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Open-File Report 2008–1028

U.S. Department of the Interior
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By Robert W. Gale[1], Thomas W. May[1], Carl E. Orazio[1], Michael J. McKee[2]

[1]U.S. Geological Survey
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Suggested citation:
Gale, R.W., May, T.W., Orazio, C.E., and McKee, M.J., 2008, Determination of polychlorinated biphenyls, selected persistent organochlorine pesticides, and polybrominated flame retardants in fillets of fishes from the 2006 Missouri Department of Conservation Monitoring Programs: U.S. Geological Survey Open-File Report 2008–1028, 36 p.

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Conversion Factors

Multiply	By	To obtain
	Volume	
milliliter (mL)	0.03382	ounce, fluid (fl. oz)
	Mass	
gram (g)	0.03527	ounce, avoirdupois (oz)
nanogram (ng)	1×10^{-9}	gram
nanogram (ng)	3.527×10^{-11}	ounce, avoirdupois (oz)
	Concentration	
nanogram per gram ($ng \cdot g^{-1}$)	=	part per billion (ppb; 10^9)
nanogram per milliliter ($ng \cdot mL^{-1}$)	=	part per billion (ppb; 10^9)

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as follows:

$$°F=(1.8\times°C)+32$$

Concentrations of chemical constituents in solid materials (fish fillets) are given in nanogram per gram (ng/g). Concentrations of chemical constituents in liquid solutions (calibration standards) are given in nanogram per milliliter (ng/mL).

Determination of Polychlorinated Biphenyls, Selected Persistent Organochlorine Pesticides, and Polybrominated Flame Retardants in Fillets of Fishes from the 2006 Missouri Department of Conservation Monitoring Programs

By Robert W. Gale[1], Thomas W. May[1], Carl E. Orazio[1], and Michael J. McKee[2]

Abstract

This report presents the results of a study to determine polychlorinated biphenyl, organochlorine pesticide, and polybrominated diphenyl ether flame retardant concentrations in selected fishes from lakes and streams across Missouri. Fillets were collected from each fish sample, and after homogenization, compositing, and preparation, analyte concentrations were determined with dual column capillary gas chromatography-electron-capture detection. Total concentrations of polychlorinated biphenyls in samples ranged from background levels of about 20 to 1,200 nanograms per gram. Chlordanes and DDT-related chemicals constituted the primary classes of pesticides present at elevated concentrations in most samples, and ranged from 5 to 340 nanograms per gram. Total concentrations of polybrominated diphenyl ethers in samples ranged from background levels of about 5 to about 410 nanograms per gram. Concentrations of total technical chlordane ranged from less than 5 to 260 nanograms per gram. Concentrations of polychlorinated biphenyls, chlordanes, DDT-related compounds, and polybrominated diphenyl ethers were all greatest in samples of blue catfish from Cape Girardeau and Weldon Spring.

Introduction

The Missouri Department of Conservation (MDC) began long-term state-wide fish monitoring programs in 1984 (Bataille, 2003, May and others 2007). The programs are designed to characterize contaminant concentrations at 20 to 30 lakes and streams throughout Missouri by annually collecting predator and bottom-feeding species samples. The sites that are monitored each year vary based on data needs, budgets, and personnel resources. Emphasis is on human health and, therefore, incorporates fish fillets, composite samples, and sample replication at each site to assess any potential fish consumption risks. In 2006, 41 samples from 8 sites were selected for sampling as part of the MDC General Contaminant Monitoring Program. The following predator and bottom-feeding species were selected based on the need for organic contaminant information and the potentially greater risk for human consumption: largemouth bass (*Micropterus salmoides*); flathead catfish (*Pylodictis Olivaris*); blue catfish (*Ictalurus Furcatus*); and channel catfish (*Ictalurus Punctatus*). MDC has requested the collaborative assistance of the U.S. Geological Survey (USGS) for this monitoring program because of USGS's past experience with aquatic biota monitoring projects and expertise in the preparation and analysis of fish for trace-level organic contaminants.

Sample History

A shipment of 41 fish fillet composites was received by USGS on November 17, 2006. Upon receipt, the shipment was assigned USGS batch number 1316 and sample identification numbers 38400–38440 and all samples were logged into the data base and assigned data-base numbers. The identification numbers, MDC field identification, location descriptions, and sample percent lipids for each sample are listed in table 1, at the back of this report.

Fish were collected from eight Missouri sites: Cape Girardeau, Pool 22, Weldon Spring, Forest Lake, Phillips Lake, Hazel Creek Lake, Sumner, and Elam Bend. All samples had been stored since collection at the MDC's Resource Science Center in Columbia, Missouri and were delivered to USGS by MDC personnel. Requested analyses included total polychlorinated biphenyls (PCBs) and PCBs expressed as commercial Aroclor® mixtures historically reported in MDC

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monitoring programs, selected persistent organochlorine pesticides (OCPs), total technical chlordanes, and selected polybrominated diphenyl ethers (PBDEs).

Methods

Compositing and Homogenization

Most fish were divided into three five-fish fillet composites per site. Fish fillets were prepared by MDC personnel, frozen, and transported to the USGS in individually labeled bags. In some cases where fish were large, individual fillets were analyzed. Samples were stored frozen at -16 degrees Celsius (ºC) before composite homogenization. Fillets were ground and homogenized to prepare samples. The samples were stored in their original sample collection bags at -16 ºC before analysis. Sample location information was obtained from the individually labeled bags.

Preparation

The procedure used to analyze the fish for PCBs, OCPs and PBDEs has been previously reported (Hinck and others, 2006). Briefly, 5-gram (g) portions of fish fillet composite samples were removed for analysis, dehydrated by addition of anhydrous Na_2SO_4, and spiked with procedural internal standards. Each sample was fortified with 40 nanograms (ng) of the following procedural internal standard constituents: 2,4,5-trichlorobiphenyl (PCB-029), 2,2',4,4',6,6'-hexachlorobiphenyl (PCB-155), 2,2',3,4,4',5,6,6'-octachlorobiphenyl (PCB-204), and deuterated *p,p'*-DDD (*p,p'*-DDD-d_8) to monitor method recoveries.

As a trichlorobiphenyl, PCB-029 is representative of the more volatile PCBs with one to three chlorine substitutions (Cl_1 - Cl_3); the PCB-155, a hexachlorobiphenyl, of mid-volatility-range PCB congeners with four to six chlorine substitutions (Cl_4 - Cl_6); and PCB-204, an octachlorobiphenyl, of PCBs with seven to ten chlorine substitutions (Cl_7 - Cl_{10}). The PCB procedural internal standards also were used to monitor recovery of the five less-polar pesticides collected in first silica gel fraction. The latter procedural internal standard, *p,p*'-DDD-d_8, was used to monitor the recovery of more polar pesticides and PBDEs collected in the second silica gel fraction. The procedural internal standard compounds provide recovery information for each fraction of each sample and were used to monitor analyte concentrations.

The Na_2SO_4-dried fish tissue samples were column extracted with dichloromethane, concentrated to 10 mL, and aliquants (2 percent of the extract) removed for lipid analysis determined as total non-volatile residues. Aliquants of the extracts (1.00-g equivalent) were removed for PCB analyses. These aliquants were treated by secondary reactive cleanup for removal of biogenic materials and analyzed by dual-column gas chromatography with electron-capture detection (GC-ECD).

Additional 1.00-g equivalent aliquants of the extracts were removed for OCP/PBDE analyses. Sequentially, low-performance size exclusion chromatography (LP-SEC) and high-performance size exclusion chromatography (HP-SEC) were used to separate the analytes from residual higher molecular weight compounds in the lipophilic extracts. Next, the extracts were fractionated using layered octadecyl silica/activated silica-gel open-column chromatography. The analytes were eluted with mobile phases containing increasing solvent polarities: fraction-one (F1), hexane eluent, collecting about 90 percent of the total PCBs (by mass) and six of the targeted OCPs; and fraction-two (F2), hexane/methyl t-butyl ether (55:45 volume/volume) eluent, collecting the residual 10 percent of the total PCBs (the less chlorinated congeners), the 23 remaining OCPs, and the PBDEs. The fractions were concentrated to 1.00 milliliter (mL) (1 g-equivalents per mL).

An operational quality control (QC) system of checks was used to control and assess the measurement quality. This system of checks was managed by a quality assurance system that ensures that defined standards of quality are being met at stated levels of confidence. The accuracy and precision of environmental methods were assessed by utilizing appropriate checks for sample preparation and instrumental analysis. The appropriate QC sample types were selected based on the applicability to the objectives of this study, and were incorporated into the analysis plans, including procedural blanks, replicated fish fillet samples, fish tissue matrix blanks, analyte-fortified fish tissue matrix blanks, and positive control reference material (Saginaw Bay carp).

Instrumental internal standards (IIS) were added to each reactively cleaned-up fraction and final silica gel fraction, with the final volume of each fraction adjusted to 1.0 mL. Individual congeners of PCBs, individual congeners of PBDEs, and organochlorine pesticides were measured in sample fractions by GC-ECD. Potential peaks for analytes were matched and identified on one or both gas chromatography (GC) capillary columns with individual standards. Up to nine levels of calibration for each analyte were used to quantify the targeted congeners. The calibration curves covered a concentration range of 0.01–0.03 to 100 nanograms per milliliter (ng/mL).

Method reporting limits (MRLs) for total PCBs were set at the average total amounts measured in the procedural blanks run with each set based on the lowest calibration standard run in the calibration curve (0.1 ng/mL per congener). The MRLs were set at 0.1 ng/mL for the OCPs and 0.2 ng/mL for PBDEs based on procedural background amounts and the analysis of low-level calibration standards.

Quality Control

Recoveries of the procedural internal standards indicative of silica-gel fraction 1 OCP and PCB analytes (PCB-029, -155 and -204) were within quality-control guidelines of 50 to 125 percent, with the exception of sample USGS 38424-3 (MDC 2006-703-406-3) which incurred preparative losses and recoveries of 51 to 55 percent (table 2, at the back of this report). Recoveries of total PCBs from the fortified negative control matrix (whole bluegill) were 90 percent. The recovery of total PCBs from the positive control Saginaw Bay carp matrix ranged from 77 to 99 percent of the historical average (table 3, at the back of this report). The precision of replicate analyses (n=3) of samples USGS 38405 (MDC 2006-297-232-6) and USGS 38424 (MDC 2006-703-406-3) for total PCBs is presented in the table 3. Average concentrations of total PCBs were 20 and 98 nanograms per gram (ng/g) with relative standard deviations (RSD) of 25 and 11 percent, respectively. The greater RSD is a consequence of the lower concentration of total PCBs in USGS 38424, which is approaching background levels determined in procedural blank samples. The procedural blank analyses indicated normal background levels of total PCBs, ranging from 14 to 34 total ng per sample. The long term MRL for total PCBs at CERC is about 21 ng/g. The correlation coefficients of the individual PCB congener calibration curves were greater than 0.95, with nearly all correlation coefficients greater than 0.98.

The recoveries of the procedural internal standard indicative of silica-gel fraction 2 OCP analytes (*p,p*'-DDD-d_8) were within quality-control guidelines (50 to 125 percent) with recoveries in most samples between 70 to 100 percent (table 2). Recoveries of OCPs from the fortified negative control matrix (whole bluegill) ranged from 49 to 145 percent, though for most analytes recoveries were more precise, averaging about 85 percent (table 4). The recovery of OCPs from the positive control Saginaw Bay carp matrix ranged from 76 to 129 percent of the historical average for those pesticides with concentrations significantly above the reporting limits (table 4, at the back of this report). The precision of replicate analyses (n=3) of samples USGS 38405 (MDC 2006-297-232-6) and USGS 38424 (MDC 2006-703-406-3) for OCPs are presented in the table 4. Only 12 OCPs were quantified at levels above the MRL (0.1 ng/g) in replicate USGS 38405, and 6 of these OCPs were less than 1 ng/g and had large RSDs (18 to 43 percent); the remaining OCPs concentrations ranged from 1 to 3 ng/g and had smaller RSDs (19 to 28 percent). The precision of methoxychlor (4.1 ng/g) was less than most other OCPs as a result of PBDE and PCB interferences. Only five OCPs were quantified at levels above the MRL in replicate USGS 38424, and none of these were greater than 1 ng/g in this composite fillet sample. The procedural blank analyses indicated negligible background levels of OCPs. The long term MRL for OCPs at CERC is less than 1 ng/g. The correlation coefficients of the individual OCP calibration curves were greater than 0.95, with nearly all correlation coefficients greater than 0.98.

The procedural blank analyses indicated background levels of individual PBDEs ranging from less than 0.2 to 3 ng/g, which should be considered when evaluating the lower PBDE concentration samples (table 5, at the back of this report). No additional quality-control measures specifically addressing PBDE recoveries were provided. The recovery of total PBDEs from the positive control Saginaw Bay carp matrix is undetermined because of the lack of historical PBDE information in this reference material. The precision of replicate analyses (n=3) of samples USGS 38405 (MDC 2006-297-232-6) and USGS 38424 (MDC 2006-703-406-3) for total PBDEs and selected congeners is presented in table 5. Average concentrations of total PBDEs were 15 and 4.9 ng/g, with relative standard deviations of 14 and 20 percent, respectively. Again, the greater RSD is a consequence of the lower concentration of total PBDEs in USGS sample 38424, which is approaching background levels determined in procedural blank samples. The procedural blank analyses indicated normal background levels of total PBDEs, ranging from 4 to 8 total nanograms per sample. The correlation coefficients of the individual PBDE congener calibration curves were greater than 0.95.

Recovery of technical chlordane from a fortified negative control matrix (whole bluegill) was 76 percent (table 6, at the back of this report). The procedural blank analyses indicated background levels of individual chlordane components ranging from less than 0.1 to 1 ng/g, total target chlordane ranging from 0.8 to 1.2 ng/g, and total technical chlordane ranging from less than 5 to 24 ng/g, the latter procedural blank values need to be considered when evaluating the lower technical chlordane concentration samples (table 6). The recovery of total technical chlordane from the positive control Saginaw Bay carp matrix is undetermined because of the lack of historical technical chlordane information in this reference material. However, it was determined that total targeted chlordane concentrations in the positive control samples were within 3 percent (average 74 ng/g), and total technical chlordane concentrations were much more variable, ranging from 100 to 210 ng/g. The large variation in total technical chlordane concentrations in the positive control material resulted from the complex nature of contaminants in the Saginaw Bay carp reference material and additional interferences from non-chlordane related components. The precision of replicate analyses (n=3) of samples USGS 38405 (MDC 2006-297-232-6) and USGS 38424 (MDC 2006-703-406-3) for total technical chlordane is presented in the table 6. Concentrations of total target chlordanes were, of course, greater than those of total technical chlordanes in the OCP fortified negative control matrix (bluegill) samples. This is a direct result of significant concentrations of chlordane metabolites in the OCP fortification solution used. Average concentrations of total technical chlordane were less than 5 and 26 ng/g, respectively. The correlation coefficients of the individual technical chlordane component calibration curves were greater than 0.95.

Results and Discussion

Forty-one fish fillet composite samples of predator and bottom-feeding fish were selected based on the need for organic contaminant information and the potentially greater risk for human consumption. Samples were collected from eight Missouri sites: Cape Girardeau, Pool 22, Weldon Spring, Forest Lake, Phillips Lake, Hazel Creek Lake, Sumner, and Elam Bend. Samples of individual or composited fish fillets are designated by USGS ID and by MDC field ID and are presented in table 1. The composite samples were prepared and analyzed for PCBs, OCPs, and PBDEs by USGS, and the results are presented below.

Lipids

Lipids in the samples ranged from 0.30 to 18 percent and are reported in table 1. Though largemouth bass and flathead catfish were lower in percent lipids than blue catfish or channel catfish, no trend in percent lipids in composited fillets was apparent between sites. Recoveries of procedural internal standards were within quality-control specifications, and generally ranged from 80 to 100 percent, which indicated complete extraction and recovery of the analytes (table 2). This indicated that extraction efficiencies for lipids (as total dichloromethane-extractable organophilic residues) were excellent.

Total PCBs

Polychlorinated biphenyl results for previous MDC monitoring programs were expressed as concentrations of Aroclors® 1242, 1248, 1254, and 1260; therefore, the PCB congener results from this study were expressed as estimates of Aroclors® for compatibility (table 3). Response factors for three to four selected PCB congeners per Aroclor® were used to determine the fractional contribution of each congener to each Aroclor®: Aroclor® 1242—PCB-018, -019, -028, and -031; Aroclor® 1248—PCB-066, -070, and -074; Aroclor® 1254—PCB-101, -110, and -118; and Aroclor® 1260—PCB-153, -170, and -180.

Total concentrations of PCBs in samples ranged from background levels of about 20 ng/g to 1,200 ng/g, the greatest value was present in a blue catfish composite from Weldon Spring, Missouri (table 3). Concentrations of PCBs were greatest in samples from blue catfish from Cape Girardeau and Weldon Spring. Expressed as Aroclors®, PCBs primarily consisted of Aroclors® 1254 and 1260, generally ranging from 20 to 80 percent of either Aroclor®, though contributions of each varied among samples and areas. Smaller contributions to overall PCBs were estimated from Aroclor® 1248, ranging from 5 to 20 percent; negligible contributions, less than 10 percent, were estimated from Aroclor® 1242.

Organochlorine Pesticides

Several OCPs were detected in most samples and were present at 10- to 20-fold greater levels in about one-half of the samples and are reported in table 4. Chlordanes (*cis/trans*-nonachlor, *cis/trans*-chlordane, oxychlordane, heptachlor epoxide, and methoxychlor) and DDT-related chemicals (*p,p'*-DDE, *p,p'*-DDD, *p,p'*-DDT, and *o,p'*-DDT) constituted the primary classes of pesticides detected at elevated concentrations in most samples, and ranged from 5 to 340 ng/g, the greatest *p,p*'-DDE value was detected for a blue catfish composite from Weldon Spring. Other OCP concentrations in samples generally were low. Hexachlorocyclohexanes (α-BHC, β-BHC, γ-BHC 'Lindane', δ-BHC), heptachlor, endosulfans (I, II, sulfate), endrin, aldrin, pentachlorobenzene, hexachlorobenzene, dacthal, heptachlor, and *o,p*'-DDD and *o,p*'-DDE were not present in any sample at concentrations greater than 5 ng/g.

Selected PBDEs

Total concentrations of PBDEs in samples ranged from background levels of about 5 to about 410 ng/g, the greatest value present in a blue catfish composite sample from Weldon Spring, and are reported in table 5. Concentrations of total PBDEs correlated well with concentrations of total PCBs in the fish fillet composites (r^2 0.93). Concentrations of PBDEs, like those of total PCBs, were greatest in samples from blue catfish from Cape Girardeau and Weldon Spring. Of the target PBDE congeners, PBDE-047 contributed from 30 to 70 percent and PBDE-099 contributed from 10 to 50 percent of the total PBDE, respectively; together, these two congeners accounted for 48 to 88 percent of the total PBDEs in all samples. The next most significant contribution was from PBDE-085 (less than 1 to about 33 percent). Smaller contributions to overall PBDEs were made by the remaining targeted congeners, with no congener contributing greater than about 15 percent to any sample.

Total Technical Chlordanes

The eight targeted components of chlordane or its metabolites (heptachlor, heptachlor epoxide, oxychlordane, *cis/trans*-chlordane, *cis/trans*-nonachlor, and methoxychlor) historically have been selected for monitoring based on their persistence in fish (Hinck and others, 2006). In addition to these 8 targeted chlordane components, the fish fillet composite samples were analyzed for the 31 primary components of technical chlordane to determine the extent of any additional persistent, bioaccumulative technical chlordane components versus metabolites. Total technical chlordane analysis included heptachlor, *cis/trans*-chlordane, and *cis/trans*-nonachlor, but excluded the metabolites heptachlor epoxide, oxychlordane, and methoxychlor. These technical chlordane components were selected based on their mass contribution to technical chlordane, their fractionation throughout the preparation

procedure, and their resolution from chromatographically interfering co-contaminants. Concentrations of total targeted chlordane and total technical chlordane ranged from 1 to 190 ng/g and from less than 5 to 260 ng/g, respectively; the greatest values for each were detected in a blue catfish composite sample from Weldon Spring. Concentrations of total technical chlordane correlated well with concentrations of total targeted chlordanes (r^2 0.99) and generally were about 38 percent greater from contributions of the 25 additional chlordane components, less the chlordane metabolites. Differences between technical chlordane and targeted chlordane concentrations were most apparent at low concentrations, where chlordane metabolites could increase the concentrations of target chlordanes relative to total technical chlordanes. Again, concentrations of total targeted chlordane and technical chlordane correlated well with concentrations of total PCBs in the fish fillet composites (r^2 0.92-0.93). Concentrations of chlordanes, like those of total PBDEs and total PCBs, were greatest in samples from blue catfish from Cape Girardeau and Weldon Spring.

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Tables

Table 1. Sample description and percent lipid values in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; <, less than; --, no data]

USGS ID number	MDC field ID	Fish common name	Number of fish	Sample type	Location	Lipid (percent)
38400	2006-297-232-1	Blue catfish	1	Fillet	Cape Girardeau	5.1
38401	2006-297-232-2	Blue catfish	1	Fillet	Cape Girardeau	18
38402	2006-297-232-3	Blue catfish	1	Fillet	Cape Girardeau	14
38403	2006-297-232-4	Blue catfish	1	Fillet	Cape Girardeau	1.9
38404	2006-297-232-5	Blue catfish	1	Fillet	Cape Girardeau	4.3
38405-1	2006-297-232-6	Blue catfish	1	Fillet	Cape Girardeau	.9
38405-2	2006-297-232-6	Blue catfish		Fillet	Cape Girardeau	.9
38405-3	2006-297-232-6	Blue catfish		Fillet	Cape Girardeau	.6
	Average:					**.8**
	SD:					.2
	RSD:					21
38406	2006-297-232-7	Blue catfish	1	Fillet	Cape Girardeau	5.9
38407	2006-297-232-8	Blue catfish	1	Fillet	Cape Girardeau	13
38408	2006-312-230-1	Channel Catfish	5	Fillet	Pool 22	2.3
38409	2006-312-230-2	Channel Catfish	5	Fillet	Pool 22	2.9
38410	2006-312-230-3	Channel Catfish	5	Fillet	Pool 22	3.4
38411	2006-331-232-1	Blue catfish	1	Fillet	Weldon Springs	.4
38412	2006-331-232-2	Blue catfish	1	Fillet	Weldon Springs	8.3
38413	2006-331-232-3	Blue catfish	1	Fillet	Weldon Springs	2.2
38414	2006-331-232-4	Blue catfish	1	Fillet	Weldon Springs	5.7
38415	2006-331-232-5	Blue catfish	1	Fillet	Weldon Springs	10
38416	2006-331-232-6	Blue catfish	1	Fillet	Weldon Springs	2.1
38417	2006-331-232-7	Blue catfish	1	Fillet	Weldon Springs	14
38418	2006-331-232-8	Blue catfish	1	Fillet	Weldon Springs	13
38419	2006-618-230-1	Channel Catfish	5	Fillet	Forest Lake	.4
38420	2006-618-230-2	Channel Catfish	5	Fillet	Forest Lake	.6
38421	2006-618-230-3	Channel Catfish	5	Fillet	Forest Lake	1
38422	2006-703-406-1	Largemouth bass	5	Fillet	Phillips Lake	.5
38423	2006-703-406-2	Largemouth bass	5	Fillet	Phillips Lake	.7
38424-1	2006-703-406-3	Largemouth bass	5	Fillet	Phillips Lake	.5
38424-2	2006-703-406-3	Largemouth bass		Fillet	Phillips Lake	.4
38424-3	2006-703-406-3	Largemouth bass		Fillet	Phillips Lake	.5
	Average:					**.4**
	SD:					.04
	RSD:					10

Table 1. Sample description and percent lipid values in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.—Continued

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; <, less than; --, no data]

USGS ID number	MDC field ID	Fish common name	Number of fish	Sample type	Location	Lipid (percent)
38425	2006-704-406-1	Largemouth bass	5	Fillet	Hazel Creek Lake	.8
38426	2006-704-406-2	Largemouth bass	5	Fillet	Hazel Creek Lake	1.1
38427	2006-704-406-3	Largemouth bass	5	Fillet	Hazel Creek Lake	.6
38428	2006-705-245-1	Flathead catfish	1	Fillet	Sumner	1.4
38429	2006-705-245-2	Flathead catfish	1	Fillet	Sumner	.6
38430	2006-705-245-3	Flathead catfish	1	Fillet	Sumner	1.6
38431	2006-705-245-4	Flathead catfish	1	Fillet	Sumner	.5
38432	2006-705-245-5	Flathead catfish	1	Fillet	Sumner	.3
38433	2006-705-245-6	Flathead catfish	1	Fillet	Sumner	.8
38434	2006-705-245-7	Flathead catfish	1	Fillet	Sumner	1.2
38435	2006-705-245-8	Flathead catfish	1	Fillet	Sumner	1.7
38436	2006-705-245-9	Flathead catfish	1	Fillet	Sumner	1
38437	2006-705-245-10	Flathead catfish	1	Fillet	Sumner	.7
38438	2006-705-245-11	Flathead catfish	1	Fillet	Sumner	.8
38439	2006-705-245-12	Flathead catfish	1	Fillet	Sumner	1.7
38440	2006-706-245-1	Flathead catfish	1	Fillet	Elam bend	.5
PB-122106	Procedural Blank	--	--	--		< 0.1
PB-010207	Procedural Blank	--	--	--		< 0.1
	Average:					**< 0.1**
MB-010107	Matrix Blank	Control Bluegill 654C		Whole		3.7
MB-010307	Matrix Blank	Control Bluegill 654C		Whole		3.7
	Average:					**3.7**
MS-OC-010107	Matrix Spike - OCs	Control Bluegill 654C		Whole		3.6
MS-OC-010307	Matrix Spike - OCs	Control Bluegill 654C		Whole		4.1
	Average:					**3.9**
MS-PCB-010107	Matrix Spike - PCBs	Control Bluegill 654C		Whole		3.7
MS-PCB-010307	Matrix Spike - PCBs	Control Bluegill 654C		Whole		3.4
	Average:					**3.6**
PC-122106	Positive Control	Saginaw Carp 6806-148		Whole		16
PC-010207	Positive Control	Saginaw Carp 6806-148		Whole		13
	Average:					**14**

Table 2. Recoveries of Polychlorinated Biphenyl and Organochlorine Pesticide Procedural Internal Standards in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; PCB, Polychlorinated Biphenyl; *p,p'*-DDD-d_8, Octadeuterated *p,p'*-DDD]

USGS ID number	MDC field ID	PCB-029 (percent)	PCB-155 (percent)	PCB-204 (percent)	*p,p'*-DDD-d_8 (percent)
38400	2006-297-232-1	86	92	93	102
38401	2006-297-232-2	86	99	97	108
38402	2006-297-232-3	89	93	93	106
38403	2006-297-232-4	87	88	91	94
38404	2006-297-232-5	87	92	93	101
38405-1	2006-297-232-6	83	90	94	101
38405-2	2006-297-232-6	87	91	95	98
38405-3	2006-297-232-6	80	89	95	95
38406	2006-297-232-7	83	90	95	105
38407	2006-297-232-8	76	92	90	103
38408	2006-312-230-1	76	86	92	87
38409	2006-312-230-2	83	87	92	95
38410	2006-312-230-3	89	86	94	88
38411	2006-331-232-1	89	88	95	100
38412	2006-331-232-2	89	90	92	88
38413	2006-331-232-3	87	86	89	101
38414	2006-331-232-4	91	87	93	98
38415	2006-331-232-5	93	93	92	105
38416	2006-331-232-6	91	88	95	105
38417	2006-331-232-7	87	86	91	102
38418	2006-331-232-8	83	82	87	115
38419	2006-618-230-1	83	81	89	93
38420	2006-618-230-2	85	89	90	76
38421	2006-618-230-3	84	87	90	78
38422	2006-703-406-1	89	85	89	75
38423	2006-703-406-2	84	86	88	72
38424-1	2006-703-406-3	84	89	91	79
38424-2	2006-703-406-3	90	90	93	78
38424-3	2006-703-406-3	55	49	51	76
38425	2006-704-406-1	90	85	86	74
38426	2006-704-406-2	91	87	90	76
38427	2006-704-406-3	84	86	87	70
38428	2006-705-245-1	93	90	92	87
38429	2006-705-245-2	85	89	91	77

Table 2. Recoveries of Polychlorinated Biphenyl and Organochlorine Pesticide Procedural Internal Standards in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.—Continued

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; PCB, Polychlorinated Biphenyl; *p,p'*-DDD-d_8, Octadeuterated *p,p'*-DDD]

USGS ID number	MDC field ID	PCB-029 (percent)	PCB-155 (percent)	PCB-204 (percent)	*p,p'*-DDD-d_8 (percent)
38430	2006-705-245-3	86	89	88	74
38431	2006-705-245-4	88	91	90	85
38432	2006-705-245-5	91	89	90	73
38433	2006-705-245-6	83	85	85	69
38434	2006-705-245-7	85	88	89	72
38435	2006-705-245-8	81	87	88	72
38436	2006-705-245-9	88	88	87	74
38437	2006-705-245-10	94	91	89	73
38438	2006-705-245-11	94	90	89	74
38439	2006-705-245-12	96	95	95	78
38440	2006-706-245-1	93	92	92	70
PB-122106	Procedural Blank	84	85	89	93
PB-010207	Procedural Blank	59	85	90	73
MB-010107	Matrix Blank	74	84	92	85
MB-010307	Matrix Blank	83	90	90	71
MS-OC-010107	Matrix Spike - OCs	85	84	88	92
MS-OC-010307	Matrix Spike - OCs	86	92	92	85
MS-PCB-010107	Matrix Spike - PCBs	96	87	97	101
MS-PCB-010307	Matrix Spike - PCBs	83	126	84	68
PC-122106	Positive Control	91	76	103	102
PC-010207	Positive Control	88	79	98	100

Table 3. Total polychlorinated biphenyl and estimated Aroclor® concentrations and Aroclor® percentages in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; PCB, Polychlorinated Biphenyl; ng/g, nanogram per gram; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; <, less than; --, no data]

USGS ID number	MDC MDC field ID	Measured total PCBs [1] (ng/g)	Aroclor® 1242[2]		Aroclor® 1248[3]		Aroclor® 1254[4]		Aroclor® 1260[5]		Estimated total Aroclor®	
			(ng/g)	(percent)	(ng/g)	(percent)	(ng/g)	(percent)	(ng/g)	(percent)	(ng/g)	(percent)
38400	2006-297-232-1	180	10	4	38	15	72	29	130	52	250	138
38401	2006-297-232-2	316	31	9	61	18	120	34	130	39	340	108
38402	2006-297-232-3	141	12	7	30	16	60	32	87	46	190	134
38403	2006-297-232-4	226	5.5	2	34	10	68	21	220	67	320	143
38404	2006-297-232-5	418	14	3	63	11	140	25	340	61	560	133
38405-1	2006-297-232-6	94	3	3	13	12	42	38	52	47	110	117
38405-2	2006-297-232-6	110	3	3	15	12	43	33	69	53	130	119
38405-3	2006-297-232-6	90	2	2	10	10	38	36	55	52	110	118
	Average:	**98**	**3**	**3**	**13**	**11**	**41**	**36**	**59**	**51**	**117**	**118**
	SD:	10	1	1	3	1	3	3	9	3	12	1
	RSD:	11	22	15	20	9	6	8	15	6	10	1
38406	2006-297-232-7	578	18	2	92	12	230	29	450	57	790	136
38407	2006-297-232-8	504	17	3	80	13	190	31	320	53	610	121
38408	2006-312-230-1	74	2	3	8.2	10	31	36	43	51	85	114
38409	2006-312-230-2	132	6	4	17	11	54	35	77	50	150	117
38410	2006-312-230-3	166	18	9	27	14	68	35	80	42	190	117
38411	2006-331-232-1	156	2	1	18	9	49	24	130	66	200	129
38412	2006-331-232-2	250	10	3	42	15	87	31	150	51	290	115
38413	2006-331-232-3	351	8	2	57	14	120	30	210	54	400	114
38414	2006-331-232-4	219	9	3	44	17	59	23	150	57	260	118
38415	2006-331-232-5	469	19	3	90	16	190	33	270	48	560	120

Table 3. Total polychlorinated biphenyl and estimated Aroclor® concentrations and Aroclor® percentages in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.—Continued

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; PCB, Polychlorinated Biphenyl; ng/g, nanogram per gram; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; <, less than; --, no data]

USGS ID number	MDC MDC field ID	Measured total PCBs [1] (ng/g)	Aroclor® 1242[2]		Aroclor® 1248[3]		Aroclor® 1254[4]		Aroclor® 1260[5]		Estimated total Aroclor®	
			(ng/g)	(percent)	(ng/g)	(percent)	(ng/g)	(percent)	(ng/g)	(percent)	(ng/g)	(percent)
38416	2006-331-232-6	1,191	11	1	150	8	260	15	1,400	76	1,800	149
38417	2006-331-232-7	725	26	3	160	16	270	27	550	55	1,000	140
38418	2006-331-232-8	723	26	3	140	15	270	28	540	55	970	135
38419	2006-618-230-1	24	< 1	1	1	6	14	63	7	30	22	91
38420	2006-618-230-2	30	< 1	1	1	4	26	80	5	14	33	108
38421	2006-618-230-3	24	< 1	1	2	6	16	62	8	32	27	108
38422	2006-703-406-1	49	2	4	9	23	22	53	8	20	41	83
38423	2006-703-406-2	28	< 1	3	< 1	4	22	83	3	11	26	93
38424-1	2006-703-406-3	28	< 1	1	< 1	3	24	80	5	16	29	105
38424-2	2006-703-406-3	18	< 1	1	< 1	5	15	76	4	18	20	107
38424-3	2006-703-406-3	19	< 1	1	< 1	5	15	75	4	19	20	104
	Average:	**22**	**< 1**	**1**	**< 1**	**4**	**18**	**77**	**4**	**18**	**23**	**105**
	SD:	5	--	1	--	1	5	3	1	2	5	2
	RSD:	25	--	19	--	24	29	4	15	10	23	1
38425	2006-704-406-1	29	< 1	1	1	4	21	72	7	23	29	101
38426	2006-704-406-2	31	< 1	1	1	3	28	83	4	12	33	106
38427	2006-704-406-3	27	< 1	1	1	4	21	80	4	15	26	97
38428	2006-705-245-1	35	< 1	2	4	10	22	59	11	30	37	106
38429	2006-705-245-2	32	< 1	3	2	5	27	79	5	14	34	107
38430	2006-705-245-3	41	< 1	2	4	8	31	60	16	31	52	128
38431	2006-705-245-4	29	< 1	1	3	8	19	61	9	30	31	104

Table 3. Total polychlorinated biphenyl and estimated Aroclor® concentrations and Aroclor® percentages in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.—Continued

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; PCB, Polychlorinated Biphenyl; ng/g, nanogram per gram; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; <, less than; --, no data]

USGS ID number	MDC MDC field ID	Measured total PCBs [1] (ng/g)	Aroclor® 1242[2]		Aroclor® 1248[3]		Aroclor® 1254[4]		Aroclor® 1260[5]		Estimated total Aroclor®	
			(ng/g)	(percent)	(ng/g)	(percent)	(ng/g)	(percent)	(ng/g)	(percent)	(ng/g)	(percent)
38432	2006-705-245-5	25	< 1	1	2	6	18	73	5	20	25	98
38433	2006-705-245-6	35	< 1	2	3	6	25	63	12	29	41	117
38434	2006-705-245-7	46	< 1	2	6	14	21	50	14	34	42	91
38435	2006-705-245-8	44	< 1	2	4	8	29	58	16	32	51	114
38436	2006-705-245-9	24	< 1	2	2	7	18	73	5	18	25	103
38437	2006-705-245-10	23	< 1	3	2	7	16	69	5	21	23	101
38438	2006-705-245-11	31	< 1	1	3	8	20	61	10	29	33	104
38439	2006-705-245-12	32	1	4	3	10	16	57	9	30	29	89
38440	2006-706-245-1	26	< 1	1	1	5	20	75	5	19	27	105
PB-122106		34	< 1	2	1	3	24	74	7	20	32	94
PB-010207		14	< 1	1	< 1	4	11	76	3	19	14	99
	Average:	**24**	**< 1**	**2**	**< 1**	**4**	**18**	**75**	**5**	**19**	**23**	**97**
MB-010107	Control Bluegill 654C	49	< 1	2	6	11	29	55	17	33	53	110
MB-010307	Control Bluegill 654C	61	2	3	6	11	34	58	17	28	59	97
	Average:	**55**	**--**	**2**	**6**	**11**	**32**	**56**	**17**	**31**	**56**	**103**
MS-PCB-010107	Control Bluegill 654C	675	180	25	190	25	180	24	190	25	740	109
MS-PCB-010307	Control Bluegill 654C	688	170	23	190	26	220	30	160	22	750	109
	Average:	**681**	**175**	**24**	**190**	**26**	**200**	**27**	**175**	**24**	**745**	**109**

Table 3. Total polychlorinated biphenyl and estimated Aroclor® concentrations and Aroclor® percentages in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.—Continued

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; PCB, Polychlorinated Biphenyl; ng/g, nanogram per gram; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; <, less than; --, no data]

USGS ID number	MDC MDC field ID	Measured total PCBs [1] (ng/g)	Aroclor® 1242[2]		Aroclor® 1248[3]		Aroclor® 1254[4]		Aroclor® 1260[5]		Estimated total Aroclor®	
			(ng/g)	(percent)	(ng/g)	(percent)	(ng/g)	(percent)	(ng/g)	(percent)	(ng/g)	(percent)
PC-122106	Saginaw Carp 6806-148	6,439	540	7	3,000	37	3,300	41	1,200	15	8,000	124
PC-010207	Saginaw Carp 6806-148	5,021	450	8	2,300	40	2,100	36	990	17	5,900	117
	Average:	**5,730**	**495**	**7**	**2,650**	**39**	**2,700**	**38**	**1,095**	**16**	**6,950**	**120**
Baseline PC Data:	**Saginaw Carp 6806**	**6,500**	**530**	**8**	**2,400**	**38**	**2,400**	**38**	**1,100**	**17**	**6,400**	**98**
Aroclor® 1242	(n=4)	838	600	62	300	31	62	6	3	1	960	114
Aroclor® 1248	(n=4)	890	330	31	540	50	190	18	22	2	1,100	121
Aroclor® 1254	(n=4)	864	12	1	140	15	600	64	180	19	930	107
Aroclor® 1260	(n=4)	808	4	1	3	1	140	16	750	83	900	111

[1]Summation of Individual Congeners.

[2]Congeners summed for Aroclor ® 1242 Estimation (PCB-018, -019, -028, -031).

[3]Congeners summed for Aroclor® 1248 Estimation (PCB-066, -070, -074).

[4]Congeners summed for Aroclor® 1254 Estimation (PCB-101, -110, -118).

[5]Congeners summed for Aroclor® 1260 Estimation (PCB-153, -170, -180).

Table 4. Organochlorine pesticide concentrations in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; ng/g, nanogram per gram; BHC, Benzene hexachloride; HCH, Hexachlorocyclohexane; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; <, less than; --, no data]

USGS ID number	MDC field ID	Pentachloro-benzene (ng/g)	Hexachloro-benzene (ng/g)	Pentachloro-Anisole (ng/g)	alpha-BHC (α-HCH) (ng/g)	beta-BHC (β-HCH) (ng/g)	Lindane (γ-HCH) (ng/g)	delta-BHC (δ-HCH) (ng/g)	Heptachlor (ng/g)
38400	2006-297-232-1	0.2	0.9	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
38401	2006-297-232-2	0.6	1.7	4.4	< 0.1	< 0.1	< 0.1	< 0.1	0.2
38402	2006-297-232-3	0.4	1.2	3.2	< 0.1	< 0.1	< 0.1	< 0.1	0.2
38403	2006-297-232-4	< 0.1	0.7	0.7	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
38404	2006-297-232-5	0.2	1.6	1.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
38405-1	2006-297-232-6	< 0.1	0.2	0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
38405-2	2006-297-232-6	< 0.1	0.4	0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
38405-3	2006-297-232-6	< 0.1	0.2	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Average:	**< 0.1**	**.3**	**.4**	**< 0.1**	**< 0.1**	**< 0.1**	**< 0.1**	**< 0.1**
	SD:	--	.1	.2	--	--	--	--	--
	RSD:	--	43	43	--	--	--	--	--
38406	2006-297-232-7	0.3	2.7	3.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
38407	2006-297-232-8	0.6	5.0	4.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
38408	2006-312-230-1	< 0.1	0.1	0.6	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
38409	2006-312-230-2	< 0.1	0.3	0.6	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
38410	2006-312-230-3	< 0.1	0.4	0.7	< 0.1	< 0.1	0.2	< 0.1	< 0.1
38411	2006-331-232-1	< 0.1	0.2	0.3	< 0.1	< 0.1	0.2	< 0.1	< 0.1
38412	2006-331-232-2	0.2	1.1	2.5	< 0.1	< 0.1	0.2	< 0.1	< 0.1
38413	2006-331-232-3	0.1	1.3	0.7	< 0.1	< 0.1	0.3	< 0.1	< 0.1
38414	2006-331-232-4	0.2	0.9	2.0	< 0.1	< 0.1	0.1	< 0.1	< 0.1
38415	2006-331-232-5	0.2	1.8	3.9	0.2	< 0.1	< 0.1	< 0.1	< 0.1
38416	2006-331-232-6	< 0.1	0.7	0.8	< 0.1	< 0.1	0.6	< 0.1	< 0.1
38417	2006-331-232-7	0.4	3.8	5.7	0.2	< 0.1	< 0.1	< 0.1	0.2
38418	2006-331-232-8	0.3	3.4	4.7	0.2	< 0.1	< 0.1	< 0.1	0.1
38419	2006-618-230-1	< 0.1	< 0.1	0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1
38420	2006-618-230-2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.4	< 0.1	< 0.1

Table 4. Organochlorine pesticide concentrations in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.—Continued

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; ng/g, nanogram per gram; BHC, Benzene hexachloride; HCH, Hexachlorocyclohexane; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; <, less than; --, no data]

USGS ID number	MDC field ID	Pentachloro-benzene (ng/g)	Hexachloro-benzene (ng/g)	Pentachloro-Anisole (ng/g)	alpha-BHC (α-HCH) (ng/g)	beta-BHC (β-HCH) (ng/g)	Lindane (γ-HCH) (ng/g)	delta-BHC (δ-HCH) (ng/g)	Heptachlor (ng/g)
38421	2006-618-230-3	< 0.1	< 0.1	0.1	< 0.1	< 0.1	0.2	< 0.1	< 0.1
38422	2006-703-406-1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
38423	2006-703-406-2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
38424-1	2006-703-406-3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
38424-2	2006-703-406-3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
38424-3	2006-703-406-3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Average:	**< 0.1**	**< 0.1**	**< 0.1**	**< 0.1**	**< 0.1**	**< 0.1**	**< 0.1**	**< 0.1**
	SD:	--	--	--	--	--	--	--	--
	RSD:	--	--	--	--	--	--	--	--
38425	2006-704-406-1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
38426	2006-704-406-2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
38427	2006-704-406-3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1
38428	2006-705-245-1	< 0.1	0.2	0.4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
38429	2006-705-245-2	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.2	< 0.1	< 0.1
38430	2006-705-245-3	< 0.1	0.2	0.6	< 0.1	< 0.1	0.3	< 0.1	< 0.1
38431	2006-705-245-4	< 0.1	< 0.1	0.1	< 0.1	< 0.1	0.2	< 0.1	< 0.1
38432	2006-705-245-5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1
38433	2006-705-245-6	< 0.1	0.1	0.4	< 0.1	< 0.1	0.1	< 0.1	< 0.1
38434	2006-705-245-7	< 0.1	0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
38435	2006-705-245-8	< 0.1	0.2	0.5	< 0.1	< 0.1	0.2	< 0.1	< 0.1
38436	2006-705-245-9	< 0.1	< 0.1	0.2	< 0.1	< 0.1	0.1	< 0.1	< 0.1
38437	2006-705-245-10	< 0.1	0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
38438	2006-705-245-11	< 0.1	0.1	0.4	< 0.1	< 0.1	0.2	< 0.1	< 0.1
38439	2006-705-245-12	< 0.1	0.2	0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
38440	2006-706-245-1	< 0.1	0.2	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Table 4. Organochlorine pesticide concentrations in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.—Continued

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; ng/g, nanogram per gram; BHC, Benzene hexachloride; HCH, Hexachlorocyclohexane; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; <, less than; --, no data]

USGS ID number	MDC field ID	Pentachloro-benzene (ng/g)	Hexachloro-benzene (ng/g)	Pentachloro-Anisole (ng/g)	alpha-BHC (α-HCH) (ng/g)	beta-BHC (β-HCH) (ng/g)	Lindane (γ-HCH) (ng/g)	delta-BHC (δ-HCH) (ng/g)	Heptachlor (ng/g)
PB-122106		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PB-010207		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Average:	**< 0.1**	**< 0.1**	**< 0.1**	**< 0.1**	**< 0.1**	**< 0.1**	**< 0.1**	**< 0.1**
MB-010107	Control Bluegill 654C	< 0.1	< 0.1	0.1	0.2	< 0.1	0.1	< 0.1	< 0.1
MB-010307	Control Bluegill 654C	< 0.1	0.2	0.2	0.2	< 0.1	< 0.1	< 0.1	< 0.1
	Average:	**< 0.1**	**--**	**.2**	**.2**	**< 0.1**	**--**	**< 0.1**	**< 0.1**
MS-OC-010107	Matrix Spike - OCs	22	27	33	32	34	32	34	23
MS-OC-010307	Matrix Spike - OCs	19	27	28	21	30	23	26	30
	Average:	**20**	**28**	**30**	**26**	**32**	**28**	**30**	**26**
MS-PCB-010107	Control Bluegill 654C	0.1	0.3	0.2	1.3	0.2	< 0.1	< 0.1	< 0.1
MS-PCB-010307	Control Bluegill 654C	< 0.1	0.3	0.3	0.2	< 0.1	0.1	< 0.1	< 0.1
	Average:	**--**	**.3**	**.3**	**.8**	**--**	**--**	**< 0.1**	**< 0.1**
MS-CHLOR-010307	Matrix Spike - Tech. Chlor-dane	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	53
PC-122106	Saginaw Carp 6806-148	4.8	12	2.7	4.2	4.2	2.1	< 0.1	.2
PC-010207	Saginaw Carp 6806-148	4.6	11	1.8	2	.3	2	.2	< 0.1
	Average:	**4.7**	**12**	**2.3**	**3.1**	**2.3**	**2.1**	**--**	**--**
Baseline PC Data:	**Saginaw Carp 6806**	**--**	**10**	**3.3**	**5.1**	**2.9**	**2.6**	**1.4**	**< 0.1**

Table 4. Organochlorine pesticide concentrations in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.—Continued

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; ng/g, nanogram per gram; BHC, Benzene hexachloride; HCH, Hexachlorocyclohexane; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; <, less than; --, no data]

USGS ID number	MDC field ID	Heptachlor epoxide (ng/g)	Aldrin (ng/g)	Dacthal (ng/g)	Oxychlordane (ng/g)	*cis*-Chlordane (ng/g)	*trans*-Chlordane (ng/g)	*cis*-Nonachlor (ng/g)	*trans*-Nonachlor (ng/g)
38400	2006-297-232-1	1.2	< 0.1	.3	1.3	7.5	3.6	4.7	8.6
38401	2006-297-232-2	4.6	.6	.4	3.1	15	8.8	9.5	18
38402	2006-297-232-3	3.6	.7	.4	1.7	8.1	6.6	4.5	8.3
38403	2006-297-232-4	.6	< 0.1	.1	1.3	6.4	3.8	5.9	13
38404	2006-297-232-5	1.6	< 0.1	.2	2.7	14	7.5	9.4	24
38405-1	2006-297-232-6	.2	< 0.1	< 0.1	.5	2.5	1.8	1.7	3.6
38405-2	2006-297-232-6	.2	< 0.1	< 0.1	.7	2.6	1.6	1.9	4.4
38405-3	2006-297-232-6	.2	< 0.1	< 0.1	.4	1.8	1	1.3	2.7
	Average:	**.2**	**< 0.1**	**< 0.1**	**.5**	**2.3**	**1.5**	**1.6**	**3.6**
	SD:	--	--	--	.2	.4	.4	.3	.9
	RSD:	--	--	--	29	19	28	19	24
38406	2006-297-232-7	2.1	< 0.1	< 0.1	4.3	21	13	14	28
38407	2006-297-232-8	2.7	< 0.1	< 0.1	2.9	18	12	10	11
38408	2006-312-230-1	.5	< 0.1	< 0.1	1.2	1.1	.7	1.5	3.3
38409	2006-312-230-2	.5	< 0.1	.2	1.3	2.6	1.5	2.7	5
38410	2006-312-230-3	.7	< 0.1	.2	1	3.2	1.9	2.9	6.7
38411	2006-331-232-1	< 0.1	< 0.1	< 0.1	.7	3.3	2.1	3.4	7.2
38412	2006-331-232-2	2.1	< 0.1	.4	2	13	7.2	6.4	15
38413	2006-331-232-3	.8	< 0.1	.2	2.4	12	7.2	11	25
38414	2006-331-232-4	2	< 0.1	.3	2.3	13	7.8	7.8	16
38415	2006-331-232-5	3.6	< 0.1	1.4	4.4	24	13	15	33
38416	2006-331-232-6	.6	< 0.1	.2	6.5	29	18	41	87
38417	2006-331-232-7	5.9	.6	< 0.1	8.5	44	21	26	43
38418	2006-331-232-8	4	< 0.1	< 0.1	7.9	38	23	27	50
38419	2006-618-230-1	< 0.1	< 0.1	< 0.1	.2	.2	.1	.4	.4
38420	2006-618-230-2	< 0.1	< 0.1	< 0.1	.1	.3	.2	.3	.4

Table 4. Organochlorine pesticide concentrations in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.—Continued

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; ng/g, nanogram per gram; BHC, Benzene hexachloride; HCH, Hexachlorocyclohexane; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; <, less than; --, no data]

USGS ID number	MDC field ID	Heptachlor epoxide (ng/g)	Aldrin (ng/g)	Dacthal (ng/g)	Oxychlordane (ng/g)	*cis*-Chlordane (ng/g)	*trans*-Chlordane (ng/g)	*cis*-Nonachlor (ng/g)	*trans*-Nonachlor (ng/g)
38421	2006-618-230-3	.1	< 0.1	< 0.1	.1	.6	.5	.6	1
38422	2006-703-406-1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	.2	< 0.1	.1
38423	2006-703-406-2	.2	< 0.1	< 0.1	< 0.1	< 0.1	.3	.1	< 0.1
38424-1	2006-703-406-3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	.2	.2	.1
38424-2	2006-703-406-3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	.2	< 0.1	< 0.1
38424-3	2006-703-406-3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	.3	< 0.1	.1
	Average:	**< 0.1**	**< 0.1**	**< 0.1**	**< 0.1**	**< 0.1**	**.2**	**--**	**--**
	SD:	--	--	--	--	--	.1	--	--
	RSD:	--	--	--	--	--	25	--	--
38425	2006-704-406-1	.1	< 0.1	< 0.1	.2	.3	.2	.6	1.4
38426	2006-704-406-2	.3	< 0.1	< 0.1	.3	.5	.6	.8	2.3
38427	2006-704-406-3	< 0.1	< 0.1	< 0.1	.1	.1	< 0.1	.3	.8
38428	2006-705-245-1	.6	< 0.1	< 0.1	.6	1.6	1.6	1.4	3.3
38429	2006-705-245-2	.2	< 0.1	< 0.1	.2	.3	.4	.3	.2
38430	2006-705-245-3	.6	.3	.4	.9	1.5	1.7	1.9	3.8
38431	2006-705-245-4	.2	.4	< 0.1	.3	.7	1.1	.8	.9
38432	2006-705-245-5	.1	.2	.3	.3	.2	.4	.4	.8
38433	2006-705-245-6	.3	.3	.6	.5	.9	1.1	.8	1.4
38434	2006-705-245-7	.6	.3	.2	.5	1	1.3	1.2	2.4
38435	2006-705-245-8	.7	.4	1.1	.7	1.5	1.7	1.3	3.1
38436	2006-705-245-9	.3	.2	.2	.4	.5	.8	.6	1.3
38437	2006-705-245-10	.2	.3	.1	.2	.4	.6	.5	.8
38438	2006-705-245-11	.2	.5	.3	.5	1.2	1.2	.8	2
38439	2006-705-245-12	.6	.3	.2	.7	1.4	1.5	1.4	3.3
38440	2006-706-245-1	.1	.3	3	.2	.3	.4	.4	.8

Table 4. Organochlorine pesticide concentrations in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.—Continued

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; ng/g, nanogram per gram; BHC, Benzene hexachloride; HCH, Hexachlorocyclohexane; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; <, less than; --, no data]

USGS ID number	MDC field ID	Heptachlor epoxide (ng/g)	Aldrin (ng/g)	Dacthal (ng/g)	Oxychlordane (ng/g)	*cis*-Chlordane (ng/g)	*trans*-Chlordane (ng/g)	*cis*-Nonachlor (ng/g)	*trans*-Nonachlor (ng/g)
PB-122106		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	.1	< 0.1	< 0.1
PB-010207		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	.1	< 0.1	< 0.1
	Average:	**< 0.1**	**< 0.1**	**< 0.1**	**< 0.1**	**< 0.1**	**.1**	**< 0.1**	**< 0.1**
MB-010107	Control Bluegill 654C	.3	< 0.1	.7	.7	.3	.2	.6	2.5
MB-010307	Control Bluegill 654C	.3	1	.5	.8	.2	.2	.8	2.3
	Average:	**.3**	**--**	**.6**	**.8**	**.3**	**.2**	**.7**	**2.4**
MS-OC-010107	Matrix Spike - OCs	33	27	37	34	34	34	35	36
MS-OC-010307	Matrix Spike - OCs	30	29	33	28	31	38	36	24
	Average:	**31**	**28**	**35**	**31**	**32**	**36**	**35**	**30**
MS-PCB-010107	Control Bluegill 654C	20	1.1	7.4	1.1	< 0.1	13	.9	2.6
MS-PCB-010307	Control Bluegill 654C	.3	.7	.6	.7	.2	.2	.5	.8
	Average:	**10**	**.9**	**4**	**.9**	**--**	**6.6**	**.7**	**1.7**
MS-CHLOR-010307	Matrix Spike - Tech. Chlordane	< 0.1	19	< 0.1	< 0.1	100	120	19	64
PC-122106	Saginaw Carp 6806-148	2.6	< 0.1	2.3	3.3	23	6.9	9.8	23
PC-010207	Saginaw Carp 6806-148	9.5	< 0.1	1.9	2.4	17	7	17	19
	Average:	**6.1**	**< 0.1**	**2.1**	**2.9**	**20**	**7**	**13**	**21**
Baseline PC Data:	**Saginaw Carp 6806**	**4.2**	**< 0.1**	**4.4**	**3.6**	**21**	**10**	**10**	**21**

Table 4. Organochlorine pesticide concentrations in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.—Continued

[USGS, U.S. Geological Survey; D, identification; MDC, Missouri Department of Conservation; Ing/g, nanogram per gram; BHC, Benzene hexachloride; HCH, Hexachlorocyclohexane; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; <, less than; --, no data]

USGS ID number	MDC field ID	*o,p'*-DDE (ng/g)	*o,p'*-DDD (ng/g)	*o,p'*-DDT (ng/g)	*p,p'*-DDE (ng/g)	*p,p'*-DDD (ng/g)	*p,p'*-DDT (ng/g)	Endosulfan I (ng/g)	Endosulfan II (ng/g)
38400	2006-297-232-1	< 0.1	.3	.9	21	5.6	1.4	< 0.1	< 0.1
38401	2006-297-232-2	1.6	1.8	< 0.1	38	15	12	.2	< 0.1
38402	2006-297-232-3	< 0.1	.8	1	20	7.1	1.9	.2	< 0.1
38403	2006-297-232-4	< 0.1	.2	.8	38	5.5	1.6	< 0.1	< 0.1
38404	2006-297-232-5	.3	1.2	< 0.1	66	10	3.2	< 0.1	< 0.1
38405-1	2006-297-232-6	< 0.1	.3	.4	14	2.8	.9	< 0.1	< 0.1
38405-2	2006-297-232-6	< 0.1	.1	.6	16	3.2	1	< 0.1	< 0.1
38405-3	2006-297-232-6	< 0.1	< 0.1	.3	10	2	.7	< 0.1	< 0.1
	Average:	**< 0.1**	**< 0.1**	**.4**	**13**	**2.7**	**.9**	**< 0.1**	**< 0.1**
	SD:	--	--	.2	3.1	.6	.2	--	--
	RSD:	--	--	35	23	23	18	--	--
38406	2006-297-232-7	.7	1.5	< 0.1	90	16	4.4	< 0.1	< 0.1
38407	2006-297-232-8	< 0.1	2.9	< 0.1	160	38	18	1.1	< 0.1
38408	2006-312-230-1	< 0.1	.1	< 0.1	11	1.3	.2	< 0.1	< 0.1
38409	2006-312-230-2	< 0.1	< 0.1	.2	14	2.1	.4	< 0.1	< 0.1
38410	2006-312-230-3	.3	.3	.4	19	3.3	.3	< 0.1	< 0.1
38411	2006-331-232-1	< 0.1	< 0.1	.8	18	2.3	.8	< 0.1	< 0.1
38412	2006-331-232-2	.2	1.1	2.2	43	8.5	3.3	< 0.1	< 0.1
38413	2006-331-232-3	.1	.7	2.2	57	10	2.7	< 0.1	.1
38414	2006-331-232-4	< 0.1	.7	2	39	9.8	3.1	< 0.1	< 0.1
38415	2006-331-232-5	.3	2.2	4.4	86	16	3.8	< 0.1	.3
38416	2006-331-232-6	< 0.1	.8	8.7	340	27	16	< 0.1	< 0.1
38417	2006-331-232-7	.5	2.3	5.8	170	32	9.2	< 0.1	.4
38418	2006-331-232-8	< 0.1	2.6	9.7	130	26	9.8	< 0.1	< 0.1
38419	2006-618-230-1	< 0.1	< 0.1	< 0.1	1.5	.1	< 0.1	< 0.1	< 0.1
38420	2006-618-230-2	< 0.1	.2	< 0.1	.4	.2	< 0.1	< 0.1	< 0.1
38421	2006-618-230-3	< 0.1	.2	< 0.1	2	.2	< 0.1	< 0.1	< 0.1

Table 4. Organochlorine pesticide concentrations in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.—Continued

[USGS, U.S. Geological Survey; D, identification; MDC, Missouri Department of Conservation; Ing/g, nanogram per gram; BHC, Benzene hexachloride; HCH, Hexachlorocyclohexane; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; <, less than; --, no data]

USGS ID number	MDC field ID	*o,p'*-DDE (ng/g)	*o,p'*-DDD (ng/g)	*o,p'*-DDT (ng/g)	*p,p'*-DDE (ng/g)	*p,p'*-DDD (ng/g)	*p,p'*-DDT (ng/g)	Endosulfan I (ng/g)	Endosulfan II (ng/g)
38422	2006-703-406-1	< 0.1	< 0.1	< 0.1	1.2	.3	< 0.1	< 0.1	< 0.1
38423	2006-703-406-2	< 0.1	< 0.1	< 0.1	1.7	.3	< 0.1	< 0.1	< 0.1
38424-1	2006-703-406-3	< 0.1	.4	< 0.1	1.2	.3	< 0.1	< 0.1	< 0.1
38424-2	2006-703-406-3	< 0.1	.2	< 0.1	1.3	.3	< 0.1	< 0.1	< 0.1
38424-3	2006-703-406-3	< 0.1	.2	< 0.1	1.2	.2	< 0.1	< 0.1	< 0.1
	Average:	**< 0.1**	**.3**	**< 0.1**	**1.2**	**.3**	**< 0.1**	**< 0.1**	**< 0.1**
	SD:	--	.1	--	.1	.1	--	--	--
	RSD:	--	43	--	4.7	22	--	--	--
38425	2006-704-406-1	< 0.1	< 0.1	< 0.1	1.6	.2	< 0.1	< 0.1	< 0.1
38426	2006-704-406-2	< 0.1	.1	< 0.1	1.7	.2	< 0.1	< 0.1	< 0.1
38427	2006-704-406-3	< 0.1	.2	< 0.1	.9	.2	< 0.1	< 0.1	< 0.1
38428	2006-705-245-1	< 0.1	.4	< 0.1	2.9	.9	.2	< 0.1	< 0.1
38429	2006-705-245-2	< 0.1	.3	< 0.1	1	.2	< 0.1	< 0.1	< 0.1
38430	2006-705-245-3	< 0.1	.1	< 0.1	4.1	.8	.2	< 0.1	< 0.1
38431	2006-705-245-4	< 0.1	.1	< 0.1	2.3	.4	< 0.1	< 0.1	< 0.1
38432	2006-705-245-5	< 0.1	< 0.1	< 0.1	1.4	.2	< 0.1	< 0.1	< 0.1
38433	2006-705-245-6	< 0.1	.2	< 0.1	2.6	.4	.1	< 0.1	.1
38434	2006-705-245-7	.2	.2	< 0.1	3.4	.8	.3	< 0.1	< 0.1
38435	2006-705-245-8	< 0.1	.2	< 0.1	3.9	.8	.2	< 0.1	< 0.1
38436	2006-705-245-9	< 0.1	.1	< 0.1	1.5	.4	< 0.1	< 0.1	< 0.1
38437	2006-705-245-10	< 0.1	.1	< 0.1	1.3	.3	< 0.1	< 0.1	.1
38438	2006-705-245-11	< 0.1	.2	< 0.1	2.6	.4	.1	< 0.1	< 0.1
38439	2006-705-245-12	< 0.1	.2	< 0.1	3.5	.8	.3	< 0.1	.1
38440	2006-706-245-1	< 0.1	< 0.1	< 0.1	1.3	.3	< 0.1	< 0.1	< 0.1

Table 4. Organochlorine pesticide concentrations in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.—Continued

[USGS, U.S. Geological Survey; D, identification; MDC, Missouri Department of Conservation; Ing/g, nanogram per gram; BHC, Benzene hexachloride; HCH, Hexachlorocyclohexane; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; <, less than; --, no data]

USGS ID number	MDC field ID	*o,p'*-DDE (ng/g)	*o,p'*-DDD (ng/g)	*o,p'*-DDT (ng/g)	*p,p'*-DDE (ng/g)	*p,p'*-DDD (ng/g)	*p,p'*-DDT (ng/g)	Endosulfan I (ng/g)	Endosulfan II (ng/g)
PB-122106		< 0.1	.2	< 0.1	< 0.1	< 0.1	.1	< 0.1	< 0.1
PB-010207		< 0.1	.1	< 0.1	.1	< 0.1	< 0.1	< 0.1	< 0.1
	Average:	**< 0.1**	**.2**	**< 0.1**	**--**	**< 0.1**	**--**	**< 0.1**	**< 0.1**
MB-010107	Control Bluegill 654C	< 0.1	< 0.1	< 0.1	3.6	.2	.3	< 0.1	< 0.1
MB-010307	Control Bluegill 654C	< 0.1	.1	< 0.1	3.9	.4	.2	< 0.1	< 0.1
	Average:	**< 0.1**	**--**	**< 0.1**	**3.8**	**.3**	**.3**	**< 0.1**	**< 0.1**
MS-OC-010107	Matrix Spike - OCs	37	34	41	36	32	36	33	38
MS-OC-010307	Matrix Spike - OCs	21	33	27	38	31	27	27	31
	Average:	**29**	**34**	**34**	**37**	**32**	**32**	**30**	**34**
MS-PCB-010107	Control Bluegill 654C	.7	.6	< 0.1	9.6	.2	.4	< 0.1	< 0.1
MS-PCB-010307	Control Bluegill 654C	< 0.1	< 0.1	< 0.1	7.9	< 0.1	< 0.1	< 0.1	< 0.1
	Average:	**--**	**--**	**< 0.1**	**8.8**	**--**	**--**	**< 0.1**	**< 0.1**
MS-CHLOR-010307	Matrix Spike - Tech. Chlordane	< 0.1	< 0.1	5.9	< 0.1	< 0.1	< 0.1	< 0.1	1.1
PC-122106	Saginaw Carp 6806-148	6.1	49	< 0.1	570	240	1.7	2.5	< 0.1
PC-010207	Saginaw Carp 6806-148	4.7	43	5.2	430	170	.7	1.1	< 0.1
	Average:	**5.4**	**46**	**--**	**500**	**205**	**1.2**	**1.8**	**< 0.1**
Baseline PC Data:	**Saginaw Carp 6806**	**9.1**	**48**	**.2**	**350**	**240**	**4.6**	**12**	**1.4**

Table 4. Organochlorine pesticide concentrations in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.—Continued

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; ng/g, nanogram per gram; BHC, Benzene hexachloride; HCH, Hexachlorocyclohexane; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; <, less than; --, no data]

USGS ID number	MDC field ID	Endosulfan sulfate (ng/g)	Dieldrin (ng/g)	Total endrin[1] (ng/g)	Mirex (ng/g)	Methoxychlor (ng/g)
38400	2006-297-232-1	.1	10	.3	.2	3.6
38401	2006-297-232-2	.2	28	.4	.3	5.1
38402	2006-297-232-3	.1	22	< 0.1	.2	5.4
38403	2006-297-232-4	< 0.1	4	.3	.4	10
38404	2006-297-232-5	.3	9.9	.5	.7	6.2
38405-1	2006-297-232-6	.1	2.1	.2	.1	6.3
38405-2	2006-297-232-6	.1	2.3	< 0.1	.1	3.4
38405-3	2006-297-232-6	< 0.1	1.5	.2	< 0.1	2.7
	Average:	**< 0.1**	**2**	**--**	**--**	**4.1**
	SD:	--	.4	--	--	1.9
	RSD:	--	21	--	--	46
38406	2006-297-232-7	< 0.1	13	.4	.8	5.8
38407	2006-297-232-8	.1	20	1.2	2.6	8.3
38408	2006-312-230-1	.1	2.6	.2	< 0.1	6.2
38409	2006-312-230-2	< 0.1	3.3	< 0.1	.2	2.7
38410	2006-312-230-3	< 0.1	3.8	.2	.1	1.1
38411	2006-331-232-1	< 0.1	1	.2	.3	2.9
38412	2006-331-232-2	< 0.1	14	.2	.2	5.5
38413	2006-331-232-3	< 0.1	6	.4	.5	2.8
38414	2006-331-232-4	< 0.1	14	.2	.2	1.8
38415	2006-331-232-5	< 0.1	25	1	.6	6.6
38416	2006-331-232-6	< 0.1	6.4	1	5.7	7.2
38417	2006-331-232-7	< 0.1	41	.5	1.2	2.3
38418	2006-331-232-8	< 0.1	32	.6	.9	5.9
38419	2006-618-230-1	< 0.1	.3	< 0.1	< 0.1	1.9

Table 4. Organochlorine pesticide concentrations in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.—Continued

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; ng/g, nanogram per gram; BHC, Benzene hexachloride; HCH, Hexachlorocyclohexane; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; <, less than; --, no data]

USGS ID number	MDC field ID	Endosulfan sulfate (ng/g)	Dieldrin (ng/g)	Total endrin[1] (ng/g)	Mirex (ng/g)	Methoxychlor (ng/g)
38420	2006-618-230-2	< 0.1	.1	< 0.1	< 0.1	.9
38421	2006-618-230-3	< 0.1	.5	< 0.1	< 0.1	1.9
38422	2006-703-406-1	< 0.1	.2	< 0.1	< 0.1	3
38423	2006-703-406-2	< 0.1	< 0.1	< 0.1	< 0.1	6.7
38424-1	2006-703-406-3	< 0.1	< 0.1	< 0.1	< 0.1	1.8
38424-2	2006-703-406-3	< 0.1	< 0.1	< 0.1	< 0.1	.7
38424-3	2006-703-406-3	< 0.1	.1	< 0.1	< 0.1	1.7
	Average:	**< 0.1**	**--**	**< 0.1**	**< 0.1**	**1.4**
	SD:	--	--	--	--	.6
	RSD:	--	--	--	--	43
38425	2006-704-406-1	< 0.1	.4	< 0.1	< 0.1	1
38426	2006-704-406-2	< 0.1	.5	< 0.1	< 0.1	2.4
38427	2006-704-406-3	< 0.1	.2	< 0.1	< 0.1	.6
38428	2006-705-245-1	.1	3.1	< 0.1	< 0.1	.5
38429	2006-705-245-2	< 0.1	.7	< 0.1	< 0.1	1
38430	2006-705-245-3	.2	3.3	< 0.1	< 0.1	.6
38431	2006-705-245-4	< 0.1	1	< 0.1	< 0.1	1.9
38432	2006-705-245-5	< 0.1	.7	.1	< 0.1	1.4
38433	2006-705-245-6	.2	1.6	< 0.1	< 0.1	6.4
38434	2006-705-245-7	.2	2.7	< 0.1	.1	.4
38435	2006-705-245-8	.2	4.5	< 0.1	< 0.1	1.4
38436	2006-705-245-9	< 0.1	1.2	< 0.1	< 0.1	1.4
38437	2006-705-245-10	< 0.1	1.3	< 0.1	< 0.1	1.9
38438	2006-705-245-11	< 0.1	1.5	< 0.1	< 0.1	.8
38439	2006-705-245-12	.2	3.5	< 0.1	< 0.1	.5

Table 4. Organochlorine pesticide concentrations in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.—Continued

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; ng/g, nanogram per gram; BHC, Benzene hexachloride; HCH, Hexachlorocyclohexane; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; <, less than; --, no data]

USGS ID number	MDC field ID	Endosulfan sulfate (ng/g)	Dieldrin (ng/g)	Total endrin[1] (ng/g)	Mirex (ng/g)	Methoxychlor (ng/g)
38440	2006-706-245-1	< 0.1	1.3	< 0.1	< 0.1	.8
PB-122106		.1	.8	< 0.1	< 0.1	.9
PB-010207		< 0.1	.1	< 0.1	< 0.1	.4
	Average:	**--**	**.5**	**< 0.1**	**< 0.1**	**.7**
MB-010107	Control Bluegill 654C	.2	2.3	< 0.1	< 0.1	.8
MB-010307	Control Bluegill 654C	.1	2	.1	< 0.1	.6
	Average:	**.2**	**2.2**	**--**	**< 0.1**	**.7**
MS-OC-010107	Matrix Spike - OCs	38	36	15	35	45
MS-OC-010307	Matrix Spike - OCs	35	33	12	37	36
	Average:	**36**	**34**	**14**	**36**	**40**
MS-PCB-010107	Control Bluegill 654C	< 0.1	3.6	1.1	.1	2.5
MS-PCB-010307	Control Bluegill 654C	.1	1.9	< 0.1	.1	.6
	Average:	**--**	**2.8**	**--**	**.1**	**1.6**
MS-CHLOR-010307	Matrix Spike - Tech. Chlordane	< 0.1	.5	< 0.1	< 0.1	.3
PC-122106	Saginaw Carp 6806-148	2	17	< 0.1	2.8	6.3
PC-010207	Saginaw Carp 6806-148	.6	19	< 0.1	2.2	1.4
	Average:	**1.3**	**18**	**< 0.1**	**2.5**	**3.9**
Baseline PC Data:	**Saginaw Carp 6806**	**7.4**	**16**	**2.8**	**1.9**	**27**

[1]Total endrin is the sum of endrin, edrin aldehyde and endrin ketone.

Table 5. Polybrominated diphenylethers concentrations and percentages in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; PBDE, Polybrominated Diphenylether; ng/g, nanogram per gram; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; --, no data. No historic data exists for PBDEs in Postive Control Saginaw Bay Carp]

USGS ID number	MDC field ID	PBDE-028		PBDE-047		PBDE-066	
		(ng/g)	(percent)	(ng/g)	(percent)	(ng/g)	(percent)
38400	2006-297-232-1	< 0.2		14	48	< 0.2	
38401	2006-297-232-2	< 0.2		25	59	< 0.2	
38402	2006-297-232-3	.8	2	14	43	< 0.2	
38403	2006-297-232-4	< 0.2		23	53	< 0.2	
38404	2006-297-232-5	< 0.2		43	60	< 0.2	
38405-1	2006-297-232-6	< 0.2		7.9	50	< 0.2	
38405-2	2006-297-232-6	< 0.2		8.6	50	< 0.2	
38405-3	2006-297-232-6	< 0.2		6.2	48	< 0.2	
	Average:	**< 0.2**		**7.6**	**49**	**< 0.2**	
	SD:	--		1.2	1	--	
	RSD:	--		16.3	2	--	
38406	2006-297-232-7	< 0.2		73	66	< 0.2	
38407	2006-297-232-8	< 0.2		33	68	< 0.2	
38408	2006-312-230-1	< 0.2		4.8	42	< 0.2	
38409	2006-312-230-2	< 0.2		8.6	52	< 0.2	
38410	2006-312-230-3	.4	2	14	60	.3	1
38411	2006-331-232-1	.9	2	30	60	.7	1
38412	2006-331-232-2	2.3	4	34	58	.9	2
38413	2006-331-232-3	1.6	2	44	64	1.1	2
38414	2006-331-232-4	1.8	3	33	64	1.1	2
38415	2006-331-232-5	3.3	3	67	66	1.4	1
38416	2006-331-232-6	6.1	1	290	71	2.8	1
38417	2006-331-232-7	3.9	2	110	68	2	1
38418	2006-331-232-8	7.1	4	140	72	1.8	1
38419	2006-618-230-1	.3	6	1.7	35	.4	8
38420	2006-618-230-2	< 0.2		2.3	32	< 0.2	
38421	2006-618-230-3	.3	4	2.7	36	< 0.2	
38422	2006-703-406-1	< 0.2		1.8	42	< 0.2	
38423	2006-703-406-2	< 0.2		1.6	44	< 0.2	
38424-1	2006-703-406-3	< 0.2		1.8	30	< 0.2	
38424-2	2006-703-406-3	< 0.2		1.8	38	< 0.2	
38424-3	2006-703-406-3	.3	7	1.5	37	< 0.2	
	Average:	**--**		**1.7**	**35**	**< 0.2**	
	SD:	--		.2	4	--	
	RSD:	--		10	12	--	

Table 5. Polybrominated diphenylethers concentrations and percentages in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.—Continued

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; PBDE, Polybrominated Diphenylether; ng/g, nanogram per gram; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; --, no data. No historic data exists for PBDEs in Postive Control Saginaw Bay Carp]

USGS ID number	MDC field ID	PBDE-028		PBDE-047		PBDE-066	
		(ng/g)	(percent)	(ng/g)	(percent)	(ng/g)	(percent)
38425	2006-704-406-1	.3	9	1.3	39	< 0.2	
38426	2006-704-406-2	.3	9	1.4	41	< 0.2	
38427	2006-704-406-3	< 0.2		1.2	41	< 0.2	
38428	2006-705-245-1	< 0.2		5.5	45	< 0.2	
38429	2006-705-245-2	< 0.2		1.4	48	< 0.2	
38430	2006-705-245-3	< 0.2		7.7	55	< 0.2	
38431	2006-705-245-4	.2	2	5.3	48	< 0.2	
38432	2006-705-245-5	.3	4	3	44	< 0.2	
38433	2006-705-245-6	.4	4	5.2	55	< 0.2	
38434	2006-705-245-7	< 0.2		5.3	52	< 0.2	
38435	2006-705-245-8	.3	2	6.3	47	< 0.2	
38436	2006-705-245-9	.3	3	4.2	39	< 0.2	
38437	2006-705-245-10	< 0.2		2.8	42	< 0.2	
38438	2006-705-245-11	.4	4	5.5	49	< 0.2	
38439	2006-705-245-12	< 0.2		6	57	< 0.2	
38440	2006-706-245-1	< 0.2		3.3	47	< 0.2	
PB-122106		< 0.2		2.9	37	< 0.2	
PB-010207		.3	8	1.6	42	< 0.2	
	Average:	**--**		**2.2**	**38**	**< 0.2**	
MB-010107	Control Bluegill 654C	.4	3	4.9	41	.5	4
MB-010307	Control Bluegill 654C	.2	2	4	38	< 0.2	
	Average:	**.3**	**3**	**4.5**	**40**	**--**	
MS-PCB-010107	Control Bluegill 654C	.3	3	3	29	.6	6
MS-PCB-010307	Control Bluegill 654C	< 0.2		1.8	47	< 0.2	
	Average:	**--**		**2.4**	**38**	**--**	
MS-CHLOR-010307	Matrix Spike - Tech. Chlordane	4.9	31	< 0.2		< 0.2	
PC-122106	Saginaw Carp 6806-148	< 0.2		4.5	47	< 0.2	
PC-010207	Saginaw Carp 6806-148	< 0.2		5.8	60	< 0.2	
	Average:	**< 0.2**		**5.1**	**53**	**< 0.2**	

Table 5. Polybrominated diphenylethers concentrations and percentages in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.—Continued

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; PBDE, Polybrominated Diphenylether; ng/g, nanogram per gram; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; --, no data. No historic data exists for PBDEs in Postive Control Saginaw Bay Carp]

USGS ID number	MDC field ID	PBDE-100		PBDE-099		PBDE-085	
		(ng/g)	(percent)	(ng/g)	(percent)	(ng/g)	(percent)
38400	2006-297-232-1	3.8	13	7.1	24	1	3
38401	2006-297-232-2	7.1	17	6.8	16	.6	1
38402	2006-297-232-3	4.1	13	9.2	28	1.1	3
38403	2006-297-232-4	7.1	16	8.5	19	1	2
38404	2006-297-232-5	11	15	11	15	.7	1
38405-1	2006-297-232-6	2	13	3.5	22	.5	3
38405-2	2006-297-232-6	2.3	13	3.7	22	.6	4
38405-3	2006-297-232-6	1.5	12	3.2	25	.6	5
	Average:	**1.9**	**13**	**3.5**	**23**	**.6**	**4**
	SD:	.4	1	.3	2	.1	1
	RSD:	21	7	7.3	8	10	21
38406	2006-297-232-7	15	14	16	15	1.2	1
38407	2006-297-232-8	6.4	13	6.1	12	.6	1
38408	2006-312-230-1	1.1	10	3.2	28	.6	5
38409	2006-312-230-2	1.7	10	3.6	22	.7	4
38410	2006-312-230-3	2.9	12	5.3	23	.5	2
38411	2006-331-232-1	8.1	16	10	20	< 0.2	
38412	2006-331-232-2	7	12	10	17	.6	1
38413	2006-331-232-3	11	16	11	16	< 0.2	
38414	2006-331-232-4	7.5	15	8.1	16	< 0.2	
38415	2006-331-232-5	14	14	16	16	.6	1
38416	2006-331-232-6	78	19	30	7	< 0.2	
38417	2006-331-232-7	18	11	24	15	.6	
38418	2006-331-232-8	28	14	20	10	< 0.2	
38419	2006-618-230-1	.4	8	1.3	27	.6	12
38420	2006-618-230-2	.3	4	2.3	32	.6	8
38421	2006-618-230-3	.6	8	2.6	34	.7	9
38422	2006-703-406-1	.4	9	1.6	38	< 0.2	
38423	2006-703-406-2	.2	5	1	27	.5	14
38424-1	2006-703-406-3	.3	5	1.5	25	1	17
38424-2	2006-703-406-3	.3	6	1.4	29	.5	11
38424-3	2006-703-406-3	.2	5	1.3	32	.5	12
	Average:	**.3**	**5**	**1.4**	**29**	**.7**	**13**
	SD:	.1	1	.1	4	.3	3
	RSD:	22	14	7.1	12	43	25

Table 5. Polybrominated diphenylethers concentrations and percentages in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.—Continued

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; PBDE, Polybrominated Diphenylether; ng/g, nanogram per gram; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; --, no data. No historic data exists for PBDEs in Postive Control Saginaw Bay Carp]

USGS ID number	MDC field ID	PBDE-100		PBDE-099		PBDE-085	
		(ng/g)	(percent)	(ng/g)	(percent)	(ng/g)	(percent)
38425	2006-704-406-1	.3	9	.9	27	.5	15
38426	2006-704-406-2	.3	9	1.1	32	< 0.2	
38427	2006-704-406-3	< 0.2		.9	31	.5	17
38428	2006-705-245-1	1.3	11	3.1	25	.6	5
38429	2006-705-245-2	< 0.2		.8	27	.5	17
38430	2006-705-245-3	1.8	13	3.9	28	.6	4
38431	2006-705-245-4	.9	8	4.2	38	< 0.2	
38432	2006-705-245-5	.7	10	2.7	39	< 0.2	
38433	2006-705-245-6	1	11	2.9	31	< 0.2	
38434	2006-705-245-7	1.1	11	2.4	23	.6	6
38435	2006-705-245-8	1.4	11	4.1	31	.6	5
38436	2006-705-245-9	1.1	10	4.2	39	< 0.2	
38437	2006-705-245-10	.6	9	2.1	32	.6	9
38438	2006-705-245-11	1.2	11	4.1	36	< 0.2	
38439	2006-705-245-12	1.3	12	3.3	31	< 0.2	
38440	2006-706-245-1	.6	9	2	29	.6	9
PB-122106		.5	6	3.1	39	.8	10
PB-010207		< 0.2		1.2	32	< 0.2	
	Average:	**--**		**2.2**	**38**	**--**	
MB-010107	Control Bluegill 654C	.8	7	4.3	36	< 0.2	
MB-010307	Control Bluegill 654C	.5	5	3.8	36	.6	6
	Average:	**.7**	**6**	**4.1**	**37**	**--**	
MS-PCB-010107	Control Bluegill 654C	.3	3	1.4	13	2	19
MS-PCB-010307	Control Bluegill 654C	< 0.2		1.7	44	< 0.2	
	Average:	**--**		**1.5**	**27**	**--**	
MS-CHLOR-010307	Matrix Spike - Tech. Chlordane	1.4	9	7.3	46	.8	5
PC-122106	Saginaw Carp 6806-148	.7	7	2.2	23	.8	8
PC-010207	Saginaw Carp 6806-148	.9	9	2.9	30	< 0.2	
	Average:	**.8**	**8**	**2.5**	**26**	**--**	

Table 5. Polybrominated diphenylethers concentrations and percentages in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.—Continued

[USGS, U.S. Geological Survey; MDC, Missouri Department of Conservation; ID, identification; PBDE, Polybrominated Diphenylether; ng/g, nanogram per gram; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; --, no data. No historic data exists for PBDEs in Postive Control Saginaw Bay Carp]

USGS ID number	MDC field ID	PBDE-154		PBDE-153		PBDE-183		Total PBDE (ng/g)
		(ng/g)	(percent)	(ng/g)	(percent)	(ng/g)	(percent)	
38400	2006-297-232-1	1.4	5	1.4	5	.3	1	29
38401	2006-297-232-2	1.4	3	1.6	4	< 0.2		43
38402	2006-297-232-3	1.4	4	1.7	5	< 0.2		33
38403	2006-297-232-4	2.4	6	1.4	3	< 0.2		44
38404	2006-297-232-5	3.9	5	1.7	2	< 0.2		72
38405-1	2006-297-232-6	.8	5	1.1	7	< 0.2		16
38405-2	2006-297-232-6	1	6	.8	5	< 0.2		17
38405-3	2006-297-232-6	.6	5	.7	5	< 0.2		13
	Average:	**.8**	**5**	**.9**	**6**	**< 0.2**		**15**
	SD:	.2	1	.2	1			2
	RSD:	25	12	24	20			14
38406	2006-297-232-7	2.7	2	2.1	2	< 0.2		110
38407	2006-297-232-8	1.4	3	1.1	2	< 0.2		49
38408	2006-312-230-1	.8	7	.7	6	< 0.2		11
38409	2006-312-230-2	.8	5	.9	5	< 0.2		16
38410	2006-312-230-3	< 0.2		< 0.2		< 0.2		23
38411	2006-331-232-1	< 0.2		.2		< 0.2		50
38412	2006-331-232-2	1.6	3	2.1	4	< 0.2		59
38413	2006-331-232-3	< 0.2		< 0.2		< 0.2		69
38414	2006-331-232-4	< 0.2		.2		< 0.2		52
38415	2006-331-232-5	< 0.2		< 0.2		< 0.2		102
38416	2006-331-232-6	< 0.2		.4		< 0.2		410
38417	2006-331-232-7	< 0.2		< 0.2		< 0.2		162
38418	2006-331-232-8	< 0.2		.3		.3	.2	195
38419	2006-618-230-1	< 0.2		< 0.2		< 0.2		5
38420	2006-618-230-2	.5	7	1	14	< 0.2		7
38421	2006-618-230-3	.4	5	.2	3	< 0.2		8
38422	2006-703-406-1	< 0.2		.2	5	< 0.2		4
38423	2006-703-406-2	< 0.2		< 0.2		< 0.2		4
38424-1	2006-703-406-3	.5	8	.7	12	< 0.2		6
38424-2	2006-703-406-3	< 0.2		.7	15	< 0.2		5
38424-3	2006-703-406-3	< 0.2		< 0.2		< 0.2		4
	Average:	**--**		**--**		**< 0.2**		**5**
	SD:							1
	RSD:							20

Table 5. Polybrominated diphenylethers concentrations and percentages in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.—Continued

[USGS, U.S. Geological Survey; MDC, Missouri Department of Conservation; ID, identification; PBDE, Polybrominated Diphenylether; ng/g, nanogram per gram; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; --, no data. No historic data exists for PBDEs in Postive Control Saginaw Bay Carp]

USGS ID number	MDC field ID	PBDE-154		PBDE-153		PBDE-183		Total PBDE (ng/g)
		(ng/g)	(percent)	(ng/g)	(percent)	(ng/g)	(percent)	
38425	2006-704-406-1	< 0.2		< 0.2		< 0.2		3
38426	2006-704-406-2	< 0.2		.2	6	< 0.2		3
38427	2006-704-406-3	< 0.2		< 0.2		< 0.2		3
38428	2006-705-245-1	.7	6	.9	7	< 0.2		12
38429	2006-705-245-2	< 0.2		< 0.2		< 0.2		3
38430	2006-705-245-3	< 0.2		< 0.2		< 0.2		14
38431	2006-705-245-4	.4	4	< 0.2		< 0.2		11
38432	2006-705-245-5	< 0.2		< 0.2		< 0.2		7
38433	2006-705-245-6	< 0.2		< 0.2		< 0.2		9
38434	2006-705-245-7	.6	6	.2	2	< 0.2		10
38435	2006-705-245-8	< 0.2		.3	2	< 0.2		13
38436	2006-705-245-9	.7	7	< 0.2		< 0.2		11
38437	2006-705-245-10	< 0.2		< 0.2		< 0.2		7
38438	2006-705-245-11	< 0.2		< 0.2		< 0.2		11
38439	2006-705-245-12	< 0.2		< 0.2		< 0.2		11
38440	2006-706-245-1	< 0.2		< 0.2		< 0.2		7
PB-122106		.2	3	.3	4	< 0.2		8
PB-010207		< 0.2		.3	8	< 0.2		4
	Average:	**--**		**.3**	**5**	**< 0.2**		**6**
MB-010107	Control Bluegill 654C	< 0.2		.3	3	.5	4.2	12
MB-010307	Control Bluegill 654C	< 0.2		< 0.2		1.1	10.4	11
	Average:	**< 0.2**		**--**		**.8**	**7.1**	**11**
MS-PCB-010107	Control Bluegill 654C	< 0.2		.8	8	2	19	10
MS-PCB-010307	Control Bluegill 654C	< 0.2		< 0.2		< 0.2		4
	Average:	**< 0.2**		**--**		**--**		**6**
MS-CHLOR-010307	Matrix Spike - Tech. Chlordane	.7	4	.8	5	< 0.2		16
PC-122106	Saginaw Carp 6806-148	.6	6	.6	6	< 0.2		9
PC-010207	Saginaw Carp 6806-148	< 0.2		< 0.2		< 0.2		10
	Average:	**--**		**--**		**< 0.2**		**10**

Table 6. Total chlordanes and summed target chlordane concentrations and percentages in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; ng/g, nanogram per gram; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; --, no data]

USGS ID number	MDC field ID	Total technical chlordanes[1] (ng/g)	Total target chlordanes[2] (ng/g)
38400	2006-297-232-1	67	31
38401	2006-297-232-2	110	65
38402	2006-297-232-3	70	38
38403	2006-297-232-4	64	42
38404	2006-297-232-5	86	65
38405-1	2006-297-232-6	30	17
38405-2	2006-297-232-6	27	15
38405-3	2006-297-232-6	21	10
	Average:	**26**	**14**
	SD:	4.6	3.6
	RSD:	18	26
38406	2006-297-232-7	130	88
38407	2006-297-232-8	100	66
38408	2006-312-230-1	19	15
38409	2006-312-230-2	28	16
38410	2006-312-230-3	22	17
38411	2006-331-232-1	25	20
38412	2006-331-232-2	60	52
38413	2006-331-232-3	83	61
38414	2006-331-232-4	74	51
38415	2006-331-232-5	140	100
38416	2006-331-232-6	260	190
38417	2006-331-232-7	190	150
38418	2006-331-232-8	230	160
38419	2006-618-230-1	< 5	3.2
38420	2006-618-230-2	5.8	2.3
38421	2006-618-230-3	9.1	5
38422	2006-703-406-1	< 5	3.6
38423	2006-703-406-2	< 5	7.5

Table 6. Total chlordanes and summed target chlordane concentrations and percentages in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.—Continued

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; ng/g, nanogram per gram; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; --, no data]

USGS ID number	MDC field ID	Total technical chlordanes[1] (ng/g)	Total target chlordanes[2] (ng/g)
38424-1	2006-703-406-3	< 5	2.4
38424-2	2006-703-406-3	< 5	1.2
38424-3	2006-703-406-3	< 5	2.4
	Average:	**<5**	**2**
	SD:	--	.7
	RSD:	--	35
38425	2006-704-406-1	6.2	3.9
38426	2006-704-406-2	8.7	7.2
38427	2006-704-406-3	5.3	2.1
38428	2006-705-245-1	16	9.6
38429	2006-705-245-2	< 5	2.7
38430	2006-705-245-3	18	11
38431	2006-705-245-4	9.4	5.9
38432	2006-705-245-5	6.2	3.7
38433	2006-705-245-6	10	11
38434	2006-705-245-7	13	7.5
38435	2006-705-245-8	17	11
38436	2006-705-245-9	8.1	5.2
38437	2006-705-245-10	6.6	4.6
38438	2006-705-245-11	10	6.7
38439	2006-705-245-12	15	9.4
38440	2006-706-245-1	5.1	3
PB-122106		5.5	1.2
PB-010207		< 5	.8
	Average:	**--**	**1**
MB-010107	Control Bluegill 654C	8.4	5.4
MB-010307	Control Bluegill 654C	9.5	5.1
	Average:	**9**	**5.3**
MS-OC-010107	Matrix Spike - OCs	210	270
MS-OC-010307	Matrix Spike - OCs	200	250
	Average:	**205**	**260**

Table 6. Total chlordanes and summed target chlordane concentrations and percentages in Missouri Department of Conservation 2006 General Contaminant Monitoring fish fillets.—Continued

[USGS, U.S. Geological Survey; ID, identification; MDC, Missouri Department of Conservation; ng/g, nanogram per gram; Average, average of replicate analyses; SD, standard deviation; RSD, percent relative standard deviation; --, no data]

USGS ID number	MDC field ID	Total technical chlordanes[1] (ng/g)	Total target chlordanes[2] (ng/g)
MS-PCB-010107	Control Bluegill 654C	25	11
MS-PCB-010307	Control Bluegill 654C	6.1	3.3
	Average:	**16**	**7.2**
MS-CHLOR-010307	Matrix Spike - Tech. Chlordane	760	360
PC-122106	Saginaw Carp 6806-148	210	75
PC-010207	Saginaw Carp 6806-148	100	73
	Average:	**155**	**74**

[1]Sum of 31 major technical chlordane components including heptachlor, *cis/trans*-chlordane, *cis/trans*-nonachlor, but not including heptachlor epoxide, oxychlordane, or methoxychlor metabolites.

[2]Sum of eight targeted components: heptachlor, heptachlor epoxide, oxychlordane, *cis/trans*-chlordane, *cis/trans*-nonachlor, methoxychlor.

Publishing support provided by:
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