H	BCR	Titicus Reservoir	4576507	614903	3C1729	4/24/2002	239	230
02-0873-H	BCR	Titicus Reservoir	4576507	614903	3C1730	4/24/2002	227	180
02-0874-H	BCR	Titicus Reservoir	4576507	614903	3C1731	4/24/2002	221	170
02-0875-H	BCR	Titicus Reservoir	4576507	614903	3C1732	4/24/2002	227	180
02-0876-H	BCR	Titicus Reservoir	4576507	614903	3C1733	4/24/2002	240	200
02-0877-H	BCR	Titicus Reservoir	4576507	614903	3C1734	4/24/2002	234	180
02-0878-H	BCR	Titicus Reservoir	4576507	614903	3C1735	4/24/2002	240	220
02-0879-H	YP	Titicus Reservoir	4576507	614903	3C1736	4/24/2002	198	100
02-0880-H	YP	Titicus Reservoir	4576507	614903	3C1737	4/24/2002	255	180
02-0881-H	YP	Titicus Reservoir	4576507	614903	3C1738	4/24/2002	210	120
02-0882-H	YP	Titicus Reservoir	4576507	614903	3C1739	4/24/2002	228	150
02-0883-H	YP	Titicus Reservoir	4576507	614903	3C1740	4/24/2002	202	100
02-0884-H	YP	Titicus Reservoir	4576507	614903	3C1741	4/24/2002	228	120
02-0885-H	YP	Titicus Reservoir	4576507	614903	3C1742	4/24/2002	244	180
02-0886-H	YP	Titicus Reservoir	4576507	614903	3C1743	4/24/2002	190	90
02-0887-H	YP	Titicus Reservoir	4576507	614903	3C1744	4/24/2002	235	150
02-0888-H	YP	Titicus Reservoir	4576507	614903	3C1745	4/24/2002	213	120
02-0899-H	CARP	Titicus Reservoir	4576507	614903	3C1756	4/24/2002	783	7290
02-0900-H	CARP	Titicus Reservoir	4576507	614903	3C1757	4/24/2002	633	3600
02-0901-H	CARP	Titicus Reservoir	4576507	614903	3C1758	4/24/2002	580	2760
02-0902-H	CARP	Titicus Reservoir	4576507	614903	3C1759	4/24/2002	693	4800
02-0903-H	CARP	Titicus Reservoir	4576507	614903	3C1760	4/24/2002	657	3560
02-0904-H	CARP	Titicus Reservoir	4576507	614903	3C1761	4/24/2002	635	3350
02-0905-H	CARP	Titicus Reservoir	4576507	614903	3C1762	4/24/2002	701	4500
02-0906-H	CARP	Titicus Reservoir	4576507	614903	3C1763	4/24/2002	670	4040
02-0907-H	CARP	Titicus Reservoir	4576507	614903	3C1764	4/24/2002	742	5920
02-0908-H	CARP	Titicus Reservoir	4576507	614903	3C1765	4/24/2002	618	2850
02-1037-H	BT	Titicus Reservoir	4576507	614903	126818	7/25/2002	476	1540
02-1038-H	BT	Titicus Reservoir	4576507	614903	126819	7/25/2002	495	1710
02-1039-H	BT	Titicus Reservoir	4576507	614903	126820	7/25/2002	512	2550
02-1040-H	BT	Titicus Reservoir	4576507	614903	126821	7/25/2002	328	391
02-1041-H	BT	Titicus Reservoir	4576507	614903	126822	7/25/2002	334	410
02-1042-H	BT	Titicus Reservoir	4576507	614903	126823	7/25/2002	333	400
02-1043-H	BT	Titicus Reservoir	4576507	614903	126824	7/25/2002	318	350
02-1044-H	BT	Titicus Reservoir	4576507	614903	126825	7/25/2002	335	360
02-1045-H	BT	Titicus Reservoir	4576507	614903	126826	7/25/2002	312	325
02-1047-H	WP	Titicus Reservoir	4576507	614903	126828	7/25/2002	363	740

02-1048-H	WP	Titicus Reservoir	4576507	614903	126829	7/25/2002	350	740
02-1049-H	WP	Titicus Reservoir	4576507	614903	126830	7/25/2002	363	590
02-1050-H	WP	Titicus Reservoir	4576507	614903	126831	7/25/2002	385	770
02-1051-H	WP	Titicus Reservoir	4576507	614903	126832	7/25/2002	385	920
02-1052-H	WP	Titicus Reservoir	4576507	614903	126833	7/25/2002	380	910
02-1053-H	WP	Titicus Reservoir	4576507	614903	126834	7/25/2002	378	960
02-1054-H	WP	Titicus Reservoir	4576507	614903	126835	7/25/2002	375	885
02-1055-H	WP	Titicus Reservoir	4576507	614903	126836	7/25/2002	365	870
02-1056-H	WP	Titicus Reservoir	4576507	614903	126837	7/25/2002	367	860
02-0970-H	BCR	Amawalk Reservoir	4572996	605563	126951	5/22/2002	338	760
02-0971-H	BCR	Amawalk Reservoir	4572996	605563	126952	5/22/2002	237	160
02-0972-H	BCR	Amawalk Reservoir	4572996	605563	126953	5/22/2002	236	160
02-0973-H	BCR	Amawalk Reservoir	4572996	605563	126954	5/22/2002	293	400
02-0974-H	BCR	Amawalk Reservoir	4572996	605563	126955	5/22/2002	343	660
02-0975-H	BCR	Amawalk Reservoir	4572996	605563	126956	5/22/2002	255	220
02-0976-H	BCR	Amawalk Reservoir	4572996	605563	126957	5/22/2002	243	200
02-0977-H	BCR	Amawalk Reservoir	4572996	605563	126958	5/22/2002	315	710
02-0978-H	BCR	Amawalk Reservoir	4572996	605563	126959	5/22/2002	272	300
02-0979-H	BCR	Amawalk Reservoir	4572996	605563	126960	5/22/2002	248	240
02-0980-H	LMB	Amawalk Reservoir	4572996	605563	126961	5/22/2002	402	1060
02-0981-H	LMB	Amawalk Reservoir	4572996	605563	126962	5/22/2002	480	1950
02-0982-H	LMB	Amawalk Reservoir	4572996	605563	126963	5/22/2002	473	1840
02-0983-H	LMB	Amawalk Reservoir	4572996	605563	126964	5/22/2002	472	1750
02-0984-H	LMB	Amawalk Reservoir	4572996	605563	126965	5/22/2002	521	2290
02-0985-H	LMB	Amawalk Reservoir	4572996	605563	126966	5/22/2002	405	980
02-0986-H	LMB	Amawalk Reservoir	4572996	605563	126967	5/22/2002	410	1150
02-0987-H	LMB	Amawalk Reservoir	4572996	605563	126968	5/22/2002	451	1520
02-0988-H	LMB	Amawalk Reservoir	4572996	605563	126969	5/22/2002	443	1560
02-0989-H	LMB	Amawalk Reservoir	4572996	605563	126970	5/22/2002	474	1730
02-0990-H	SMB	Amawalk Reservoir	4572996	605563	126971	5/22/2002	363	750
02-0991-H	SMB	Amawalk Reservoir	4572996	605563	126972	5/22/2002	438	1250
02-0992-H	SMB	Amawalk Reservoir	4572996	605563	126973	5/22/2002	364	770
02-0993-H	SMB	Amawalk Reservoir	4572996	605563	126974	5/22/2002	420	1000
02-0994-H	SMB	Amawalk Reservoir	4572996	605563	126975	5/22/2002	403	980
02-0995-H	SMB	Amawalk Reservoir	4572996	605563	126976	5/22/2002	465	1430
02-0996-H	SMB	Amawalk Reservoir	4572996	605563	126977	5/22/2002	396	1020
02-0997-H	SMB	Amawalk Reservoir	4572996	605563	126978	5/22/2002	391	860
02-0998-H	SMB	Amawalk Reservoir	4572996	605563	126979	5/22/2002	410	1100
02-0999-H	SMB	Amawalk Reservoir	4572996	605563	126980	5/22/2002	298	360
02-1010-H	CARP	Amawalk Reservoir	4572996	605563	126991	5/22/2002	600	3400
02-1011-H	CARP	Amawalk Reservoir	4572996	605563	126992	5/22/2002	595	2620
02-1012-H	CARP	Amawalk Reservoir	4572996	605563	126993	5/22/2002	680	4200
02-1013-H	CARP	Amawalk Reservoir	4572996	605563	126994	5/22/2002	611	3210
02-1014-H	CARP	Amawalk Reservoir	4572996	605563	126995	5/22/2002	656	4470
02-1015-H	CARP	Amawalk Reservoir	4572996	605563	126996	5/22/2002	582	3190
02-1016-H	CARP	Amawalk Reservoir	4572996	605563	126997	5/22/2002	519	1750
02-1017-H	CARP	Amawalk Reservoir	4572996	605563	126998	5/22/2002	534	2040
02-1018-H	CARP	Amawalk Reservoir	4572996	605563	126999	5/22/2002	575	2600
02-1019-H	CARP	Amawalk Reservoir	4572996	605563	127000	5/22/2002	639	2960
02-1020-H	YP	Amawalk Reservoir	4572996	605563	126901	5/22/2002	224	140
02-1021-H	YP	Amawalk Reservoir	4572996	605563	126902	5/22/2002	223	150
02-1022-H	YP	Amawalk Reservoir	4572996	605563	126903	5/22/2002	243	160
02-1023-H	YP	Amawalk Reservoir	4572996	605563	126904	5/22/2002	215	130
02-1024-H	YP	Amawalk Reservoir	4572996	605563	126905	5/22/2002	292	400
02-1025-H	YP	Amawalk Reservoir	4572996	605563	126906	5/22/2002	328	490

02-1067-H	YP	Amawalk Reservoir	4572996	605563	126664	7/31/2002	345	700
02-1068-H	YP	Amawalk Reservoir	4572996	605563	126657	7/31/2002	361	770
02-1069-H	WP	Amawalk Reservoir	4572996	605563	126651	7/31/2002	375	900
02-1070-H	WP	Amawalk Reservoir	4572996	605563	126652	7/31/2002	327	550
02-1071-H	WP	Amawalk Reservoir	4572996	605563	126653	7/31/2002	305	460
02-1072-H	WP	Amawalk Reservoir	4572996	605563	126654	7/31/2002	345	710
02-1073-H	WP	Amawalk Reservoir	4572996	605563	126655	7/31/2002	323	580
02-1074-H	WP	Amawalk Reservoir	4572996	605563	126656	7/31/2002	361	760
02-1075-H	WP	Amawalk Reservoir	4572996	605563	126658	7/31/2002	338	600
02-1076-H	WP	Amawalk Reservoir	4572996	605563	126659	7/31/2002	367	700
02-1077-H	WP	Amawalk Reservoir	4572996	605563	126660	7/31/2002	315	510
02-1078-H	WP	Amawalk Reservoir	4572996	605563	126661	7/31/2002	342	640
02-0362-H	CARP	Muscoot Reservoir	4570981	609660	126851	5/30/2002	812	8000
02-0363-H	CARP	Muscoot Reservoir	4570981	609660	126852	5/30/2002	713	5080
02-0364-H	CARP	Muscoot Reservoir	4570981	609660	126853	5/30/2002	851	8880
02-0365-H	CARP	Muscoot Reservoir	4570981	609660	126854	5/30/2002	862	10890
02-0366-H	CARP	Muscoot Reservoir	4570981	609660	126855	5/30/2002	935	11200
02-0367-H	CARP	Muscoot Reservoir	4570981	609660	126856	5/30/2002	670	3800
02-0368-H	CARP	Muscoot Reservoir	4570981	609660	126857	5/30/2002	784	6320
02-0369-H	CARP	Muscoot Reservoir	4570981	609660	126858	5/30/2002	840	8400
02-0370-H	CARP	Muscoot Reservoir	4570981	609660	126859	5/30/2002	769	5290
02-0371-H	CARP	Muscoot Reservoir	4570981	609660	126860	5/30/2002	694	4300
02-0372-H	BCR	Muscoot Reservoir	4570981	609660	126861	5/30/2002	224	120
02-0373-H	BCR	Muscoot Reservoir	4570981	609660	126862	5/30/2002	249	190
02-0374-H	BCR	Muscoot Reservoir	4570981	609660	126863	5/30/2002	206	100
02-0375-H	BCR	Muscoot Reservoir	4570981	609660	126864	5/30/2002	229	150
02-0376-H	BCR	Muscoot Reservoir	4570981	609660	126865	5/30/2002	223	110
02-0377-H	BCR	Muscoot Reservoir	4570981	609660	126866	5/30/2002	233	160
02-0378-H	BCR	Muscoot Reservoir	4570981	609660	126867	5/30/2002	216	100
02-0379-H	BCR	Muscoot Reservoir	4570981	609660	126868	5/30/2002	226	140
02-0380-H	YP	Muscoot Reservoir	4570981	609660	126869	5/30/2002	245	160
02-0381-H	YP	Muscoot Reservoir	4570981	609660	126870	5/30/2002	250	150
02-0382-H	YP	Muscoot Reservoir	4570981	609660	126871	5/30/2002	248	170
02-0383-H	YP	Muscoot Reservoir	4570981	609660	126872	5/30/2002	225	110
02-0384-H	YP	Muscoot Reservoir	4570981	609660	126873	5/30/2002	247	160
02-0385-H	YP	Muscoot Reservoir	4570981	609660	126874	5/30/2002	238	140
02-0386-H	YP	Muscoot Reservoir	4570981	609660	126875	5/30/2002	238	140
02-0387-H	YP	Muscoot Reservoir	4570981	609660	126876	5/30/2002	262	180
02-0388-H	YP	Muscoot Reservoir	4570981	609660	126877	5/30/2002	270	200
02-0389-H	YP	Muscoot Reservoir	4570981	609660	126878	5/30/2002	254	170
02-0390-H	WS	Muscoot Reservoir	4570981	609660	126889	5/30/2002	457	1120
02-0391-H	WS	Muscoot Reservoir	4570981	609660	126890	5/30/2002	416	840
02-0392-H	WS	Muscoot Reservoir	4570981	609660	126891	5/30/2002	467	1140
02-0393-H	WS	Muscoot Reservoir	4570981	609660	126892	5/30/2002	393	800
02-0394-H	WS	Muscoot Reservoir	4570981	609660	126893	5/30/2002	413	800
02-0395-H	WS	Muscoot Reservoir	4570981	609660	126894	5/30/2002	458	1190
02-0396-H	WS	Muscoot Reservoir	4570981	609660	126895	5/30/2002	425	980
02-0397-H	WS	Muscoot Reservoir	4570981	609660	126896	5/30/2002	440	990
02-0398-H	WS	Muscoot Reservoir	4570981	609660	126897	5/30/2002	457	1000
02-0399-H	WS	Muscoot Reservoir	4570981	609660	126898	5/30/2002	469	1360
02-0400-H	SMB	Muscoot Reservoir	4570981	609660	126899	5/30/2002	298	300
02-0401-H	SMB	Muscoot Reservoir	4570981	609660	126900	5/30/2002	302	300
02-0402-H	SMB	Muscoot Reservoir	4570981	609660	126907	5/30/2002	332	400
02-0403-H	SMB	Muscoot Reservoir	4570981	609660	126908	5/30/2002	329	400
02-0404-H	SMB	Muscoot Reservoir	4570981	609660	126909	5/30/2002	274	300

02-0405-H	PS	Muscoot Reservoir	4570981	609660	126910	5/30/2002	191	180
02-0406-H	PS	Muscoot Reservoir	4570981	609660	126911	5/30/2002	183	150
02-0407-H	PS	Muscoot Reservoir	4570981	609660	126912	5/30/2002	195	180
02-0408-H	PS	Muscoot Reservoir	4570981	609660	126913	5/30/2002	195	180
02-0409-H	PS	Muscoot Reservoir	4570981	609660	126915	5/30/2002	187	160
02-0410-H	PS	Muscoot Reservoir	4570981	609660	126916	5/30/2002	158	100
02-0411-H	PS	Muscoot Reservoir	4570981	609660	126917	5/30/2002	192	160
02-0412-H	LMB	Muscoot Reservoir	4570981	609660	126920	5/30/2002	415	960
02-0413-H	LMB	Muscoot Reservoir	4570981	609660	126921	5/30/2002	470	1740
02-0414-H	LMB	Muscoot Reservoir	4570981	609660	126922	5/30/2002	490	2030
02-0415-H	LMB	Muscoot Reservoir	4570981	609660	126923	5/30/2002	325	430
02-0416-H	LMB	Muscoot Reservoir	4570981	609660	126924	5/30/2002	444	1300
02-0417-H	LMB	Muscoot Reservoir	4570981	609660	126925	5/30/2002	435	1260
02-0418-H	LMB	Muscoot Reservoir	4570981	609660	126926	5/30/2002	415	1380
02-0419-H	LMB	Muscoot Reservoir	4570981	609660	126927	5/30/2002	492	1900
02-0420-H	LMB	Muscoot Reservoir	4570981	609660	126928	5/30/2002	392	950
02-0421-H	LMB	Muscoot Reservoir	4570981	609660	126929	5/30/2002	327	460
02-0422-H	CARP	Diverting Reservoir	4582069	614408	3C2737	5/15/2002	815	8920
02-0423-H	CARP	Diverting Reservoir	4582069	614408	3C2738	5/15/2002	938	13404
02-0424-H	CARP	Diverting Reservoir	4582069	614408	3C2739	5/15/2002	693	5480
02-0425-H	CARP	Diverting Reservoir	4582069	614408	3C2740	5/15/2002	814	8920
02-0426-H	CARP	Diverting Reservoir	4582069	614408	3C2741	5/15/2002	727	6460
02-0427-H	CARP	Diverting Reservoir	4582069	614408	3C2742	5/15/2002	756	7210
02-0428-H	CARP	Diverting Reservoir	4582069	614408	3C2743	5/15/2002	719	5380
02-0429-H	CARP	Diverting Reservoir	4582069	614408	3C2744	5/15/2002	758	7200
02-0430-H	CARP	Diverting Reservoir	4582069	614408	3C2745	5/15/2002	745	7920
02-0431-H	CARP	Diverting Reservoir	4582069	614408	3C2747	5/15/2002	693	4510
02-0432-H	BCR	Diverting Reservoir	4582069	614408	3C2746	5/15/2002	285	340
02-0433-H	BCR	Diverting Reservoir	4582069	614408	3C2749	5/15/2002	265	285
02-0434-H	BCR	Diverting Reservoir	4582069	614408	3C2751	5/15/2002	298	410
02-0435-H	BCR	Diverting Reservoir	4582069	614408	3C2752	5/15/2002	286	340
02-0436-H	BCR	Diverting Reservoir	4582069	614408	3C2753	5/15/2002	327	570
02-0437-H	WP	Diverting Reservoir	4582069	614408	3C2757	5/15/2002	279	330
02-0438-H	WP	Diverting Reservoir	4582069	614408	3C2758	5/15/2002	266	305
02-0439-H	WP	Diverting Reservoir	4582069	614408	3C2759	5/15/2002	274	305
02-0440-H	WP	Diverting Reservoir	4582069	614408	3C2760	5/15/2002	233	185
02-0441-H	WP	Diverting Reservoir	4582069	614408	3C2761	5/15/2002	265	275
02-0442-H	WP	Diverting Reservoir	4582069	614408	3C2762	5/15/2002	282	320
02-0443-H	WP	Diverting Reservoir	4582069	614408	3C2763	5/15/2002	256	250
02-0444-H	WP	Diverting Reservoir	4582069	614408	3C2764	5/15/2002	259	250
02-0445-H	WP	Diverting Reservoir	4582069	614408	3C2765	5/15/2002	264	275
02-0446-H	WP	Diverting Reservoir	4582069	614408	3C2766	5/15/2002	270	285
02-0447-H	YP	Diverting Reservoir	4582069	614408	3C2767	5/15/2002	235	155
02-0448-H	YP	Diverting Reservoir	4582069	614408	3C2768	5/15/2002	285	270
02-0449-H	YP	Diverting Reservoir	4582069	614408	3C2769	5/15/2002	274	245
02-0450-H	YP	Diverting Reservoir	4582069	614408	3C2770	5/15/2002	259	220
02-0451-H	YP	Diverting Reservoir	4582069	614408	3C2771	5/15/2002	256	195
02-0452-H	YP	Diverting Reservoir	4582069	614408	3C2772	5/15/2002	251	165
02-0453-H	YP	Diverting Reservoir	4582069	614408	3C2773	5/15/2002	229	135
02-0454-H	YP	Diverting Reservoir	4582069	614408	3C2774	5/15/2002	226	105
02-0455-H	YP	Diverting Reservoir	4582069	614408	3C2775	5/15/2002	253	200
02-0456-H	YP	Diverting Reservoir	4582069	614408	3C2776	5/15/2002	253	195
02-0457-H	SMB	Diverting Reservoir	4582069	614408	3C2777	5/15/2002	377	750
02-0458-H	SMB	Diverting Reservoir	4582069	614408	3C2099	5/15/2002	390	840
02-0459-H	SMB	Diverting Reservoir	4582069	614408	3C2802	5/15/2002	360	615

02-0460-H	SMB	Diverting Reservoir	4582069	614408	3C2297	5/15/2002	334	425
02-0461-H	SMB	Diverting Reservoir	4582069	614408	3C2204	5/15/2002	422	1050
02-0462-H	SMB	Diverting Reservoir	4582069	614408	3C2968	5/15/2002	393	830
02-0463-H	SMB	Diverting Reservoir	4582069	614408	3C2299	5/15/2002	363	640
02-0464-H	SMB	Diverting Reservoir	4582069	614408	3C2597	5/15/2002	378	700
02-0465-H	SMB	Diverting Reservoir	4582069	614408	3C2298	5/15/2002	345	560
02-0466-H	SMB	Diverting Reservoir	4582069	614408	3C2798	5/15/2002	332	505
02-0467-H	LMB	Diverting Reservoir	4582069	614408	3C2203	5/15/2002	473	1650
02-0468-H	LMB	Diverting Reservoir	4582069	614408	3C2296	5/15/2002	442	1320
02-0469-H	LMB	Diverting Reservoir	4582069	614408	3C1704	5/15/2002	412	1070
02-0470-H	LMB	Diverting Reservoir	4582069	614408	3C1394	5/15/2002	410	1070
02-0471-H	LMB	Diverting Reservoir	4582069	614408	3C1395	5/15/2002	392	895
02-0472-H	LMB	Diverting Reservoir	4582069	614408	3C1396	5/15/2002	422	1230
02-0473-H	LMB	Diverting Reservoir	4582069	614408	3C1397	5/15/2002	415	1180
02-0474-H	LMB	Diverting Reservoir	4582069	614408	3C1398	5/15/2002	439	1370
02-0475-H	LMB	Diverting Reservoir	4582069	614408	3C1399	5/15/2002	365	995
02-0476-H	LMB	Diverting Reservoir	4582069	614408	3C2206	5/15/2002	350	705
02-0477-H	WEYE	Diverting Reservoir	4582069	614408	3C1698	5/15/2002	545	1880
02-0478-H	WEYE	Diverting Reservoir	4582069	614408	3C1699	5/15/2002	599	2370
02-0479-H	WEYE	Diverting Reservoir	4582069	614408	3C1499	5/15/2002	678	3340
02-0480-H	WEYE	Diverting Reservoir	4582069	614408	3C1703	5/15/2002	527	1610
02-0481-H	BT	Diverting Reservoir	4582069	614408	3C1766	5/15/2002	381	600
02-0909-H	BT	West Branch Reservoir	4586774	608735	3C2271	5/8/2002	445	1210
02-0910-H	BT	West Branch Reservoir	4586774	608735	3C2272	5/8/2002	438	1090
02-0911-H	BT	West Branch Reservoir	4586774	608735	3C2273	5/8/2002	449	1220
02-0912-H	BT	West Branch Reservoir	4586774	608735	3C2274	5/8/2002	374	630
02-0913-H	BT	West Branch Reservoir	4586774	608735	3C2275	5/8/2002	446	1440
02-0914-H	BT	West Branch Reservoir	4586774	608735	3C2276	5/8/2002	451	1330
02-0915-H	BT	West Branch Reservoir	4586774	608735	3C2277	5/8/2002	452	1200
02-0916-H	BT	West Branch Reservoir	4586774	608735	3C2278	5/8/2002	522	1960
02-0927-H	LMB	West Branch Reservoir	4586774	608735	3C2289	5/8/2002	471	1910
02-0928-H	LMB	West Branch Reservoir	4586774	608735	3C2290	5/8/2002	360	800
02-0929-H	LMB	West Branch Reservoir	4586774	608735	3C2291	5/8/2002	384	880
02-0930-H	LMB	West Branch Reservoir	4586774	608735	3C2292	5/8/2002	403	930
02-0931-H	LMB	West Branch Reservoir	4586774	608735	3C2293	5/8/2002	393	1130
02-0932-H	LMB	West Branch Reservoir	4586774	608735	3C2294	5/8/2002	423	1240
02-0933-H	LMB	West Branch Reservoir	4586774	608735	3C2295	5/8/2002	370	850
02-0934-H	LMB	West Branch Reservoir	4586774	608735	3C2701	5/8/2002	313	495
02-0935-H	LMB	West Branch Reservoir	4586774	608735	3C2702	5/8/2002	394	1040
02-0936-H	LMB	West Branch Reservoir	4586774	608735	3C2703	5/8/2002	308	460
02-0937-H	WP	West Branch Reservoir	4586774	608735	3C2704	5/8/2002	297	400
02-0938-H	WP	West Branch Reservoir	4586774	608735	3C2705	5/8/2002	296	380
02-0939-H	WP	West Branch Reservoir	4586774	608735	3C2706	5/8/2002	295	375
02-0941-H	WP	West Branch Reservoir	4586774	608735	3C2708	5/8/2002	310	450
02-0942-H	WP	West Branch Reservoir	4586774	608735	3C2709	5/8/2002	322	485
02-0943-H	WP	West Branch Reservoir	4586774	608735	3C2710	5/8/2002	310	445
02-0944-H	WP	West Branch Reservoir	4586774	608735	3C2711	5/8/2002	293	380
02-0945-H	WP	West Branch Reservoir	4586774	608735	3C2712	5/8/2002	296	400
02-0946-H	WP	West Branch Reservoir	4586774	608735	3C2713	5/8/2002	303	440
02-0947-H	WEYE	West Branch Reservoir	4586774	608735	3C2714	5/8/2002	535	2020
02-0948-H	WEYE	West Branch Reservoir	4586774	608735	3C2715	5/8/2002	555	1890
02-0949-H	CARP	West Branch Reservoir	4586774	608735	3C2716	5/8/2002	843	10433
02-0950-H	CARP	West Branch Reservoir	4586774	608735	3C2717	5/8/2002	810	10100
02-0951-H	CARP	West Branch Reservoir	4586774	608735	3C2718	5/8/2002	835	10200
02-0952-H	CARP	West Branch Reservoir	4586774	608735	3C2719	5/8/2002	720	6700

02-0953-H	CARP	West Branch Reservoir	4586774	608735	3C2720	5/8/2002	720	5310
02-0954-H	CARP	West Branch Reservoir	4586774	608735	3C2721	5/8/2002	710	6360
02-0955-H	CARP	West Branch Reservoir	4586774	608735	3C2722	5/8/2002	750	6150
02-0956-H	CARP	West Branch Reservoir	4586774	608735	3C2723	5/8/2002	768	6410
02-0957-H	CARP	West Branch Reservoir	4586774	608735	3C2724	5/8/2002	741	6100
02-0958-H	CARP	West Branch Reservoir	4586774	608735	3C2725	5/8/2002	708	5150
02-0959-H	SMB	West Branch Reservoir	4586774	608735	3C2726	5/8/2002	400	990
02-0960-H	YP	West Branch Reservoir	4586774	608735	3C2727	5/8/2002	213	105
02-0961-H	YP	West Branch Reservoir	4586774	608735	3C2728	5/8/2002	215	110
02-0962-H	YP	West Branch Reservoir	4586774	608735	3C2729	5/8/2002	237	140
02-0963-H	YP	West Branch Reservoir	4586774	608735	3C2730	5/8/2002	205	115
02-0964-H	YP	West Branch Reservoir	4586774	608735	3C2731	5/8/2002	226	130
02-0965-H	YP	West Branch Reservoir	4586774	608735	3C2732	5/8/2002	243	140
02-0966-H	YP	West Branch Reservoir	4586774	608735	3C2733	5/8/2002	238	160
02-0967-H	YP	West Branch Reservoir	4586774	608735	3C2734	5/8/2002	220	120
02-0968-H	YP	West Branch Reservoir	4586774	608735	3C2735	5/8/2002	233	140
02-0969-H	YP	West Branch Reservoir	4586774	608735	3C2736	5/8/2002	221	110
02-1057-H	WEYE	West Branch Reservoir	4586774	608735	126689	9/5/2002	513	1780
02-1058-H	WEYE	West Branch Reservoir	4586774	608735	126690	9/5/2002	525	1720
02-1059-H	WEYE	West Branch Reservoir	4586774	608735	126691	9/5/2002	575	2260
02-1060-H	WEYE	West Branch Reservoir	4586774	608735	126692	9/5/2002	500	1860
02-1061-H	WEYE	West Branch Reservoir	4586774	608735	126693	9/5/2002	556	2210
02-1062-H	WEYE	West Branch Reservoir	4586774	608735	126694	9/5/2002	615	3060
02-1063-H	WEYE	West Branch Reservoir	4586774	608735	126695	9/5/2002	580	2710
02-1064-H	WEYE	West Branch Reservoir	4586774	608735	126696	9/5/2002	710	1860
02-1065-H	BT	West Branch Reservoir	4586774	608735	126697	9/5/2002	446	780
02-1066-H	BT	West Branch Reservoir	4586774	608735	126698	9/5/2002	353	480
02-0645-H	YP	Cannonsville Reservoir	4659607	473454	9649301	7/9/2002	255	200
02-0646-H	YP	Cannonsville Reservoir	4659607	473454	9649302	7/9/2002	340	490
02-0647-H	YP	Cannonsville Reservoir	4659607	473454	9649303	7/9/2002	303	290
02-0648-H	BT	Cannonsville Reservoir	4659607	473454	9649304	7/9/2002	590	1920
02-0649-H	BT	Cannonsville Reservoir	4659607	473454	9649305	7/9/2002	503	1490
02-0650-H	BT	Cannonsville Reservoir	4659607	473454	9649306	7/9/2002	388	680
02-0651-H	BB	Cannonsville Reservoir	4659607	473454	9649307	7/9/2002	300	330
02-0652-H	YP	Cannonsville Reservoir	4659607	473454	9649308	7/9/2002	288	270
02-0653-H	BT	Cannonsville Reservoir	4659607	473454	9649309	7/9/2002	475	1140
02-0654-H	BT	Cannonsville Reservoir	4659607	473454	9649106	7/9/2002	492	1160
02-0655-H	YP	Cannonsville Reservoir	4659607	473454	9649116	7/9/2002	252	190
02-0656-H	YP	Cannonsville Reservoir	4659607	473454	9649117	7/9/2002	242	140
02-0657-H	YP	Cannonsville Reservoir	4659607	473454	9649196	7/9/2002	260	185
02-0658-H	BT	Cannonsville Reservoir	4659607	473454	9649200	7/9/2002	528	1240
02-0659-H	BT	Cannonsville Reservoir	4659607	473454	9649115	7/9/2002	476	1300
02-0660-H	BT	Cannonsville Reservoir	4659607	473454	9649112	7/9/2002	320	350
02-0662-H	YP	Cannonsville Reservoir	4659607	473454	9649113	7/9/2002	293	270
02-0663-H	YP	Cannonsville Reservoir	4659607	473454	9649111	7/9/2002	210	90
02-0664-H	BT	Cannonsville Reservoir	4659607	473454	9649108	7/9/2002	640	2340
02-0665-H	BT	Cannonsville Reservoir	4659607	473454	9649107	7/9/2002	315	340
02-0666-H	YP	Cannonsville Reservoir	4659607	473454	4A2602	7/9/2002	275	250
02-1170-H	SMB	Pepacton Reservoir	4658444	508906	60301	10/23/2002	405	1000
02-1100-H	SMB	Middle Branch Reservoir	4584209	613613	126811	7/18/2002	368	700
02-1101-H	YP	Middle Branch Reservoir	4584209	613613	126812	7/18/2002	267	200
02-1102-H	YP	Middle Branch Reservoir	4584209	613613	126813	7/18/2002	228	115
02-1103-H	YP	Middle Branch Reservoir	4584209	613613	126814	7/18/2002	230	105
02-1104-H	YP	Middle Branch Reservoir	4584209	613613	126815	7/18/2002	252	160
02-1105-H	YP	Middle Branch Reservoir	4584209	613613	126816	7/18/2002	263	190

02-1106-H	YP	Middle Branch Reservoir	4584209	613613	126817	7/18/2002	289	240
02-1107-H	BC	Middle Branch Reservoir	4584209	613613	126838	8/29/2002	295	380
02-1108-H	BC	Middle Branch Reservoir	4584209	613613	126839	8/29/2002	265	280
02-1109-H	BC	Middle Branch Reservoir	4584209	613613	126840	8/29/2002	252	260
02-1110-H	BC	Middle Branch Reservoir	4584209	613613	126841	8/29/2002	251	250
02-1111-H	BC	Middle Branch Reservoir	4584209	613613	126842	8/29/2002	246	240
02-1112-H	BC	Middle Branch Reservoir	4584209	613613	126843	8/29/2002	252	240
02-1113-H	BC	Middle Branch Reservoir	4584209	613613	126844	8/29/2002	241	220
02-1114-H	BC	Middle Branch Reservoir	4584209	613613	126846	8/29/2002	256	270
02-1115-H	BC	Middle Branch Reservoir	4584209	613613	126847	8/29/2002	279	330
02-1116-H	BC	Middle Branch Reservoir	4584209	613613	126848	8/29/2002	278	330
02-1117-H	WP	Middle Branch Reservoir	4584209	613613	126845	8/29/2002	357	620
02-1118-H	WP	Middle Branch Reservoir	4584209	613613	126849	8/29/2002	343	520
02-1119-H	WP	Middle Branch Reservoir	4584209	613613	126850	8/29/2002	345	530
02-1120-H	WP	Middle Branch Reservoir	4584209	613613	126670	8/29/2002	365	640
02-1121-H	WP	Middle Branch Reservoir	4584209	613613	126671	8/29/2002	334	600
02-1122-H	WP	Middle Branch Reservoir	4584209	613613	126672	8/29/2002	358	570
02-1123-H	WP	Middle Branch Reservoir	4584209	613613	126673	8/29/2002	361	580
02-1124-H	WP	Middle Branch Reservoir	4584209	613613	126674	8/29/2002	292	300
02-1125-H	WP	Middle Branch Reservoir	4584209	613613	126675	8/29/2002	255	220
02-1126-H	SMB	Middle Branch Reservoir	4584209	613613	126676	8/29/2002	522	1840
02-1127-H	SMB	Middle Branch Reservoir	4584209	613613	126677	8/29/2002	515	1830
02-1128-H	SMB	Middle Branch Reservoir	4584209	613613	126678	8/29/2002	477	1520
02-1129-H	SMB	Middle Branch Reservoir	4584209	613613	126679	8/29/2002	453	1310
02-1130-H	SMB	Middle Branch Reservoir	4584209	613613	126680	8/29/2002	456	1360
02-1131-H	SMB	Middle Branch Reservoir	4584209	613613	126681	8/29/2002	484	1570
02-1132-H	CARP	Middle Branch Reservoir	4584209	613613	126682	8/29/2002	642	3640
02-1133-H	CARP	Middle Branch Reservoir	4584209	613613	126683	8/29/2002	670	3490
02-1134-H	CARP	Middle Branch Reservoir	4584209	613613	126684	8/29/2002	655	3690
02-1135-H	CARP	Middle Branch Reservoir	4584209	613613	126685	8/29/2002	635	3200
02-1139-H	CARP	Middle Branch Reservoir	4584209	613613	126930	6/5/2002	811	6640
02-1140-H	CARP	Middle Branch Reservoir	4584209	613613	126931	6/5/2002	704	4700
02-1141-H	CARP	Middle Branch Reservoir	4584209	613613	126932	6/5/2002	720	4480
02-1142-H	CARP	Middle Branch Reservoir	4584209	613613	126933	6/5/2002	659	3700
02-1143-H	CARP	Middle Branch Reservoir	4584209	613613	126934	6/5/2002	713	5200
02-1144-H	CARP	Middle Branch Reservoir	4584209	613613	126935	6/5/2002	788	5800
02-1152-H	LMB	Middle Branch Reservoir	4584209	613613	126943	6/5/2002	410	1070
02-1153-H	LMB	Middle Branch Reservoir	4584209	613613	126944	6/5/2002	452	1300
02-1154-H	LMB	Middle Branch Reservoir	4584209	613613	126945	6/5/2002	460	1410
02-1155-H	LMB	Middle Branch Reservoir	4584209	613613	126946	6/5/2002	508	1960
02-1156-H	LMB	Middle Branch Reservoir	4584209	613613	126947	6/5/2002	488	1950
02-1157-H	LMB	Middle Branch Reservoir	4584209	613613	126948	6/5/2002	490	1900
02-1158-H	LMB	Middle Branch Reservoir	4584209	613613	126949	6/5/2002	447	1400
02-1159-H	LMB	Middle Branch Reservoir	4584209	613613	126950	6/5/2002	411	980
02-1160-H	LMB	Middle Branch Reservoir	4584209	613613	126801	6/5/2002	495	1820
02-1161-H	LMB	Middle Branch Reservoir	4584209	613613	126802	6/5/2002	479	1820
02-1162-H	YP	Middle Branch Reservoir	4584209	613613	126803	6/5/2002	229	120
02-1163-H	YP	Middle Branch Reservoir	4584209	613613	126804	6/5/2002	241	170
02-1164-H	YP	Middle Branch Reservoir	4584209	613613	126805	6/5/2002	287	290
02-1165-H	YP	Middle Branch Reservoir	4584209	613613	126806	6/5/2002	257	180
02-1166-H	YB	Middle Branch Reservoir	4584209	613613	126807	6/5/2002	221	160
02-1167-H	YB	Middle Branch Reservoir	4584209	613613	126808	6/5/2002	310	510
02-1168-H	YB	Middle Branch Reservoir	4584209	613613	126809	6/5/2002	280	300
02-1169-H	WP	Middle Branch Reservoir	4584209	613613	126810	6/5/2002	322	420
03-0048-H	WEYE	Bog Brook Reservoir	4585828	618246	126727	11/1/2002	736	3980

03-0049-H	WEYE	Bog Brook Reservoir	4585828	618246	126729	11/1/2002	523	1560
03-0050-H	WEYE	Bog Brook Reservoir	4585828	618246	126724	11/1/2002	593	2560
03-0051-H	WEYE	Bog Brook Reservoir	4585828	618246	126725	11/1/2002	676	3460
03-0052-H	WEYE	Bog Brook Reservoir	4585828	618246	126726	11/1/2002	566	2160
03-0053-H	WEYE	Bog Brook Reservoir	4585828	618246	126728	11/1/2002	555	1720
03-0054-H	WEYE	Bog Brook Reservoir	4585828	618246	126730	11/1/2002	440	1240
03-0055-H	WEYE	Bog Brook Reservoir	4585828	618246	126731	11/1/2002	545	1860
03-0056-H	WEYE	Bog Brook Reservoir	4585828	618246	126732	11/1/2002	547	1840
03-0057-H	WEYE	Bog Brook Reservoir	4585828	618246	126733	11/1/2002	300	290
03-0063-H	WP	Bog Brook Reservoir	4585828	618246	126739	11/1/2002	307	470
03-0064-H	WP	Bog Brook Reservoir	4585828	618246	126749	11/1/2002	330	600
03-0065-H	WP	Bog Brook Reservoir	4585828	618246	126750	11/1/2002	325	590
03-0066-H	WP	Bog Brook Reservoir	4585828	618246	3B2094	11/1/2002	384	980
03-0067-H	WP	Bog Brook Reservoir	4585828	618246	3B2095	11/1/2002	362	920
03-0068-H	WP	Bog Brook Reservoir	4585828	618246	3B2096	11/1/2002	311	530
03-0069-H	WP	Bog Brook Reservoir	4585828	618246	3B2097	11/1/2002	287	420
03-0070-H	WP	Bog Brook Reservoir	4585828	618246	3B2098	11/1/2002	305	440
03-0071-H	WP	Bog Brook Reservoir	4585828	618246	3B2099	11/1/2002	300	460
03-0072-H	WP	Bog Brook Reservoir	4585828	618246	3C2698	11/1/2002	310	490
03-0073-H	YP	Bog Brook Reservoir	4585828	618246	3T3876	11/1/2002	290	310
03-0074-H	YP	Bog Brook Reservoir	4585828	618246	3T3877	11/1/2002	305	300
03-0075-H	YP	Bog Brook Reservoir	4585828	618246	3T3878	11/1/2002	320	430
03-0076-H	YP	Bog Brook Reservoir	4585828	618246	3T3879	11/1/2002	333	490
03-0077-H	YP	Bog Brook Reservoir	4585828	618246	3T3880	11/1/2002	310	340
03-0078-H	YP	Bog Brook Reservoir	4585828	618246	3T3881	11/1/2002	300	320
03-0079-H	YP	Bog Brook Reservoir	4585828	618246	3T3882	11/1/2002	310	360
03-0080-H	YP	Bog Brook Reservoir	4585828	618246	3T3883	11/1/2002	330	400
03-0081-H	YP	Bog Brook Reservoir	4585828	618246	3T3884	11/1/2002	310	360
03-0082-H	YP	Bog Brook Reservoir	4585828	618246	3T3885	11/1/2002	305	370
03-0083-H	CARP	Bog Brook Reservoir	4585828	618246	3T3886	11/1/2002	310	530
03-0084-H	CARP	Bog Brook Reservoir	4585828	618246	3T3887	11/1/2002	800	7900
03-0085-H	SMB	Bog Brook Reservoir	4585828	618246	3T3888	11/1/2002	390	880
03-0086-H	SMB	Bog Brook Reservoir	4585828	618246	3T3889	11/1/2002	395	700
03-0087-H	SMB	Bog Brook Reservoir	4585828	618246	3T3890	11/1/2002	376	740
03-0088-H	SMB	Bog Brook Reservoir	4585828	618246	3T3891	11/1/2002	455	1380
03-0089-H	SMB	Bog Brook Reservoir	4585828	618246	3T3892	11/1/2002	410	990
03-0090-H	SMB	Bog Brook Reservoir	4585828	618246	3T3893	11/1/2002	371	810
03-0091-H	SMB	Bog Brook Reservoir	4585828	618246	3T3894	11/1/2002	347	660
03-0092-H	SMB	Bog Brook Reservoir	4585828	618246	3T3895	11/1/2002	370	750
03-0093-H	SMB	Bog Brook Reservoir	4585828	618246	3T3896	11/1/2002	383	800
03-0094-H	SMB	Bog Brook Reservoir	4585828	618246	3T3897	11/1/2002	413	970
03-0095-H	LMB	Bog Brook Reservoir	4585828	618246	3C1790	11/1/2002	445	1300
03-0096-H	LMB	Bog Brook Reservoir	4585828	618246	3C1791	11/1/2002	415	1310
03-0097-H	LMB	Bog Brook Reservoir	4585828	618246	3C1792	11/1/2002	401	1080
02-1079-H	WP	East Branch Reservoir	4583881	618582	126740	9/30/2002	274	330
02-1080-H	WP	East Branch Reservoir	4583881	618582	126741	9/30/2002	282	320
02-1081-H	WP	East Branch Reservoir	4583881	618582	126742	9/30/2002	267	310
02-1082-H	WP	East Branch Reservoir	4583881	618582	126743	9/30/2002	254	260
02-1083-H	BC	East Branch Reservoir	4583881	618582	126744	9/30/2002	241	220
02-1084-H	BC	East Branch Reservoir	4583881	618582	126745	9/30/2002	243	220
02-1085-H	YP	East Branch Reservoir	4583881	618582	126746	9/30/2002	254	200
02-1088-H	SMB	East Branch Reservoir	4583881	618582	126701	9/30/2002	319	420
02-1089-H	SMB	East Branch Reservoir	4583881	618582	126702	9/30/2002	394	730
02-1090-H	SMB	East Branch Reservoir	4583881	618582	126703	9/30/2002	385	720
02-1091-H	SMB	East Branch Reservoir	4583881	618582	126704	9/30/2002	320	430

03-0001-H	CARP	East Branch Reservoir	4583881	618582	3C1592	11/14/2002	625	2880
03-0002-H	CARP	East Branch Reservoir	4583881	618582	3C1593	11/14/2002	703	4520
03-0003-H	CARP	East Branch Reservoir	4583881	618582	3C1594	11/14/2002	718	4800
03-0004-H	CARP	East Branch Reservoir	4583881	618582	3C1595	11/14/2002	713	4560
03-0005-H	CARP	East Branch Reservoir	4583881	618582	3C1596	11/14/2002	731	5520
03-0006-H	CARP	East Branch Reservoir	4583881	618582	3C1597	11/14/2002	743	5120
03-0008-H	WEYE	East Branch Reservoir	4583881	618582	3C1254	11/14/2002	541	1410
03-0009-H	WEYE	East Branch Reservoir	4583881	618582	3C1255	11/14/2002	557	1780
03-0011-H	WEYE	East Branch Reservoir	4583881	618582	3C1257	11/14/2002	636	3110
03-0013-H	WEYE	East Branch Reservoir	4583881	618582	3C1259	11/14/2002	672	3690
03-0014-H	WEYE	East Branch Reservoir	4583881	618582	3C1260	11/14/2002	597	2690
03-0015-H	WEYE	East Branch Reservoir	4583881	618582	3C1261	11/14/2002	557	1600
03-0016-H	WEYE	East Branch Reservoir	4583881	618582	3C1262	11/14/2002	661	3140
03-0017-H	WEYE	East Branch Reservoir	4583881	618582	3C1263	11/14/2002	550	1930
03-0019-H	WEYE	East Branch Reservoir	4583881	618582	3C1265	11/14/2002	360	500
03-0021-H	WEYE	East Branch Reservoir	4583881	618582	3C1267	11/14/2002	405	560
03-0022-H	WP	East Branch Reservoir	4583881	618582	3C1268	11/14/2002	317	550
03-0023-H	WP	East Branch Reservoir	4583881	618582	3C1269	11/14/2002	320	500
03-0024-H	WP	East Branch Reservoir	4583881	618582	3C1270	11/14/2002	279	320
03-0025-H	WP	East Branch Reservoir	4583881	618582	3C1271	11/14/2002	277	320
03-0026-H	WP	East Branch Reservoir	4583881	618582	3C1272	11/14/2002	286	350
03-0027-H	WP	East Branch Reservoir	4583881	618582	3C1273	11/14/2002	244	210
03-0028-H	SMB	East Branch Reservoir	4583881	618582	3C1274	11/14/2002	360	670
03-0029-H	SMB	East Branch Reservoir	4583881	618582	3C1275	11/14/2002	352	600
03-0030-H	SMB	East Branch Reservoir	4583881	618582	3C1276	11/14/2002	297	350
03-0031-H	BC	East Branch Reservoir	4583881	618582	3C1285	11/14/2002	227	145
03-0032-H	BC	East Branch Reservoir	4583881	618582	3C1286	11/14/2002	245	230
03-0033-H	BC	East Branch Reservoir	4583881	618582	3C1287	11/14/2002	250	240
03-0034-H	BC	East Branch Reservoir	4583881	618582	3C1288	11/14/2002	243	215
03-0035-H	BC	East Branch Reservoir	4583881	618582	3C1289	11/14/2002	236	175
03-0036-H	BC	East Branch Reservoir	4583881	618582	3C1290	11/14/2002	235	155
03-0037-H	BC	East Branch Reservoir	4583881	618582	3C1291	11/14/2002	248	255
03-0038-H	BC	East Branch Reservoir	4583881	618582	3C1292	11/14/2002	250	245
03-0039-H	YP	East Branch Reservoir	4583881	618582	3C1293	11/14/2002	263	155
03-0040-H	YP	East Branch Reservoir	4583881	618582	3C1294	11/14/2002	222	130
03-0041-H	YP	East Branch Reservoir	4583881	618582	3C1295	11/14/2002	210	115
03-0042-H	YP	East Branch Reservoir	4583881	618582	3C1296	11/14/2002	228	145
03-0043-H	YP	East Branch Reservoir	4583881	618582	3C1297	11/14/2002	206	85
03-0044-H	YP	East Branch Reservoir	4583881	618582	3C1298	11/14/2002	230	135
03-0045-H	YP	East Branch Reservoir	4583881	618582	3C1299	11/14/2002	223	120
03-0046-H	YP	East Branch Reservoir	4583881	618582	3C1598	11/14/2002	218	135
03-0047-H	YP	East Branch Reservoir	4583881	618582	3C1599	11/14/2002	207	115