



United States Department of the Interior

U. S. GEOLOGICAL SURVEY

Columbia Environmental Research Center
4200 New Haven Road
Columbia, Missouri 65201

September 6, 2000

Anne Secord
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New York Field Office
3817 Luker Road
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Dear Anne:

The Hudson River Project is moving forward. We are enclosing Report #2 entitled "PCBs and OC Pesticides in Great Blue Heron Brain Tissue and Tree Swallow Nestlings and Adults" (On August 31, I emailed you a copy of the report). The analysis went very well: The quality control built into the analysis indicates that the data quality is very high and well within our quality control guidelines. Report #2 contains the following results:

- 6 Great blue heron nestling brains
 - Total PCBs and selected PCB congeners
- 24 Tree swallow nestlings
 - Total PCBs and selected PCB congeners
 - Organochlorine pesticides
- 9 Tree swallow adults
 - Total PCBs and selected PCB congeners
 - Organochlorine pesticides

Note: The tree swallows were also analyzed for non-*ortho* PCBs- to be reported mid-October.

Future Reports: On August 28, I sent an email updating you on our progress on the eagle eggs, bloods, and prey, which will be completed September 19. The remainder of the Hudson River project will be reported to you in installments through the end of this calendar year. Please feel free to give me a call if you have any questions or concerns.

Sincerely,

Carl E. Orazio, Ph.D.
Leader, Organic Chemistry Section



Columbia Environmental Research Center
U.S. Geological Survey- Biological Resources Division
4200 New Haven Road, Columbia, Missouri 65201

September 6, 2000

REPORT #2
PCBs and OC Pesticides in Great Blue Heron Brain Tissue and
Tree Swallow Nestlings and Adults

FY-00-31-02

FWS NO: 1448-50181-99-H-007

CERC NO: 3307-70L1D

By

Organic Chemistry Section
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Carl Orazio- USGS Project Leader

FWS PROJECT TITLE

Chemical Contamination of Nesting Tree Swallows, Great Blue Herons, and
Resident/Nesting Bald Eagles Along the Hudson River, New York

Principal Investigator

Anne Secord
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New York Field Office
3817 Luker Road
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Project History:

The Hudson River is highly contaminated with PCBs from industrial sources, primarily two capacitor manufacturing facilities operated by General Electric. The 200 river miles from the New York Harbor upstream to Hudson Falls, New York, are designated a Superfund Site. From 1946 until 1977, it is estimated that between 209,000 and 1.3 million pounds of PCBs were discharged into the waters of the Hudson by these two plants. Downstream movement of the PCBs was retarded by the Ft. Edward Dam until its removal in 1973, at which time the heavily contaminated sediments and detritus began to migrate downstream. In addition to contamination of the river itself, dredging operations have deposited contaminated material at nine known upland sites adjacent to the river. In 1993, it was discovered that one of the facilities was continuing to discharge PCBs into the river.

Contamination of water, sediments, and fish along the Hudson River by PCBs has been examined, but less is known about the concentration and movement of the contaminants among other trophic levels. Many resident and migrating avian species may be affected, including a fairly substantial population of wintering bald eagles (*Haliaeetus leucocephalus*). The samples described in this report are part of a series of studies designed to expand the knowledge of PCB flux in the food chain of bird species and other biota on and around the Hudson River. In 1995-1997, we took part in a study involving tree swallows (*Tachycineta bicolor*) as the indicator species along the river. Eggs, pre-fledgling chicks, odonates (emergent insects which comprise a large percentage of the diet of the swallows), and two species of ducks were assessed for contaminant concentrations. In 1997-1998, the scope of the study expanded to include samples from a bald eagle and a number of bald eagle prey species. Several species of fish, tree swallows, bluebirds, wood ducks, and two species of sparrow were analyzed.

The present segment of the study expands the diversity of the sample matrices still further. In response to the growing number of wintering, and in some cases, nesting bald eagles on the Hudson, tissue and eggs from a larger group of bald eagles and prey species have been added. The great blue heron (*Ardea herodias*), another top predator inhabiting the area, was examined. To gain further understanding of the factors influencing the life cycles and reproduction of these animals, more comprehensive organic analyses were conducted. PCB congeners including non-ortho-chlorinated (dioxin-like) PCBs, polychlorinated dibenzo-dioxins and-furans (PCDDs, PCDFs), polycyclic aromatic hydrocarbons (PAHs), and a suite of organochlorine pesticides were targeted in this investigation. As the information base on this ecosystem grows, a clearer picture of the remedial efforts required to restore it to its normal function will hopefully emerge.

Biota sampled by US F&WS were analyzed by the Organic Chemistry Section of the Columbia Environmental Research Center. A total of 124 samples were investigated, targeting selected analytes from the following list (each sample was not analyzed for all analytes):

- Total PCBs and selected PCB congeners,
- Organochlorine pesticides
- 2,3,7,8-substituted polychlorinated dibenzo-*p*-dioxins and -dibenzofurans
- Non-*ortho* PCB congeners
- Polycyclic aromatic hydrocarbons

Samples were generally grouped by the type of analysis conducted. The various groups are reported separately. In addition to organic analysis, selected samples were analyzed for mercury, arsenic, and selenium; these are reported under a separate cover.

This report concerns the following samples and targeted contaminants:

- 6 Great blue heron nestling brains
 - Total PCBs and selected PCB congeners
- 24 Tree swallow nestlings
 - Total PCBs and selected PCB congeners
 - Organochlorine pesticides
- 9 Tree swallow adults
 - Total PCBs and selected PCB congeners
 - Organochlorine pesticides

The tree swallows were also analyzed for non-*ortho* PCBs, which will be reported later.

Contents:

- I. Summary of Analytical Methods for Sample Preparation
- II. PCB Congener (cPCB) Analysis and Results
- III. Organochlorine Pesticide Analysis and Results
- IV. Summary

Tables:

1. PCB Congener Concentrations in Great Blue Heron Brains, Tree Swallow Nestlings/Adults
2. Quality Control Results for Congener-Specific PCB Analysis
3. Recoveries of PCB Procedural Internal Standards
4. Organochlorine Pesticide Concentrations in Tree Swallow Nestlings and Adults
5. Quality Control Results for Organochlorine Pesticide Analysis

Figures:

1. Analytical scheme for congener-specific PCBs, non-ortho-PCBs, PCDFs, and PCDDs.
2. Analytical scheme for organochlorine pesticides and total PCBs.

I. Summary of Analytical Methods for Sample Preparation

The 39 samples in this set consisted of 6 Great blue heron nestling brains, 24 tree swallow nestlings, and 9 tree swallow adults. After receipt, the samples were assigned CERC database numbers. All 39 samples were analyzed for congener-specific PCBs. The 33 tree swallow samples were analyzed for a suite of organochlorine pesticides (OCs) and non-*ortho*-PCBs. (The non-*ortho*-PCBs will be reported later). Separate aliquants of the samples were processed through the two analytical protocols.

Quality Control: Matrix QC samples (blanks and spikes) prepared from clean bluegill tissue were analyzed with each set of samples. Positive control samples analyzed with the samples were prepared from CERC's standard positive control matrix, common carp tissue (*Cyprinus carpio*) from Saginaw Bay, MI. Additionally, selected samples were prepared, processed, and analyzed in triplicate.

All samples, including QC samples were spiked with method recovery compounds before extraction to monitor recoveries through the cleanup procedures. Due to an improvement in our analytical procedures, two different sets of internal standards were used. Where congener-specific PCBs were targeted, the following compounds were initially used:

PCB 030 (2,4,6-trichlorobiphenyl)
PCB 204 (2,2',3,4,4',5,6,6'-octachlorobiphenyl).

After the improved procedure was implemented the recovery monitors were:

PCB 029 (2,4,6-trichlorobiphenyl)
PCB155 (2,2',4,4',6,6'-hexachlorobiphenyl)
PCB 204 (2,2',3,4,4',5,6,6'-octachlorobiphenyl).

Matrix spikes also received, according to the analytical protocol:

Organochlorine pesticides (24 compounds)
PCBs (mixed Aroclors 1242, 1248, 1254, 1260)

Sample Preparation: In each protocol, the samples were dehydrated by addition of anhydrous sodium sulfate and method recovery standards were spiked. Samples were extracted with methylene chloride, and a small portion of the extract (1%) was used to determine percent lipid (1). In the analytical protocol where congener-specific and non-*ortho* PCBs were targeted, extracts were cleaned using acid- and base-treated silica gels and adsorbent chromatography on activated silica gel (2). All extracts were further purified by High Performance Gel Permeation Chromatography (HPGPC) (3) and then fractionated on high performance Porous Graphitic Carbon (PGC) (4) into the following fractions:

PGC 1 *ortho*-chlorinated PCB congeners
- Analysis by gas chromatography (GC)/ electron-capture detection (ECD)

PGC 2 non-*ortho*-chlorinated PCBs
- Analysis by GC/ high resolution mass spectrometry (GC/HRMS)

The following QC samples were processed with the 39 samples undergoing congener-specific PCB analysis:

- 3 procedural blanks
- 3 matrix blanks (control bluegill)
- 3 matrix spikes (control bluegill)
- 3 positive controls (Saginaw Carp)
- 2 samples analyzed in triplicate

In the analytical protocol targeting organochlorine pesticides, lipids and coextracted biogenic materials were removed from the extracts by passage through gravity-driven gel permeation chromatography (5) followed by HPGPC (3). The extracts were then fractionated on a two-layered octadecyl silica/activated silica gel column into two fractions: one fraction containing PCBs and four of the targeted OCs (SODS-1), and a second fraction containing the remainder of the OCs (SODS-2) (6).

The following QC samples were processed with the 33 samples undergoing OC pesticide analysis:

- 2 procedural blanks
- 2 matrix blanks (control bluegill)
- 2 matrix spikes (control bluegill)
- 2 positive controls (Saginaw Carp)
- 2 samples analyzed in triplicate

II. Congener-specific PCB Analysis and Results

The sample extracts were adjusted to a final volume of 10 mL. Two different internal standard protocols were used. Our initial methodology used 500 ng of octachloronaphthalene (OCN) as the internal standard. After method improvements were made, two internal standards were used: congeners 030 and 207 (400 ng each). Individual PCB congeners were measured in PGC1 fractions by GC/ECD.

Instrumentation: Analyses were performed as described in CERC SOP P.195 (7), using Hewlett-Packard 5890 Series II GCs with cool on-column capillary injection systems and Hewlett-Packard model 7673 autosamplers. For all analyses, a 3-m section of 0.53 mm i.d. uncoated and deactivated (Restek Corp., Inc.) capillary

retention gap was attached to the front of each analytical column by a "Press-Tight" (Restek Corp., Inc.) union. The analytical column was a 60-m x 0.25-mm DB-5 (0.25µm 5% phenyl-, 95% methylsilicone, J&W Scientific). The H₂-carrier gas was pressure regulated at 25 psi. The temperature program for the PCB analysis was as follows: initial temperature 60°C, immediately ramped to 150°C at 15°C/min, then ramped to 250°C at 1°C/min, and finally ramped to 320°C at 10°C/min, and held for 1 min. The temperature of the ECD was 330°C.

General Detection and Quantification Procedure: Capillary GC/ECD data were collected, archived in digital form, and processed using a PE-Nelson chromatography data system which included the model 970 interface and version 4.1 of Turbochrom™ chromatography software on a Pentium microcomputer. Six levels of PCB standards, a combination of Aroclors 1242, 1248, 1254, 1260 in 1:1:1:1 w/w/w/w ratio (designated A1111), were used for PCB congeners calibration, with total PCB concentrations ranging from 200 to 8000 ng/mL. An instrumental internal standard (IIS) method, initially using OCN, and later using PCB congeners 030 and 207, was used to calculate the concentrations of the targeted compounds. Samples were processed and analyzed in four batches (sets 1,2,3,4). PCB congener results are presented in Table 1, designated by their CERC database number and are cross-referenced to their field identification number. Concentrations are expressed as nanograms of analyte per gram of sample (wet weight).

Quality Control Procedures and Results: Matrix and procedural blank results, spike recoveries, detection limits, method precision, and instrument precision are presented in Table 2. Procedural blank and matrix spike results are presented in units of mass (nanograms). All other values are reported in concentration units (ng/g).

The method detection limits (MDLs) for individual PCB congeners and for total PCBs are based on procedural blank (PB) results according to the method outlined by Keith *et al.* (8,9). Briefly, an average and standard deviation are determined. The MDL (ng) is calculated using the following formula:

$$\text{MDL} = (\text{PB Avg}) + 3(\text{PB SD})$$

The MDL is then expressed in units of concentration, e.g. mass of analyte per mass of sample. An average mass for the set is used. See the tables for individual MDL values. The lowest MDL for this set of samples was 0.01 ng/g for individual PCB congeners and 9.8 ng/g for total PCB concentrations (10).

A method quantitation limit (MQL) can be calculated using the following formula (7,8):

$$\text{MQL} = (\text{PB Avg}) + 10(\text{PB SD}).$$

Triplicate analysis of samples 18765 and 18783 (suffixes 1,2, and 3) showed precision for the overall method to be better than 10 % RSD for PCB congeners present at concentrations 10-20 times the MDL. Nearer the limits of detection, variability increases (following measurement theory), and some PCBs in this low concentration range had higher % RSD's. The precision of the gas chromatographic analysis is measured by triplicate injections of the same sample. Precision averaged 5% for all the sample sets.

Accuracy of the method is monitored through rigorous quality control. Analytical standards have been verified against certified standards (Accustandard, New Haven CT). The extraction efficiency and method are monitored by analysis of positive control, Saginaw Bay carp. Recoveries of analytes are monitored by the following measures:

- 1) internal recovery standards spiked into each sample
- 2) PCB-spiked control bluegill tissue analyzed with each set

The procedural internal standards, PCBs 029, 155, and 204, which elute in the PGC1 fraction, are presented in Table 3. PCB 029 (sets 3 & 4) and PCB 030 (sets 1 & 2), both trichlorobiphenyls, are representative of more volatile early eluting PCBs ($Cl_1 - Cl_3$). PCB 155 (only in sets 3 & 4), a hexachlorobiphenyl, is representative of mid-range eluting congeners ($Cl_4 - Cl_6$). PCB 204 (in all samples), an octachlorobiphenyl, is less volatile and representative of later eluting PCBs ($Cl_7 - Cl_{10}$). Recoveries averaged $70 \pm 5\%$ for PCB 029, $76 \pm 14\%$ for PCB 030, $80 \pm 5\%$ for PCB 155, and $72 \pm 4\%$ and $87 \pm 16\%$ for PCB 204 (Table 3). Recoveries of total-PCBs were 87%, 69%, and 73% for the matrix spikes.

III. Organochlorine Pesticide Analysis and Results

Organochlorine pesticide fractions (SODS-1 and SODS-2) were adjusted to a final volume of 2 mL and the instrumental internal standard (IIS) is added. As stated in Section II, two internal standard protocols were used, including use of different IIS's. Octachloronaphthalene was the IIS for sets 1&2. In sets 3&4, PCB congeners 030 and 207 were used. Individual organochlorine pesticides were measured in both fractions by GC/ECD. Results of the OC pesticide analysis are presented in Table 4.

Instrumentation: Analyses were performed as described in CERC SOP P.459 (11), using Hewlett-Packard 5890 Series II GCs with cool on-column capillary injection systems and Hewlett-Packard model 7673 autosamplers. For all analyses, a 3-m section of 0.53 mm i.d. uncoated and deactivated (Restek Corp., Inc.) capillary retention gap was attached to the front of the analytical column by a "Press-Tight" (Restek Corp., Inc.) union. The analytical column for the SODS2 fraction was a 30-m x 0.25-mm DB-35ms (J&W Scientific). The H_2 -carrier gas was pressure regulated at 11 psi. The temperature program for the analysis was as follows: initial temperature $90^\circ C$, immediately ramped to $165^\circ C$ at $15^\circ C/min$, held 3 minutes, then ramped to $260^\circ C$ at

2.5°C/min with a 5 minute hold, and finally ramped to 320°C at 10°C/min, and held for 1 min. The temperature of the ECD was 330°C.

General Detection and Quantification Procedure: Capillary GC/ECD data were collected, archived in digital form, and processed using a PE-Nelson chromatography data system that included the model 970- interface and version 4.1 of Turbochrom™ chromatography software on a Pentium microcomputer. Six levels of OC pesticide standards were used for calibration, with each pesticide at concentrations ranging from 1 to 80 ng/mL. Samples were analyzed and processed in four batches (sets 1,2,3,4). Octachloronaphthalene (OCN) was used as the instrumental internal standard (IIS) for sets 1 and 2. The IIS for sets 3 and 4 were PCBs 030 and 207. Organochlorine pesticide results are presented in Table 4, designated by their CERC database number and are cross-referenced to their field identification number. Concentrations are expressed as nanograms of analyte per gram of sample (wet weight).

Quality Control Procedures and Results: Quality control data for procedural and matrix blanks, spikes, replicates, and positive controls are presented in Table 5. All concentrations are reported in nanograms per gram, except for procedural blank samples, which are reported as a mass amount (ng). The method detection limits (MDLs) for individual compounds are calculated by the method already described in the previous section. The lowest MDL for OC pesticides for these sample sets was 0.01 ng/g (10) and the highest was 4.6 ng/g.

Triplicate analysis of biota sample 18765 and 18783(1,2,3) showed an average precision of 12 - 15% RSD for the OC pesticides analyzed. Gas chromatographic precision was determined to be 2-3% by triplicate injections of samples MS 051099 and MS 101499.

As with congener-specific PCB analysis, accuracy of the method is monitored by analysis of positive control--Saginaw Bay carp. Recoveries of analytes are monitored by spiked control bluegill tissue. DDT compounds averaged $85 \pm 14\%$ (sets 1 & 2), $86 \pm 11\%$ (sets 3 & 4); chlordanes averaged $73 \pm 5\%$ (sets 1 & 2), $79 \pm 3\%$ (sets 3 & 4); BHC compounds averaged $70 \pm 4\%$ (sets 1 & 2), $85 \pm 5\%$ (sets 3 & 4); endosulfans averaged $82 \pm 17\%$ (sets 3 & 4).

V. Summary

This report is part of the much larger investigation of exposure of biota to contaminants along the Hudson River, NY. Fish, birds, eagle prey items, eagle eggs, and eagle bloods are being analyzed for organochlorine pesticides, PCB congeners, non-ortho-PCBs, and PCDDs/PCDFs. This report includes the organochlorine and PCB congener results for selected sample sets of nestling and adult tree swallows, and great blue heron brains. The non-*ortho* PCB information for the tree swallows will be reported at a later date.

The OC pesticide and PCB data quality is described earlier in the report. The quality control samples show that the results fall well within QC limits. Background levels of PCBs were low in matrix and procedural blanks. Furthermore, each sample is spiked with appropriate chemical compounds that enable the quality of each analysis to be monitored.

When more specific site and sample information is available, a more thorough interpretation of the PCB and OC-pesticide data will be made. Generally, the pesticide classes found in these samples were those related to DDT and technical chlordane.

Acknowledgements

The expertise and dedication of George Tegerdine and Tim McTague is greatly appreciated. Thanks to Paul Peterman and Robert Gale for their input and comments on this portion of the project.

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Figure 1: Analysis for Congener-specific PCB, PCDD, and PCDF Residues

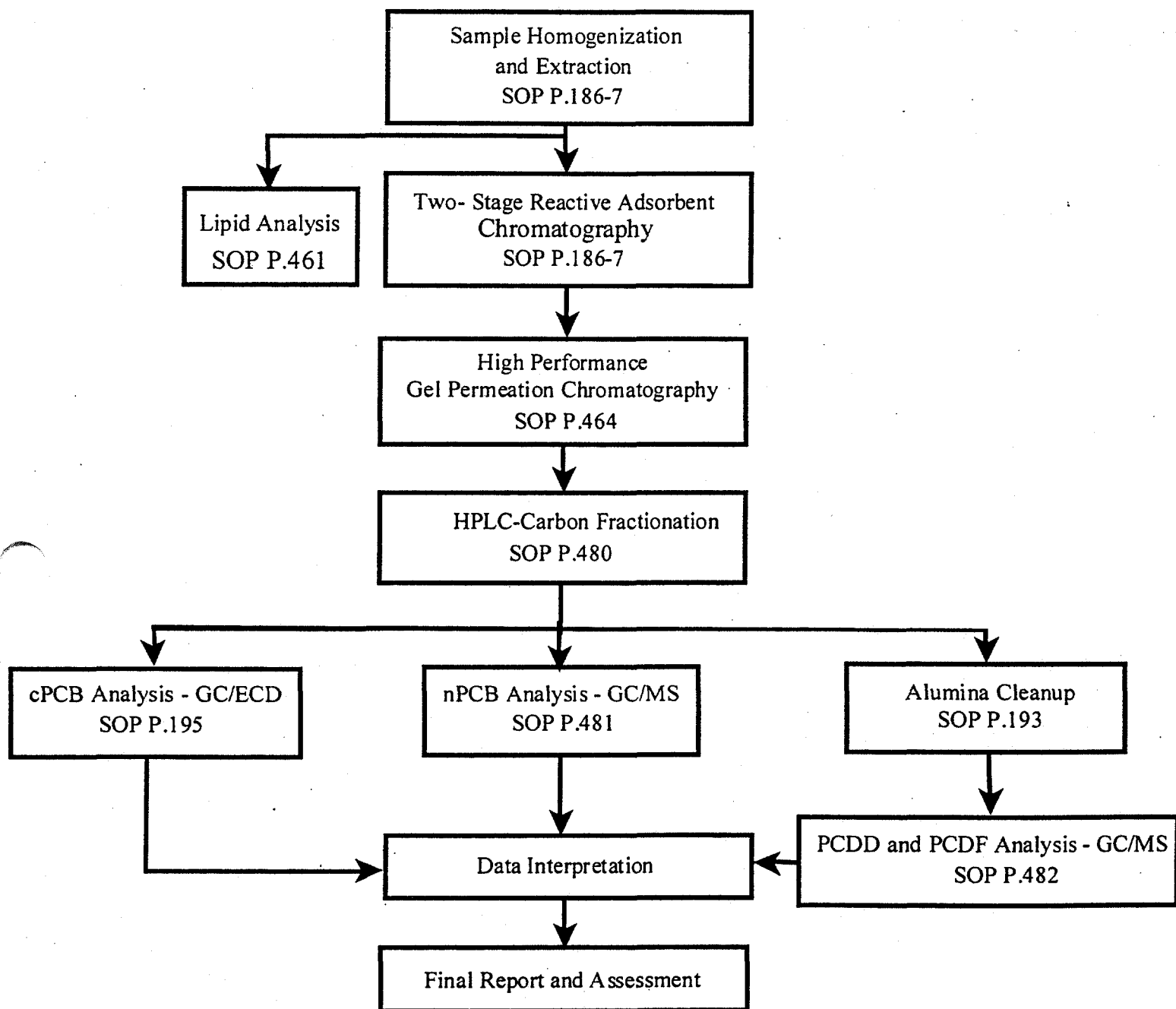
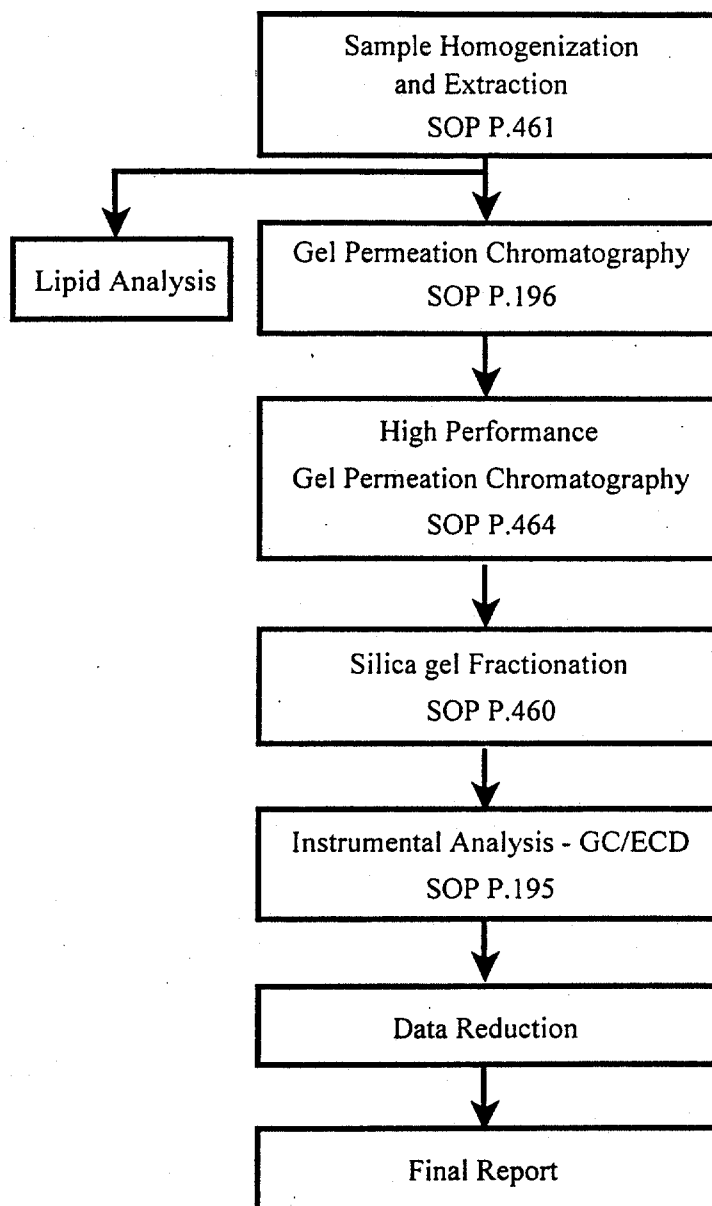


Figure 2: Analysis for Organochlorine Pesticides and Total PCB



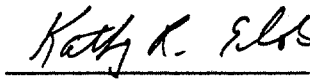
Chemical Contamination of Nesting Tree Swallows, Great Blue Herons, and
Resident/Nesting Bald Eagles Along the Hudson River, New York

Report #2: ^{CEO} August 15, 2000
SEPTEMBER 6, 2000

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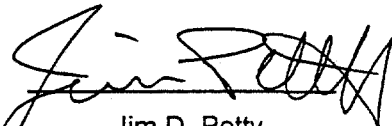
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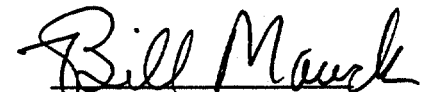

Bill Mauck
Director, Columbia Environmental Research Center

Table 1. PCB Congener Concentrations in Great Blue Heron Brains, Tree Swallow Nestlings and Adults (ng/g)

	Sample ID	Field ID	Sample Type	Gram-equivalents for Analysis (g)	% Lipid	001	003	004	005	006	007	008	009	010	015	016
sets 1&2	18759	TSC216-98	TS Nestling	9.8	10.2	< 0.02	< 0.03	0.27	< 0.01	< 0.01	< 0.01	0.64	< 0.01	0.13	15	17
	18760	TSC217-98	TS Nestling	9.8	10.5	< 0.02	< 0.03	0.67	< 0.01	< 0.01	< 0.01	0.67	0.14	0.25	23	20
	18761	TSC222-98	TS Nestling	9.8	6.7	< 0.02	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	0.42	0.08	0.16	20	19
	18762	TSC224-98	TS Nestling	9.8	8.5	< 0.02	< 0.03	< 0.01	< 0.01	0.15	< 0.01	2.5	< 0.01	0.11	20	21
	18764*	TSC304-98	TS Nestling	5.9	11.5	< 0.02	< 0.03	13	< 0.01	0.87	< 0.01	7.3	0.24	11	33	37
	18765	TSC305-98	TS Nestling	9.8	11.9	< 0.02	< 0.03	1.5	< 0.01	< 0.01	< 0.01	0.81	0.09	1.7	53	21
	18766	TSC306-98	TS Nestling	9.8	9.1	2.5	< 0.03	36	< 0.01	3.0	0.24	12	0.56	16	32	37
	18767	TSC310-98	TS Nestling	9.8	10.7	1.3	< 0.03	13	< 0.01	0.62	< 0.01	3.3	0.15	9.2	37	25
	18769	TSC402-98	TS Nestling	9.8	3.6	2.0	< 0.03	34	< 0.01	2.2	< 0.01	16	0.77	18	22	32
	18770	TSC403-98	TS Nestling	9.8	1.75	< 0.02	< 0.03	2.4	< 0.01	0.14	< 0.01	0.82	< 0.01	1.3	4.8	9.6
	18771	TSC412-98	TS Nestling	9.8	8.7	2.1	< 0.03	48	< 0.01	3.6	< 0.01	17	1.2	23	49	34
	18772	TSC413-98	TS Nestling	9.8	1.6	6.0	< 0.03	51	< 0.01	4.8	0.12	20	1.5	25	16	43
	18774	TSC601-98	TS Nestling	9.8	11.1	< 0.02	< 0.03	2.6	< 0.01	0.17	< 0.01	1.7	< 0.01	1.6	3.2	11
	18775	TSC609-98	TS Nestling	9.8	8.2	< 0.02	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.16	3.1	4.1
	18777	TSC702-98	TS Nestling	9.8	7.25	< 0.02	< 0.03	0.70	< 0.01	< 0.01	< 0.01	0.22	< 0.01	0.40	0.62	4.6
	18778	TSC703-98	TS Nestling	9.8	9.1	< 0.02	< 0.03	1.9	< 0.01	0.12	< 0.01	1.1	< 0.01	1.1	1.2	7.0
	18803	GBHC401B-98	GBH Nestling Brain	5.1	5.1	< 0.02	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.18
	18814	GBHC602B-98	GBH Nestling Brain	1.7	1.2	0.56	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.13
	18815	GBHC603B-98	GBH Nestling Brain	2.8	3.3	< 0.02	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
	18816	GBHC604B-98	GBH Nestling Brain	3.4	3.6	< 0.02	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.31
	18817	GBHC605B-98	GBH Nestling Brain	3.1	4	< 0.02	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
	18818	GBHC606B-98	GBH Nestling Brain	3.3	3.5	< 0.02	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
	MDLs					0.02	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
sets 3&4	18780	TSC804-98	TS Nestling	9.8	9.8	0.88	< 0.14	0.72	< 0.01	< 0.01	< 0.01	0.04	< 0.03	0.03	0.06	< 0.01
	18781	TSC811-98	TS Nestling	9.8	10.7	0.45	< 0.14	0.52	< 0.01	< 0.01	< 0.01	< 0.04	< 0.03	< 0.01	< 0.01	0.30
	18783	TSC907-98	TS Nestling	9.8	9.4	0.60	< 0.14	0.57	< 0.01	< 0.01	< 0.01	< 0.04	< 0.03	0.04	0.10	0.02
	18784	TSC909-98	TS Nestling	9.8	4.2	0.54	< 0.14	0.49	< 0.01	< 0.01	< 0.01	< 0.04	< 0.03	< 0.01	< 0.01	< 0.01
	18785	TSC910-98	TS Nestling	5.9	3.4	0.57	< 0.14	0.77	< 0.01	< 0.01	< 0.01	< 0.04	< 0.03	< 0.01	< 0.01	< 0.01
	18786	TSC913-98	TS Nestling	9.6	13.8	< 0.01	< 0.14	0.53	< 0.01	< 0.01	< 0.01	< 0.04	< 0.03	< 0.01	0.27	< 0.01
	18788*	TSA227-98	Adult	5.9	8.1	0.35	< 0.14	0.89	< 0.01	0.06	0.02	0.26	0.04	0.03	23	0.95
	18789	TSA027-98	Adult	9.8	11.1	0.03	< 0.14	0.54	< 0.01	< 0.01	< 0.01	0.10	< 0.03	0.07	33	0.45
	18790	TSA210-98	Adult	9.8	12.8	< 0.01	< 0.14	0.87	< 0.01	0.08	0.03	0.91	0.12	0.05	28	3.5
	18791	TSA302-98	Adult	9.8	6.6	0.44	< 0.14	0.52	< 0.01	< 0.01	< 0.01	< 0.04	< 0.03	0.03	52	0.06
	18792	TSA303-98	Adult	9.8	6.9	0.48	< 0.14	0.84	< 0.01	< 0.01	< 0.01	0.12	< 0.03	0.11	30	0.16
	18793	TSA321-98	Adult	9.8	7.7	0.19	< 0.14	4.1	< 0.01	0.24	0.01	0.83	0.05	2.3	15	1.9
	18794	TSA412-98	Adult	9.8	9.6	0.23	< 0.14	0.49	< 0.01	< 0.01	< 0.01	0.09	< 0.03	0.04	4.5	< 0.01
	18795	TSA413-98	Adult	9.8	8.7	< 0.01	< 0.14	0.84	< 0.01	0.03	< 0.01	0.41	< 0.03	0.35	5.4	1.1
	18796	TSA428-98	Adult	9.8	9.2	0.32	< 0.14	0.99	< 0.01	0.08	< 0.01	0.53	0.04	0.52	13	2.5
	18798	TSCW2-98	TS Nestling	9.8	7.6	0.51	0.49	0.52	< 0.01	< 0.01	< 0.01	< 0.04	< 0.03	< 0.01	0.06	< 0.01
	18799	TSCW3-98	TS Nestling	9.8	13.0	< 0.01	< 0.14	< 0.45	< 0.01	< 0.01	< 0.01	< 0.04	< 0.03	< 0.01	< 0.01	< 0.01
	MDLs					0.01	0.14	0.45	0.01	0.01	0.01	0.04	0.03	0.01	0.01	0.01
*Average of method replicates.																
TS-tree swallow; GBH-Great Blue Heron																
MDL-method detection limit.																
Note: Values have 2 significant figures.																
Concentrations recovery corrected.																
*Total PCBs at 2 significant figures.																

Table 1. PCB Congener Concentrations in Great Blue Heron Brains, Tree Swallow Nestlings and Adults (ng/g)

	Sample ID	Field ID	017	018	019	020	022	024	025	026	027	028	031	032	033	034	035
sets 1&2	18769	TSC216-98	29	18	6.1	0.25	13	<0.01	23	38	13	600	380	29	5.8	0.60	0.82
	18760	TSC217-98	38	47	13	0.54	19	<0.01	26	46	16	590	410	28	8.9	1.5	1.0
	18761	TSC222-98	30	28	7.0	0.18	14	<0.01	25	38	11	610	420	30	5.6	0.75	0.85
	18762	TSC224-98	52	9.4	2.1	1.0	37	<0.01	27	53	10	670	420	44	19	0.15	0.76
	18764*	TSC304-98	90	37	48	2.6	37	<0.01	38	73	77	500	290	77	12	3.1	<0.01
	18765	TSC305-98	37	19	37	0.30	11	<0.01	52	69	82	820	600	38	2.2	4.0	<0.01
	18766	TSC306-98	130	54	47	6.3	69	<0.01	43	85	68	560	330	84	28	2.8	0.42
	18767	TSC310-98	46	26	64	0.61	12	<0.01	46	74	110	580	450	41	3.4	4.5	0.27
	18769	TSC402-98	93	39	47	1.3	17	0.21	31	120	87	210	320	86	5.5	6.8	0.30
	18770	TSC403-98	12	5.3	8.7	0.05	1.9	<0.01	9.6	33	27	110	110	15	0.45	2.3	<0.01
	18771	TSC412-98	80	28	59	0.36	7.2	0.34	48	150	110	360	560	110	1.6	4.1	<0.01
	18772	TSC413-98	120	65	55	2.7	27	0.58	33	140	79	220	290	96	7.9	8.7	<0.01
	18774	TSC601-98	33	21	6.1	0.34	4.7	<0.01	8.9	24	5.2	56	71	15	0.69	0.87	0.57
	18775	TSC609-98	7.1	2.9	1.8	<0.01	1.0	<0.01	5.1	8.9	1.8	54	60	4.0	<0.01	0.48	0.34
	18777	TSC702-98	10	4.9	2.1	0.05	1.1	0.03	2.9	6.8	2.0	20	22	4.6	<0.01	0.17	0.54
	18778	TSC703-98	21	8.4	3.1	0.19	2.3	<0.01	4.6	13	3.9	25	31	11	0.64	0.32	1.0
	18803	GBHC401B-98	<0.01	0.26	<0.13	<0.01	<0.01	<0.01	0.56	14	<0.01	54	51	0.14	<0.01	<0.01	<0.01
	18814	GBHC602B-98	<0.01	0.50	<0.13	<0.01	<0.01	<0.01	<0.01	0.75	<0.01	3.7	2.8	<0.01	<0.01	<0.01	<0.01
	18815	GBHC603B-98	<0.01	0.21	<0.13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.49	0.19	<0.01	<0.01	<0.01	<0.01
	18816	GBHC604B-98	0.22	1.09	<0.13	<0.01	0.07	<0.01	0.22	1.5	0.17	4.4	4.0	0.25	<0.01	<0.01	<0.01
	18817	GBHC605B-98	<0.01	<0.01	<0.13	<0.01	<0.01	<0.01	<0.01	0.07	<0.01	1.4	0.78	<0.01	<0.01	<0.01	<0.01
	18818	GBHC606B-98	<0.01	<0.01	<0.13	<0.01	<0.01	<0.01	<0.01	0.06	<0.01	1.5	0.61	<0.01	<0.01	<0.01	<0.01
	MDLs		0.01	0.01	0.13	0.01	0.01	0.01	0.01	0.01	0.01	0.08	0.01	0.01	0.01	0.01	0.01
sets 3&4	18780	TSC804-98	0.61	0.28	0.11	<0.01	0.22	<0.01	0.35	0.53	0.13	3.1	1.6	1.7	0.36	0.05	<0.01
	18781	TSC811-98	0.21	0.22	0.11	<0.01	0.10	<0.01	0.16	0.54	0.09	2.6	1.4	0.15	0.05	0.04	<0.01
	18783	TSC907-98	0.78	1.2	0.45	0.02	0.14	0.02	0.45	0.95	0.55	4.9	2.6	1.4	<0.05	<0.01	<0.01
	18784	TSC909-98	0.04	<0.07	<0.01	<0.01	<0.05	<0.01	0.06	0.24	0.03	1.0	0.21	1.1	0.05	0.02	<0.01
	18785	TSC910-98	<0.03	<0.07	<0.01	0.03	<0.05	<0.01	0.02	0.11	<0.01	<0.35	<0.15	0.90	<0.05	<0.01	<0.01
	18786	TSC913-98	0.25	0.22	0.16	<0.01	<0.05	<0.01	0.64	0.77	0.75	11	5.9	0.94	<0.05	0.06	<0.01
	18788*	TSA227-98	2.1	4.8	1.5	0.13	2.7	<0.01	7.8	8.4	2.7	690	200	7.5	1.6	0.12	<0.01
	18789	TSA027-98	0.72	1.8	1.1	0.10	2.7	0.02	8.2	6.2	3.3	660	240	6.6	0.82	0.06	<0.01
	18790	TSA210-98	6.7	14	3.6	0.22	6.5	0.02	14	20	5.9	490	220	19	4.6	0.30	<0.01
	18791	TSA302-98	<0.03	0.31	0.90	0.04	0.74	0.02	3.6	1.6	2.0	970	220	1.5	0.02	0.06	<0.01
	18792	TSA303-98	0.34	1.1	2.3	0.07	0.90	0.01	4.6	3.8	4.4	580	120	3.1	0.20	0.22	<0.01
	18793	TSA321-98	3.4	3.5	15	0.18	1.8	<0.01	8.2	13	24	370	200	12	0.43	0.78	0.07
	18794	TSA412-98	0.74	0.25	0.38	0.05	1.0	<0.01	2.9	5.7	2.3	59	23	3.5	0.05	0.08	<0.01
	18795	TSA413-98	2.8	0.60	1.6	0.13	2.0	<0.01	5.5	15	6.4	140	88	12	0.33	0.18	<0.01
	18796	TSA428-98	2.7	2.4	6.9	0.21	1.2	<0.01	7.4	18	14	120	140	15	0.28	1.1	<0.01
	18798	TSCW2-98	<0.03	<0.07	<0.01	<0.01	<0.05	<0.01	0.01	0.12	0.07	0.46	0.16	0.37	<0.05	0.03	<0.01
	18799	TSCW3-98	<0.03	<0.07	<0.01	<0.01	<0.05	<0.01	0.07	0.11	<0.01	0.78	<0.15	<0.14	<0.05	<0.01	<0.01
	MDLs		0.03	0.07	0.01	0.01	0.05	0.01	0.01	0.02	0.01	0.35	0.15	0.14	0.05	0.01	0.01
*Average of method replicates.																	
TS-tree swallow; GBH-Great Blue Heron																	
MDL-method detection limit.																	
Note: Values have 2 significant figures.																	
Concentrations recovery corrected.																	
*Total PCBs at 2 significant figures.																	

Table 1. PCB Congener Concentrations in Great Blue Heron Brains, Tree Swallow Nestlings and Adults (ng/g)

	Sample ID	Field ID	037,059	040	041	042	043	044	045	046	047	048	049	051	052	053	054
sets 1&2	18759	TSC216-98	120	4.3	3.0	100	16	210	2.5	7.7	240	26	450	18	540	53	< 0.01
	18760	TSC217-98	190	9.5	7.3	120	16	230	11	11	220	52	430	20	510	61	< 0.01
	18761	TSC222-98	130	3.8	3.9	120	22	220	4.1	8.8	250	25	450	19	550	55	< 0.01
	18762	TSC224-98	120	3.8	4.3	140	13	180	0.9	3.9	260	29	460	17	600	43	< 0.01
	18764*	TSC304-98	120	22	8.3	150	17	250	6.6	8.6	370	31	510	33	580	80	< 0.01
	18765	TSC305-98	180	7.3	1.6	150	32	280	3.9	9.3	530	16	700	36	980	120	< 0.01
	18766	TSC306-98	120	38	17	180	34	320	10	11	380	44	500	32	640	78	< 0.01
	18767	TSC310-98	120	8.6	3.2	130	11	230	4.9	6.9	450	20	630	37	750	120	< 0.01
	18769	TSC402-98	68	15	3.2	78	21	140	7.2	5.6	310	11	420	33	630	82	< 0.01
	18770	TSC403-98	34	2.7	0.24	33	9.2	58	1.0	1.4	180	5.0	270	13	490	40	< 0.01
	18771	TSC412-98	66	4.7	0.68	83	190	110	4.4	5.4	470	6.1	460	46	850	120	< 0.01
	18772	TSC413-98	87	24	4.9	92	24	170	14	5.5	320	17	470	36	610	84	< 0.01
	18774	TSC601-98	14	4.2	0.39	17	3.2	50	2.0	1.2	60	2.1	120	4.8	120	9.3	< 0.01
	18775	TSC609-98	10	1.1	< 0.01	10	1.9	24	0.46	0.44	50	1.7	110	3.4	110	6.2	< 0.01
	18777	TSC702-98	4.0	1.0	0.10	5.2	1.9	14	0.54	0.53	25	0.79	42	1.8	43	3.4	< 0.01
	18778	TSC703-98	6.9	2.8	0.31	8.2	3.9	24	0.73	0.83	31	1.6	52	3.0	63	5.5	< 0.01
	18803	GBHC401B-98	4.4	< 0.01	< 0.01	0.92	2.1	13	< 0.01	< 0.01	78	0.66	78	0.19	61	0.43	< 0.01
	18814	GBHC602B-98	0.29	< 0.01	< 0.01	0.14	0.41	1.4	< 0.01	< 0.01	5.8	< 0.01	7.6	< 0.01	5.7	< 0.01	< 0.01
	18815	GBHC603B-98	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.13	< 0.01	< 0.01	0.48	< 0.01	0.46	< 0.01	0.4	< 0.01	< 0.01
	18816	GBHC604B-98	1.0	0.09	< 0.01	0.44	0.13	3.9	< 0.01	< 0.01	4.7	0.08	9.3	0.03	7.8	0.50	< 0.01
	18817	GBHC605B-98	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.16	< 0.01	< 0.01	1.6	< 0.01	1.4	< 0.01	1.1	< 0.01	< 0.01
	18818	GBHC606B-98	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.40	< 0.01	< 0.01	1.8	< 0.01	1.9	< 0.01	1.1	< 0.01	< 0.01
	MDLs		0.01	0.01	0.01	0.01	0.01	0.13	0.01	0.01	0.05	0.01	0.14	0.01	0.16	0.01	0.01
sets 3&4	18780	TSC804-98	0.21	0.34	0.03	1.0	0.22	0.83	0.13	0.04	5.8	0.51	5.8	0.28	3.3	0.23	< 0.01
	18781	TSC811-98	0.20	0.14	0.02	0.84	< 0.04	0.97	0.03	< 0.01	4.1	0.10	4.2	0.07	3.6	0.23	0.03
	18783	TSC907-98	0.42	0.40	0.01	2.5	< 0.04	2.8	0.10	0.19	12	0.60	15	0.50	9.7	1.3	0.02
	18784	TSC909-98	0.22	0.08	< 0.01	0.47	< 0.04	0.73	< 0.01	< 0.01	1.7	0.61	2.8	0.03	5.6	0.09	0.08
	18785	TSC910-98	0.07	0.11	< 0.01	0.18	< 0.04	0.15	< 0.01	0.01	0.47	< 0.02	0.51	0.02	0.98	< 0.03	< 0.01
	18786	TSC913-98	0.69	0.35	< 0.01	2.9	0.92	3.1	0.02	0.24	23	3.0	30	0.83	21	2.9	0.09
	18788*	TSA227-98	35	1.4	1.1	42	< 0.04	43	0.96	2.0	280	10	550	5.7	480	26	0.44
	18789	TSA027-98	44	1.4	0.51	39	< 0.04	36	0.45	1.3	210	9.2	480	6.0	420	28	0.63
	18790	TSA210-98	33	2.6	2.7	53	< 0.04	90	2.1	4.4	160	21	360	8.7	350	30	0.46
	18791	TSA302-98	47	0.41	0.01	25	< 0.04	9.9	0.09	0.73	440	2.3	750	2.3	740	18	0.83
	18792	TSA303-98	26	0.70	0.11	22	< 0.04	11	0.22	0.91	360	2.9	540	3.7	460	21	1.5
	18793	TSA321-98	20	1.1	0.37	24	< 0.04	22	0.52	0.93	200	5.1	360	8.5	340	48	3.7
	18794	TSA412-98	4.5	0.37	0.07	12	< 0.04	5.9	0.03	0.21	61	2.1	86	1.6	85	6.0	0.11
	18795	TSA413-98	8.2	0.82	0.22	21	< 0.04	12	< 0.01	0.35	160	3.6	280	4.5	330	14	0.28
	18796	TSA428-98	5.9	2.1	0.24	17	< 0.04	16	0.68	0.92	140	3.5	270	8.6	260	31	0.89
	18798	TSCW2-98	0.05	< 0.02	< 0.01	0.06	< 0.04	< 0.12	< 0.01	< 0.01	0.38	< 0.02	0.37	0.01	0.50	< 0.03	< 0.01
	18799	TSCW3-98	0.44	0.02	< 0.01	0.09	< 0.04	< 0.12	< 0.01	< 0.01	0.59	< 0.02	0.66	< 0.01	0.73	< 0.03	< 0.01
	MDLs		0.04	0.02	0.01	0.05	0.04	0.12	0.01	0.01	0.21	0.02	0.28	0.01	0.32	0.03	0.01
*Average of method replicates.																	
TS-tree swallow; GBH-Great Blue Heron																	
MDL-method detection limit.																	
Note: Values have 2 significant figures.																	
Concentrations recovery corrected.																	
*Total PCBs at 2 significant figures.																	

Table 1. PCB Congener Concentrations in Great Blue Heron Brains, Tree Swallow Nestlings and Adults (ng/g)

	Sample ID	Field ID	055	056,060	057	058	063	064	066	067	069	070	071	072	074	075	082
sets 1&2	18759	TSC216-98	3.3	270	< 0.01	< 0.01	48	3.0	580	26	< 0.01	510	74	< 0.01	360	10	28
	18760	TSC217-98	4.8	290	< 0.01	< 0.01	47	7.3	570	27	< 0.01	550	83	< 0.01	360	9.6	33
	18761	TSC222-98	3.7	280	< 0.01	< 0.01	51	3.9	600	29	< 0.01	520	80	< 0.01	390	10	28
	18762	TSC224-98	7.8	370	< 0.01	< 0.01	58	4.3	690	32	< 0.01	570	72	< 0.01	420	15	39
	18764*	TSC304-98	6.4	300	< 0.01	< 0.01	72	8.3	580	24	< 0.01	410	77	< 0.01	380	14	44
	18765	TSC305-98	2.4	410	< 0.01	< 0.01	110	1.6	930	39	< 0.01	690	110	< 0.01	620	19	40
	18766	TSC306-98	10	380	< 0.01	< 0.01	76	17	640	27	< 0.01	450	94	< 0.01	420	12	60
	18767	TSC310-98	2.3	280	< 0.01	< 0.01	81	3.2	620	27	< 0.01	490	88	< 0.01	430	17	34
	18769	TSC402-98	2.1	130	< 0.01	< 0.01	57	3.2	270	10	< 0.01	180	65	< 0.01	190	8.8	23
	18770	TSC403-98	0.22	89	< 0.01	< 0.01	47	0.24	200	4.4	< 0.01	120	38	< 0.01	110	7.2	9.1
	18771	TSC412-98	0.67	150	< 0.01	< 0.01	75	0.68	430	16	< 0.01	290	81	< 0.01	290	17	15
	18772	TSC413-98	3.1	160	< 0.01	< 0.01	57	4.9	290	10	< 0.01	200	83	< 0.01	190	9.4	30
	18774	TSC601-98	0.17	19	< 0.01	< 0.01	11	0.39	42	1.5	< 0.01	53	11	< 0.01	36	2.5	5.0
	18775	TSC609-98	< 0.01	15	< 0.01	< 0.01	8.1	< 0.01	39	1.3	< 0.01	52	8.0	< 0.01	30	2.6	3.1
	18777	TSC702-98	< 0.01	6.6	< 0.01	< 0.01	3.1	0.10	14	0.59	< 0.01	23	4.7	< 0.01	12	0.89	1.9
	18778	TSC703-98	0.09	8.9	< 0.01	< 0.01	4.3	0.31	17	0.78	< 0.01	26	7.4	< 0.01	14	1.6	2.7
	18803	GBHC401B-98	< 0.01	20	< 0.01	< 0.01	10	< 0.01	65	< 0.01	< 0.01	38	2.7	< 0.01	47	2.6	0.14
	18814	GBHC602B-98	< 0.01	2.3	< 0.01	< 0.01	0.76	< 0.01	7.4	< 0.01	< 0.01	4.4	0.27	< 0.01	5.0	0.18	0.12
	18815	GBHC603B-98	< 0.01	0.28	< 0.01	< 0.01	< 0.01	< 0.01	0.86	< 0.01	< 0.01	0.52	< 0.01	< 0.01	0.56	< 0.01	< 0.04
	18816	GBHC604B-98	< 0.01	1.0	< 0.01	< 0.01	0.49	< 0.01	3.3	< 0.01	< 0.01	3.8	0.54	< 0.01	2.5	0.16	0.14
	18817	GBHC605B-98	< 0.01	0.40	< 0.01	< 0.01	0.10	< 0.01	1.5	< 0.01	< 0.01	0.92	0.07	< 0.01	1.1	< 0.01	< 0.04
	18818	GBHC606B-98	< 0.01	0.89	< 0.01	< 0.01	0.24	< 0.01	2.9	< 0.01	< 0.01	1.5	0.09	< 0.01	2.0	0.08	< 0.04
	MDLs		0.01	0.10	0.01	0.01	0.01	0.01	0.23	0.01	0.01	0.26	0.01	0.01	0.13	0.01	0.04
sets 3&4	18780	TSC804-98	< 0.01	1.4	0.70	0.03	0.56	0.03	2.7	0.12	< 0.01	2.5	1.1	0.24	2.5	0.34	0.29
	18781	TSC811-98	< 0.01	1.1	0.81	0.04	0.49	0.02	2.0	0.10	< 0.01	2.8	0.66	0.25	1.8	0.23	0.23
	18783	TSC907-98	< 0.01	1.6	0.34	0.05	0.87	0.01	3.4	0.15	0.12	4.4	3.3	0.54	3.7	0.42	0.51
	18784	TSC909-98	< 0.01	1.1	1.7	0.06	0.80	0.01	1.9	0.07	< 0.01	2.9	0.87	0.61	1.0	0.05	0.25
	18785	TSC910-98	< 0.01	0.46	0.54	< 0.01	0.17	< 0.01	< 0.39	0.05	< 0.01	0.78	0.17	0.11	< 0.30	0.01	0.05
	18786	TSC913-98	< 0.01	2.2	< 0.01	0.02	1.6	< 0.01	7.8	0.24	0.25	8.8	5.3	1.3	7.8	0.86	0.45
	18788*	TSA227-98	0.54	330	0.33	0.31	66	1.1	720	9.6	7.5	350	33	27	400	27	8.9
	18789	TSA027-98	0.55	300	0.16	0.35	50	0.51	630	12	6.1	420	29	15	320	19	9.8
	18790	TSA210-98	1.37	250	0.23	0.43	46	2.7	480	13	4.3	370	43	19	250	15	15
	18791	TSA302-98	0.05	630	0.21	0.27	150	0.01	1300	4.3	13	390	26	65	640	42	1.6
	18792	TSA303-98	0.08	370	0.19	0.23	100	0.11	760	3.2	12	200	23	46	380	32	2.8
	18793	TSA321-98	0.15	150	0.01	0.21	36	0.37	380	5.5	5.9	230	24	20	220	18	3.7
	18794	TSA412-98	0.06	49	0.11	0.24	18	0.07	100	1.3	1.4	33	8.0	12	53	3.8	2.5
	18795	TSA413-98	0.13	110	0.31	0.11	46	0.22	260	3.7	5.0	150	21	35	140	12	5.6
	18796	TSA428-98	0.10	53	19	1.2	26	0.24	150	2.7	4.3	94	22	23	92	9.7	2.9
	18798	TSCW12-98	< 0.01	0.39	< 0.01	< 0.01	0.08	< 0.01	0.55	0.03	< 0.01	0.55	< 0.06	0.02	0.50	< 0.01	< 0.03
	18799	TSCW13-98	< 0.01	0.55	0.15	< 0.01	0.16	< 0.01	0.90	0.03	< 0.01	0.71	< 0.06	0.04	0.67	< 0.01	0.06
	MDLs		0.01	0.26	0.01	0.01	0.03	0.01	0.39	0.02	0.01	0.37	0.06	0.02	0.30	0.01	0.03
*Average of method replicates.																	
TS-free swallow; GBH-Great Blue Heron																	
MDL-method detection limit.																	
Note: Values have 2 significant figures.																	
Concentrations recovery corrected.																	
*Total PCBs at 2 significant figures.																	

305612

Table 1. PCB Congener Concentrations in Great Blue Heron Brains, Tree Swallow Nestlings and Adults (ng/g)

	Sample ID	Field ID	083	084	086	087	089	091	092	095	096	097	099	101	102	105	109
sets 1&2	18759	TSC216-98	8.3	22	< 0.01	150	1.2	58	59	160	< 0.01	110	190	270	25	150	23
	18760	TSC217-98	15	43	< 0.01	140	1.4	58	57	160	< 0.01	110	170	230	7.5	130	23
	18761	TSC222-98	10	25	< 0.01	150	1.2	58	60	160	< 0.01	110	200	270	11	130	24
	18762	TSC224-98	2.6	13	< 0.01	170	0.75	61	61	160	< 0.01	130	220	310	20	170	29
	18764*	TSC304-98	16	37	< 0.01	140	1.8	74	87	170	< 0.01	130	230	290	14	140	29
	18765	TSC305-98	26	41	< 0.01	250	1.9	98	120	290	< 0.01	160	340	460	22	240	33
	18766	TSC306-98	18	45	< 0.01	170	1.6	77	92	190	< 0.01	150	250	320	11	170	34
	18767	TSC310-98	16	29	< 0.01	170	1.4	89	110	240	< 0.01	130	250	310	12	170	38
	18769	TSC402-98	14	34	< 0.01	77	0.79	72	98	180	< 0.01	69	160	170	9.9	83	25
	18770	TSC403-98	7.9	16	< 0.01	67	0.65	59	95	170	< 0.01	53	110	160	14	87	28
	18771	TSC412-98	8.5	21	< 0.01	110	0.72	110	130	260	< 0.01	77	230	240	18	150	40
	18772	TSC413-98	19	46	< 0.01	83	1.5	82	110	210	< 0.01	85	170	180	11	100	36
	18774	TSC601-98	4.0	8.0	< 0.01	15	0.10	14	21	42	< 0.01	18	40	45	2.6	21	7.5
	18775	TSC609-98	3.0	4.7	< 0.01	15	< 0.01	13	22	37	< 0.01	13	31	38	1.7	15	7.1
	18777	TSC702-98	1.1	2.5	< 0.01	8.4	< 0.01	6.2	10	19	< 0.01	8.3	21	26	0.84	7.9	4.0
	18778	TSC703-98	1.7	3.8	< 0.01	8.5	< 0.01	7.4	13	24	< 0.01	9.9	19	26	1.4	8.4	4.0
	18803	GBHC401B-98	0.49	1.0	< 0.01	12	< 0.01	9.8	22	19	< 0.01	2.3	37	20	2.0	17	5.9
	18814	GBHC602B-98	< 0.01	0.42	< 0.01	2.7	< 0.01	1.2	6.5	3.9	< 0.01	0.71	8.6	9.8	0.31	2.7	1.6
	18815	GBHC603B-98	< 0.01	< 0.11	< 0.01	0.31	< 0.01	< 0.01	0.37	0.72	< 0.01	0.13	1.2	0.65	< 0.03	0.48	0.18
	18816	GBHC604B-98	0.18	0.88	< 0.01	1.5	< 0.01	1.5	2.2	4.7	< 0.01	0.87	4.6	4.8	0.17	1.3	0.66
	18817	GBHC605B-98	< 0.01	< 0.11	< 0.01	0.61	< 0.01	< 0.01	1.5	1.7	< 0.01	< 0.11	2.7	1.6	< 0.01	1.1	0.36
	18818	GBHC606B-98	< 0.01	< 0.11	< 0.01	0.66	< 0.01	0.32	2.1	1.2	< 0.01	0.21	4.1	1.8	0.08	1.8	0.57
	MDLs		0.01	0.11	0.01	0.10	0.01	0.01	0.01	0.14	0.01	0.11	0.15	0.20	0.01	0.15	0.01
sets 3&4	18780	TSC804-98	0.39	0.74	0.02	2.2	< 0.01	1.2	1.6	2.5	< 0.01	1.6	4.4	5.5	0.17	3.1	1.2
	18781	TSC811-98	0.22	0.46	< 0.01	2.7	< 0.01	0.96	6.1	6.9	< 0.01	1.3	3.6	5.2	0.04	2.9	1.1
	18783	TSC907-98	0.53	1.1	0.04	2.8	0.04	2.0	3.6	4.6	< 0.01	2.7	7.8	9.2	0.15	3.9	1.8
	18784	TSC909-98	0.31	0.33	0.09	3.3	0.02	1.6	5.1	6.3	0.01	3.6	3.7	12	0.13	8.1	2.1
	18785	TSC910-98	0.13	0.21	0.02	1.2	< 0.01	0.46	2.4	2.6	< 0.01	1.5	0.65	3.6	< 0.01	4.5	0.86
	18786	TSC913-98	0.65	0.87	0.17	5.3	0.04	4.0	6.2	9.6	0.33	4.1	14	15	0.53	6.3	2.9
	18788*	TSA227-98	2.3	5.4	1.5	130	0.75	92	110	160	0.45	48	310	370	< 0.01	300	74
	18789	TSA027-98	2.3	5.0	1.5	120	0.68	71	83	140	0.41	65	220	310	< 0.01	230	53
	18790	TSA210-98	3.9	10	2.3	100	1.2	62	79	110	0.60	66	180	250	< 0.01	220	55
	18791	TSA302-98	1.7	2.7	2.4	140	0.16	140	240	230	0.23	15	530	680	2.3	630	160
	18792	TSA303-98	1.5	2.5	< 0.01	83	0.24	100	150	130	0.21	14	370	450	1.5	400	120
	18793	TSA321-98	1.2	2.6	0.56	68	0.36	52	64	95	0.51	25	170	190	< 0.01	140	34
	18794	TSA412-98	0.75	0.83	0.33	15	0.06	17	29	24	0.08	11	52	78	< 0.01	77	21
	18795	TSA413-98	0.82	1.7	0.93	73	0.06	66	99	110	0.17	48	160	200	1.6	140	53
	18796	TSA428-98	1.4	1.9	0.51	36	0.36	51	61	76	0.61	17	90	97	2.7	62	22
	18798	TSCW12-98	0.01	< 0.06	< 0.01	0.36	< 0.01	0.15	0.25	0.43	< 0.01	0.16	0.69	0.92	< 0.01	1.2	0.28
	18799	TSCW13-98	0.02	0.06	< 0.01	0.67	< 0.01	0.23	0.43	1.3	0.25	0.17	1.0	1.4	0.02	1.4	0.34
	MDLs		0.01	0.06	0.01	0.19	0.01	0.05	0.07	0.19	0.01	0.09	0.15	0.30	0.01	0.32	0.04
*Average of method replicates.																	
TS-free swallow; GBH-Great Blue Heron																	
MDL-method detection limit.																	
Note: Values have 2 significant figures.																	
Concentrations recovery corrected.																	
*Total PCBs at 2 significant figures.																	
																GBH min	0.48
																GBH max	17

Table 1. PCB Congener Concentrations in Great Blue Heron Brains, Tree Swallow Nestlings and Adults (ng/g)

	Sample ID	Field ID	110	112	113	114	115	117	118	119	122	123	128	129	130	131	132
sets 1&2	18759	TSC216-98	230	< 0.01	< 0.01	15	14	9.9	330	12	3.1	9.0	36	9.6	13	2.3	13
	18760	TSC217-98	210	< 0.01	< 0.01	12	11	8.9	290	9.6	2.6	7.7	31	8.6	9.7	1.8	11
	18761	TSC222-98	230	< 0.01	< 0.01	13	13	9.5	320	11	2.7	8.2	33	9.5	11	1.8	9.8
	18762	TSC224-98	250	< 0.01	< 0.01	16	16	10	350	11	3.9	9.9	41	10	14	2.3	12
	18764*	TSC304-98	250	< 0.01	< 0.01	15	13	16	340	14	3.5	9.8	36	8.9	12	1.4	12
	18765	TSC305-98	390	< 0.01	< 0.01	25	23	24	500	27	3.9	16	58	14	20	2.5	19
	18766	TSC306-98	280	< 0.01	< 0.01	17	16	19	380	16	4.2	11	43	11	15	2.0	12
	18767	TSC310-98	310	< 0.01	< 0.01	17	16	21	390	21	3.1	12	44	11	16	1.8	15
	18769	TSC402-98	190	< 0.01	< 0.01	9.8	5.2	20	240	17	2.1	6.4	29	6.5	11	1.0	11
	18770	TSC403-98	180	< 0.01	< 0.01	10	7.3	20	230	15	1.1	6.7	31	6.5	13	0.99	16
	18771	TSC412-98	280	< 0.01	< 0.01	15	13	29	320	28	2.7	11	42	7.8	18	1.5	25
	18772	TSC413-98	240	< 0.01	< 0.01	12	6.9	25	290	21	3.1	8.3	39	9.0	15	1.5	17
	18774	TSC601-98	56	< 0.01	< 0.01	2.6	1.1	3.8	110	3.3	0.34	1.8	13	1.6	3.9	0.44	3.9
	18775	TSC609-98	46	< 0.01	< 0.01	1.8	1.3	3.5	77	2.1	0.17	1.1	9.9	1.5	3.1	0.53	2.8
	18777	TSC702-98	31	< 0.01	< 0.01	0.76	0.51	2.2	41	1.3	0.10	0.48	6.6	1.2	2.2	< 0.01	1.7
	18778	TSC703-98	33	< 0.01	< 0.01	0.89	0.48	2.4	34	1.5	0.22	0.52	6.1	1.3	2.3	0.14	2.9
	18803	GBHC401B-98	31	< 0.01	< 0.01	1.6	1.6	4.3	62	3.1	< 0.01	1.4	6.4	0.42	1.9	< 0.01	1.3
	18814	GBHC602B-98	6.6	< 0.01	< 0.01	0.36	0.19	0.48	13	0.74	< 0.01	0.23	3.2	0.16	1.9	< 0.01	1.3
	18815	GBHC603B-98	0.72	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	2.6	< 0.01	< 0.01	0.04	0.29	< 0.09	0.04	< 0.01	< 0.05
	18816	GBHC604B-98	5.5	< 0.01	< 0.01	0.05	0.04	0.23	6.7	0.26	< 0.01	0.07	1.1	0.13	0.30	< 0.01	0.75
	18817	GBHC605B-98	1.3	< 0.01	< 0.01	< 0.01	< 0.01	0.07	4.7	< 0.01	< 0.01	0.03	0.67	< 0.09	0.14	< 0.01	0.31
	18818	GBHC606B-98	1.7	< 0.01	< 0.01	0.16	0.12	0.13	7.9	0.20	< 0.01	0.18	1.1	< 0.09	0.34	< 0.01	0.22
	MDLs		0.25	0.01	0.01	0.01	0.01	0.01	0.40	0.01	0.01	0.01	0.02	0.09	0.01	0.01	0.05
sets 3&4	18780	TSC804-98	5.3	0.03	0.07	0.20	0.15	1.3	8.2	0.63	0.13	1.4	0.31	0.62	0.04	1.5	
	18781	TSC811-98	5.3	0.06	0.34	0.16	0.11	1.4	7.8	0.35	0.02	0.12	1.5	0.29	0.69	0.05	1.4
	18783	TSC907-98	10	0.14	0.23	0.34	0.18	2.2	13	0.92	0.05	0.23	2.8	0.45	1.0	0.08	2.8
	18784	TSC909-98	12	0.23	1.1	0.50	0.33	2.6	21	0.51	0.07	0.43	5.2	0.74	1.4	0.15	3.7
	18785	TSC910-98	3.7	0.02	0.03	0.27	0.07	1.2	7.2	0.06	0.01	0.18	2.8	0.47	0.77	0.08	1.4
	18786	TSC913-98	18	0.12	0.04	0.50	0.30	3.4	21	1.6	0.05	0.32	4.3	0.62	1.5	0.13	4.9
	18788*	TSA227-98	330	0.47	4.1	29	25	61	660	22	1.1	19	95	6.6	31	1.9	38
	18789	TSA027-98	300	0.41	3.1	23	19	39	490	15	1.6	14	65	8.8	21	2.2	39
	18790	TSA210-98	230	0.49	3.0	22	16	44	470	13	1.6	14	71	6.3	24	1.8	28
	18791	TSA302-98	420	0.42	12	69	52	140	1300	42	0.18	43	180	2.7	61	1.5	41
	18792	TSA303-98	280	0.32	8.8	44	32	110	860	30	0.29	29	130	2.1	45	0.92	19
	18793	TSA321-98	170	0.76	2.8	13	11	32	310	12	0.54	9.4	39	3.0	13	0.76	14
	18794	TSA412-98	44	0.24	1.5	8.2	4.5	26	180	5.5	0.35	5.9	28	0.91	9.9	0.32	5.5
	18795	TSA413-98	210	0.04	4.9	16	11	61	370	15	1.2	10	52	5.1	22	1.4	27
	18796	TSA428-98	110	7.0	2.3	6.7	5.4	33	180	8.2	0.47	4.7	27	2.3	11	0.62	15
	18798	TSCW2-98	0.89	< 0.01	< 0.02	0.06	0.01	0.24	2.6	0.03	< 0.01	0.04	0.51	0.05	0.19	< 0.01	0.33
	18799	TSCW3-98	1.1	1.4	0.07	0.12	0.06	0.42	3.1	0.07	< 0.01	0.05	0.59	0.05	0.25	< 0.01	0.46
	MDLs		0.35	0.01	0.02	0.01	0.01	0.02	0.58	0.01	0.01	0.01	0.08	0.02	0.02	0.01	0.17
*Average of method replicates.																	
TS-tree swallow; GBH-Great Blue Heron																	
MDL-method detection limit.																	
Note: Values have 2 significant figures.																	
Concentrations recovery corrected.							0.05	GBH min	2.6		0.03						
*Total PCBs at 2 significant figures.						1.6		GBH max	62		1.4						

305614

Table 1. PCB Congener Concentrations in Great Blue Heron Brains, Tree Swallow Nestlings and Adults (ng/g)

	Sample ID	Field ID	133	134	136	137	138	139	141	144	146	147	149	151	153	156	157
sets 1&2	18759	TSC216-98	0.46	0.79	7.7	13	150	4.1	30	4.6	28	7.2	86	19	160	19	4.4
	18760	TSC217-98	1.9	3.7	8.3	11	120	2.9	25	3.8	25	5.0	68	19	130	15	4.0
	18761	TSC222-98	1.9	1.1	7.4	13	140	3.2	28	4.2	27	5.5	78	18	150	17	4.5
	18762	TSC224-98	3.6	0.64	6.3	14	160	4.3	32	5.0	30	4.8	91	19	160	21	5.2
	18764*	TSC304-98	5.9	1.9	8.9	13	150	3.1	26	3.5	40	7.0	92	30	190	17	4.8
	18765	TSC305-98	8.8	2.9	14	19	220	6.3	42	6.0	49	21	130	49	250	30	7.1
	18766	TSC306-98	5.6	2.2	9.7	15	170	4.0	31	4.1	41	8.1	96	35	190	21	5.2
	18767	TSC310-98	< 0.01	1.7	13	15	170	4.2	32	4.3	45	7.1	110	45	200	22	5.5
	18769	TSC402-98	< 0.01	2.5	14	10	110	2.3	19	2.3	42	8.6	99	44	170	12	3.4
	18770	TSC403-98	2.8	0.93	16	11	120	2.2	22	2.6	47	7.6	120	52	170	13	3.5
	18771	TSC412-98	26	1.5	23	13	180	4.2	28	3.7	59	11	180	69	250	20	5.1
	18772	TSC413-98	21	6.1	21	13	150	3.0	26	3.1	53	9.2	130	62	210	16	4.4
	18774	TSC601-98	2.6	1.7	3.7	4.1	49	1.0	6.8	0.97	14	3.0	32	11	96	5.9	1.6
	18775	TSC609-98	1.8	1.2	2.9	3.3	38	0.53	6.6	0.87	13	0.86	24	10	70	3.6	1.3
	18777	TSC702-98	2.1	0.60	1.6	2.1	30	0.45	5.5	0.65	11	1.2	18	5.2	56	1.9	0.52
	18778	TSC703-98	1.9	3.8	2.0	1.9	27	0.51	5.1	0.67	8.3	0.96	20	6.1	48	2.0	0.80
	18803	GBHC401B-98	2.8	0.39	1.9	2.3	24	0.56	3.9	0.37	9.6	1.9	16	11	38	2.1	0.78
	18814	GBHC602B-98	2.2	0.17	0.74	0.76	33	0.10	7.7	0.69	17	0.29	15	9.8	80	0.04	0.26
	18815	GBHC603B-98	0.12	0.09	0.07	0.07	2.5	0.10	0.20	0.00	0.89	< 0.01	0.81	0.33	5.1	0.04	< 0.01
	18816	GBHC604B-98	< 0.01	0.76	0.50	0.29	5.7	0.08	0.72	0.08	2.0	0.12	4.2	1.6	9.9	0.23	0.05
	18817	GBHC605B-98	0.16	< 0.01	0.09	< 0.01	4.6	0.09	0.38	< 0.01	1.2	< 0.01	1.9	0.66	7.2	0.24	0.05
	18818	GBHC606B-98	0.63	0.10	< 0.01	0.35	10	0.08	1.1	0.11	4.7	0.18	2.5	1.7	25	0.26	0.11
	MDLs		0.01	0.01	0.01	0.01	0.28	0.01	0.02	0.01	0.11	0.01	0.13	0.01	0.37	0.01	0.01
sets 3&4	18780	TSC804-98	0.51	0.25	0.60	0.64	10	0.16	1.7	0.27	2.8	0.12	4.6	1.3	15	0.62	0.22
	18781	TSC811-98	0.61	< 0.02	0.86	0.65	10	0.39	1.7	0.29	2.6	0.06	4.8	1.3	14	0.55	0.25
	18783	TSC907-98	1.0	< 0.02	0.66	1.0	17	0.26	2.7	0.45	4.8	0.39	7.1	2.4	25	0.89	0.23
	18784	TSC909-98	1.5	< 0.02	0.89	1.8	28	0.40	4.3	0.77	7.2	0.36	11	3.2	36	1.8	0.60
	18785	TSC910-98	1.1	< 0.02	0.27	0.94	16	0.11	2.9	0.41	4.7	0.08	6.5	1.9	18	0.94	0.38
	18786	TSC913-98	1.4	< 0.02	1.3	1.4	25	0.37	3.7	0.61	6.2	0.31	11	3.6	35	1.5	0.42
	18788*	TSA227-98	18	1.3	7.7	32	320	8.7	56	12	89	7.4	180	31	400	64	13
	18789	TSA027-98	10	0.39	7.0	23	230	6.0	44	9.7	58	3.7	130	24	270	43	9.0
	18790	TSA210-98	16	0.87	6.8	27	250	5.8	40	8.0	79	3.6	130	22	320	52	11
	18791	TSA302-98	39	0.33	8.0	70	600	15	110	16	190	13	330	61	760	150	26
	18792	TSA303-98	33	0.20	7.1	46	420	11	70	12	140	7.3	230	33	560	99	18
	18793	TSA321-98	8.9	0.19	4.6	14	150	4.0	25	5.0	41	3.3	80	19	200	26	4.7
	18794	TSA412-98	12	0.29	1.9	11	120	2.2	14	2.0	46	3.6	49	7.5	160	21	4.2
	18795	TSA413-98	25	0.68	6.9	18	190	4.6	33	6.0	75	7.8	150	33	280	36	7.1
	18796	TSA428-98	14	< 0.02	8.6	9.7	110	2.2	19	3.2	41	4.0	74	24	180	16	2.9
	18798	TSCW2-98	0.18	0.09	0.03	0.18	3.6	0.02	0.36	0.05	0.85	0.02	0.98	0.22	4.5	0.17	0.13
	18799	TSCW3-98	0.24	< 0.02	0.07	0.26	4.4	0.03	0.64	0.10	1.1	0.04	1.6	0.44	6.1	0.20	0.15
	MDLs		0.01	0.02	0.03	0.02	0.47	0.01	0.09	0.03	0.06	0.01	0.23	0.06	0.46	0.04	0.03
*Average of method replicates.																	
TS-tree swallow; GBH-Great Blue Heron																	
MDL-method detection limit.																	
Note: Values have 2 significant figures.																	
Concentrations recovery corrected.																	
*Total PCBs at 2 significant figures.																	
															GBH min	0.04	0.05
															GBH max	2.1	0.78

Table 1. PCB Congener Concentrations in Great Blue Heron Brains, Tree Swallow Nestlings and Adults (ng/g)

	Sample ID	Field ID	158	163	164	166	167	170	171	172	173	174	175	176	177	178	179
sets 1&2	18759	TSC216-98	21	41	4.3	1.5	7.6	51	4.9	4.1	0.95	12	0.80	1.2	11	4.6	3.4
	18760	TSC217-98	19	31	4.5	1.3	6.8	44	4.2	3.7	0.81	11	0.72	< 0.01	10	4.3	3.7
	18761	TSC222-98	21	34	5.9	1.6	7.2	50	4.2	3.9	0.61	11	0.74	0.51	9.9	4.3	3.0
	18762	TSC224-98	24	41	6.1	1.7	8.6	61	5.5	4.7	0.66	13	0.94	0.80	12	4.9	3.0
	18764*	TSC304-98	20	50	7.7	1.7	8.4	39	5.2	5.8	0.58	11	0.91	0.57	14	9.5	4.8
	18765	TSC305-98	31	79	7.9	2.5	11	59	7.6	7.7	1.1	17	1.3	1.3	20	13	7.7
	18766	TSC306-98	24	59	5.0	1.9	9.2	43	5.7	6.1	0.83	13	0.97	1.0	16	10	5.3
	18767	TSC310-98	24	66	9.2	1.9	9.3	47	6.0	6.5	0.86	14	1.1	1.4	17	13	6.9
	18769	TSC402-98	13	69	4.1	1.4	6.4	24	3.7	5.7	0.68	10	0.64	0.87	14	12	6.9
	18770	TSC403-98	14	76	6.6	1.4	6.7	27	4.1	6.5	0.99	16	0.83	1.1	18	16	9.3
	18771	TSC412-98	18	89	43	1.7	8.3	36	6.0	7.9	1.0	19	1.0	1.6	21	19	11
	18772	TSC413-98	17	86	7.5	1.7	7.8	34	5.1	7.5	0.75	16	0.87	0.94	19	17	11
	18774	TSC601-98	6.8	16	1.7	0.80	3.8	310	2.1	2.4	0.24	5.7	0.52	0.23	6.1	3.8	2.8
	18775	TSC609-98	5.2	14	1.3	0.37	2.6	420	2.5	3.8	0.25	5.1	0.65	0.26	7.8	4.5	2.1
	18777	TSC702-98	4.0	11	1.0	0.25	1.6	11	1.6	2.0	0.55	3.6	0.38	0.12	4.7	3.0	0.91
	18778	TSC703-98	3.3	11	1.0	0.23	1.4	11	1.3	1.6	0.27	4.1	0.23	0.19	3.5	2.5	1.6
	18803	GBHC401B-98	3.7	13	0.80	0.31	1.4	5.7	1.1	1.1	0.07	2.3	0.17	0.07	3.4	2.9	1.3
	18814	GBHC502B-98	4.2	12	0.99	0.09	1.8	16	6.0	5.9	0.11	8.0	1.3	0.24	11	7.3	1.2
	18815	GBHC603B-98	0.29	0.49	0.07	< 0.01	0.09	1.0	0.18	0.19	< 0.01	0.22	< 0.01	< 0.01	0.50	0.33	< 0.01
	18816	GBHC604B-98	0.57	1.7	0.20	< 0.01	0.24	2.1	0.27	0.24	< 0.01	0.75	< 0.01	< 0.01	0.87	0.57	0.42
	18817	GBHC605B-98	0.41	1.1	0.19	< 0.01	0.12	1.8	0.25	0.17	< 0.01	0.42	< 0.01	< 0.01	0.56	0.36	0.10
	18818	GBHC606B-98	1.6	2.6	0.50	0.06	0.57	4.0	1.5	1.4	0.10	1.1	0.26	< 0.01	2.3	1.7	0.32
	MDLs		0.01	0.03	0.01	0.01	0.01	0.07	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
sets 3&4	18780	TSC804-98	0.98	2.8	0.78	0.07	0.43	4.2	0.29	0.69	0.08	1.5	0.09	0.04	1.1	1.1	0.44
	18781	TSC811-98	1.0	2.3	1.3	0.07	0.43	4.3	0.38	0.71	0.08	1.8	0.11	0.11	1.3	1.2	0.65
	18783	TSC907-98	1.5	4.5	1.5	0.08	0.75	7.5	0.65	1.2	0.11	2.5	0.20	0.12	1.9	1.9	0.92
	18784	TSC909-98	2.9	6.8	2.3	0.24	1.3	8.6	1.2	1.8	0.11	3.7	0.32	0.16	2.9	3.1	1.3
	18785	TSC910-98	1.4	4.2	1.6	0.11	0.73	5.1	0.71	1.3	0.09	2.7	0.20	0.14	1.9	2.2	0.72
	18786	TSC913-98	2.2	6.7	1.9	0.16	0.92	11	0.93	1.3	0.12	2.9	0.21	0.22	2.4	2.2	1.2
	18788*	TSA227-98	54	110	34	4.0	19	230	16	16	1.2	34	3.4	2.3	35	26	4.4
	18789	TSA027-98	38	70	19	3.0	13	130	10	10	1.2	25	2.2	2.0	22	14	3.9
	18790	TSA210-98	40	91	22	3.4	17	160	14	15	1.2	23	2.9	1.8	31	25	3.4
	18791	TSA302-98	110	240	58	9.4	41	350	35	39	3.1	60	7.0	3.6	74	58	6.0
	18792	TSA303-98	71	150	84	6.1	27	210	24	27	0.70	38	4.8	2.7	58	47	3.8
	18793	TSA321-98	22	43	20	1.8	9.2	82	6.5	7.8	0.72	13	1.3	1.2	15	12	2.3
	18794	TSA412-98	15	53	9.9	1.5	8.6	68	6.1	8.9	0.62	7.9	1.6	0.91	15	15	1.1
	18795	TSA413-98	24	100	29	2.9	11	120	8.8	13	0.77	24	2.0	2.1	29	29	4.4
	18796	TSA428-98	14	51	14	< 0.01	7.5	76	6.1	9.5	0.62	14	1.2	1.1	17	16	5.7
	18798	TSCW2-98	0.28	0.77	0.21	< 0.01	0.22	2.5	0.12	0.24	0.01	0.32	0.02	< 0.01	0.37	0.31	0.11
	18799	TSCW3-98	0.38	0.98	0.31	0.02	0.24	2.4	0.18	0.31	0.05	0.57	0.04	0.03	0.58	0.48	0.19
	MDLs		0.06	0.06	0.04	0.01	0.03	0.22	0.02	0.02	0.01	0.08	0.01	0.01	0.04	0.02	0.03
*Average of method replicates.																	
TS-tree swallow; GBH-Great Blue Heron																	
MDL-method detection limit.																	
Note: Values have 2 significant figures.																	
Concentrations recovery corrected.																	
*Total PCBs at 2 significant figures.																	

Table 1. PCB Congener Concentrations in Great Blue Heron Brains, Tree Swallow Nestlings and Adults (ng/g)

	Sample ID	Field ID	180	183	185	187	189	190	191	193	194	195	196	197	198	199	200
sets 1&2	18759	TSC216-98	44	11	1.4	29	1.0	0.84	0.67	2.4	5.6	1.6	1.9	0.19	0.30	6.5	0.39
	18760	TSC217-98	40	8.8	1.3	26	0.89	< 0.33	0.62	2.3	5.1	1.4	1.5	0.18	0.29	6.1	0.41
	18761	TSC222-98	42	9.3	1.5	27	1.0	0.40	0.74	2.2	5.4	1.4	1.8	0.18	0.30	5.8	0.35
	18762	TSC224-98	50	12	1.8	32	1.2	< 0.33	0.94	2.7	6.4	1.8	2.4	0.25	0.41	7.5	0.39
	18764*	TSC304-98	69	12	1.4	44	1.2	< 0.33	0.75	3.5	10	2.5	3.1	0.27	0.52	12	0.50
	18765	TSC305-98	85	16	2.3	52	1.9	< 0.33	1.2	4.2	14	3.6	3.8	0.40	0.77	15	0.85
	18766	TSC306-98	72	12	1.7	44	1.4	< 0.33	1.0	3.8	10	2.6	2.7	0.29	0.57	11	0.58
	18767	TSC310-98	73	13	1.7	49	1.5	< 0.33	0.81	4.1	11	2.9	3.1	0.34	0.59	13	0.69
	18769	TSC402-98	54	9.5	1.5	49	1.2	< 0.33	0.54	3.6	11	2.4	2.5	0.32	0.64	13	0.70
	18770	TSC403-98	59	10	1.8	59	1.2	< 0.33	0.52	4.1	12	2.9	2.1	0.28	0.71	16	0.99
	18771	TSC412-98	69	15	1.9	74	1.7	< 0.33	0.68	5.4	14	3.8	3.1	0.40	0.80	18	1.1
	18772	TSC413-98	71	14	2.0	65	1.6	< 0.33	0.67	4.8	15	3.5	3.6	0.38	0.75	18	1.1
	18774	TSC601-98	350	5.5	0.53	21	0.49	< 0.33	0.39	2.1	4.6	0.90	1.3	0.14	0.26	6.8	0.27
	18775	TSC609-98	47	6.5	0.59	26	0.68	< 0.33	0.54	2.8	8.6	2.0	2.8	0.22	0.45	10	0.25
	18777	TSC702-98	23	4.4	0.31	16	0.31	< 0.33	0.23	1.3	3.7	0.83	1.2	< 0.01	0.17	4.8	0.10
	18778	TSC703-98	19	3.6	0.21	14	0.26	< 0.33	0.15	1.1	3.4	0.67	1.0	< 0.01	0.15	4.8	< 0.01
	18803	GBHC401B-98	11	2.3	0.17	15	0.21	< 0.33	0.12	0.81	2.0	0.46	0.48	0.07	0.16	3.1	0.15
	18814	GBHC602B-98	62	15	1.5	50	0.71	< 0.33	0.92	4.1	13	4.7	6.4	0.78	0.73	14	0.45
	18815	GBHC603B-98	3.0	0.57	0.15	2.8	< 0.01	< 0.33	< 0.01	0.14	0.62	0.14	< 0.01	0.00	< 0.01	0.79	< 0.01
	18816	GBHC604B-98	4.1	0.96	0.03	3.8	0.04	< 0.33	0.03	0.18	0.70	0.15	0.20	0.05	< 0.01	1.3	0.04
	18817	GBHC605B-98	3.5	0.82	< 0.01	3.2	0.07	< 0.33	< 0.01	< 0.01	0.61	0.19	0.26	< 0.01	0.08	0.96	< 0.01
	18818	GBHC606B-98	17	3.7	0.03	13	0.16	< 0.33	0.17	0.88	2.8	0.86	1.4	0.12	0.19	3.3	0.06
	MDLs		0.14	0.01	0.01	0.29	0.01	0.33	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
sets 3&4	18780	TSC804-98	6.2	2.2	0.21	5.0	0.28	1.7	0.08	0.65	1.0	0.30	0.48	0.10	0.07	1.8	0.08
	18781	TSC811-98	5.8	2.6	0.20	5.3	0.19	2.0	0.08	0.63	1.0	0.37	0.58	0.14	0.07	2.2	0.12
	18783	TSC907-98	11	3.7	0.29	8.4	0.23	2.7	0.12	0.93	1.8	0.56	0.98	0.14	0.13	3.4	0.13
	18784	TSC909-98	18	6.0	0.44	14	0.41	4.4	0.23	1.4	3.3	0.94	1.6	0.27	0.25	6.1	0.18
	18785	TSC910-98	13	4.3	0.34	10	0.22	3.3	0.14	1.0	2.1	0.65	1.0	0.17	0.12	3.9	0.14
	18786	TSC913-98	12	4.9	0.36	9.9	0.27	3.4	0.13	1.1	2.0	0.65	1.0	0.14	0.08	3.4	0.10
	18788*	TSA227-98	170	54	3.7	120	4.1	20	2.8	11	28	11	11	1.1	1.9	34	1.2
	18789	TSA027-98	110	34	2.9	71	3.0	14	1.9	8.4	16	5.8	7.8	0.73	1.2	23	0.91
	18790	TSA210-98	160	42	2.6	110	3.7	17	2.7	9.9	27	9.7	11	1.1	2.0	34	0.90
	18791	TSA302-98	380	98	7.0	260	9.9	34	7.1	23	67	27	26	2.5	4.3	77	2.2
	18792	TSA303-98	250	69	4.0	190	6.8	26	4.2	18	47	19	17	1.6	3.0	60	1.5
	18793	TSA321-98	75	24	1.7	52	2.0	11	1.2	5.4	14	4.3	5.3	0.53	0.85	16	0.57
	18794	TSA412-98	90	24	0.92	69	2.2	13	1.3	6.4	18	5.7	6.6	0.69	1.3	24	0.42
	18795	TSA413-98	100	31	2.4	110	3.0	15	1.8	9.0	23	8.0	8.0	0.83	1.7	34	1.2
	18796	TSA428-98	82	26	1.7	71	2.3	12	1.2	6.4	20	5.7	6.1	0.67	1.4	25	0.78
	18798	TSCW2-98	2.2	0.98	0.17	1.8	0.06	0.58	0.02	0.27	0.41	0.18	0.32	0.14	0.02	0.57	0.03
	18799	TSCW3-98	2.9	1.3	0.10	2.3	0.03	0.69	0.02	0.35	0.48	0.17	0.83	0.57	< 0.01	0.67	0.11
	MDLs		0.19	0.08	0.02	0.10	0.01	0.08	0.01	0.01	0.03	0.03	0.07	0.04	0.01	0.03	0.01
*Average of method replicates.																	
TS-free swallow; GBH-Great Blue Heron																	
MDL-method detection limit.																	
Note: Values have 2 significant figures.																	
Concentrations recovery corrected.							GBH min	0.04									
*Total PCBs at 2 significant figures.							GBH max	0.71									

Table 1. PCB Congener Concentrations in Great Blue Heron Brains, Tree Swallow Nestlings and Adults (ng/g)

	Sample ID	Field ID	201	202	203	205	206	208	209	Total PCBs*
sets 1&2	18759	TSC216-98	0.77	1.1	4.5	0.54	1.6	0.39	0.98	7600
	18760	TSC217-98	0.41	1.1	3.8	0.43	1.3	0.43	0.37	7600
	18761	TSC222-98	0.25	0.91	4.0	0.39	1.3	0.34	0.34	7800
	18762	TSC224-98	0.50	1.2	4.9	0.86	1.7	0.41	1.2	8500
	18764*	TSC304-98	0.75	2.4	7.7	0.62	3.6	0.97	0.64	8500
	18765	TSC305-98	1.2	3.2	10	0.94	5.1	1.3	1.1	12000
	18766	TSC306-98	0.90	2.4	7.4	0.90	3.4	0.84	0.49	9600
	18767	TSC310-98	0.98	2.9	8.8	0.81	4.3	1.1	0.76	9700
	18769	TSC402-98	0.66	3.5	9.3	0.68	5.7	1.7	0.86	6400
	18770	TSC403-98	0.65	4.9	11	0.63	6.6	2.1	1.1	4500
	18771	TSC412-98	0.97	6.3	13	0.80	8.2	2.6	1.2	9100
	18772	TSC413-98	0.85	4.9	14	0.80	7.7	2.1	0.99	7300
	18774	TSC601-98	0.29	1.7	3.6	0.39	3.2	1.2	2.3	2300
	18775	TSC609-98	0.89	1.7	5.0	0.59	2.8	0.84	0.77	1800
	18777	TSC702-98	6.1	0.81	2.3	0.27	1.8	0.25	0.75	750
	18778	TSC703-98	21	0.99	2.3	0.30	2.0	0.67	0.87	890
	18803	GBHC401B-98	0.29	0.90	1.7	0.02	1.7	0.52	0.70	1000
	18814	GBHC602B-98	1.4	2.1	8.5	0.77	4.2	0.74	1.0	560
	18815	GBHC603B-98	< 0.01	< 0.01	0.40	< 0.01	0.29	< 0.01	0.25	35
	18816	GBHC604B-98	0.09	0.30	0.55	0.10	0.77	0.26	0.46	140
	18817	GBHC605B-98	0.05	0.22	0.64	< 0.01	0.69	0.16	0.56	60
	18818	GBHC606B-98	0.24	0.35	1.7	< 0.01	0.87	0.17	0.46	150
	MDLs		0.01	0.01	0.01	0.01	0.01	0.01	0.20	9.6
sets 3&4	18780	TSC804-98	0.22	0.67	1.1	0.20	0.78	0.37	0.94	160
	18781	TSC811-98	0.50	0.71	1.1	0.08	0.99	0.61	1.1	160
	18783	TSC907-98	0.30	1.2	1.8	0.22	1.7	0.86	1.4	290
	18784	TSC909-98	0.37	2.2	3.9	0.46	3.1	1.2	1.6	330
	18785	TSC910-98	0.25	1.4	2.5	0.14	1.9	0.83	1.3	170
	18786	TSC913-98	0.18	1.2	1.9	0.22	1.9	0.89	1.5	450
	18788*	TSA227-98	2.5	8.3	30	5.7	16	4.9	4.7	9700
	18789	TSA027-98	1.9	5.8	18	2.1	12	4.3	3.8	8000
	18790	TSA210-98	2.5	9.1	31	2.6	18	6.0	4.4	7500
	18791	TSA302-98	5.3	16	79	5.4	34	9.2	5.3	16000
	18792	TSA303-98	4.9	15	53	4.0	29	8.7	4.8	11000
	18793	TSA321-98	1.1	4.0	14	1.2	8.9	2.9	3.0	5400
	18794	TSA412-98	1.9	6.8	24	1.6	15	5.0	3.1	2300
	18795	TSA413-98	2.4	11	27	2.3	16	6.3	4.2	5400
	18796	TSA428-98	1.7	7.1	20	2.2	13	4.4	3.7	3600
	18798	TSCW2-98	0.04	0.13	0.35	0.09	0.19	0.14	0.85	42
	18799	TSCW3-98	0.18	0.18	0.39	0.14	0.27	0.15	0.82	56
	MDLs		0.01	0.01	0.02	0.01	0.02	0.04	0.29	9.8
*Average of method replicates.										
TS-tree swallow, GBH-Great Blue Heron										
MDL-method detection limit.										
Note: Values have 2 significant figures.										
Concentrations recovery corrected.										
*Total PCBs at 2 significant figures.										

305618

Table 2. Quality Control Results for Congener-Specific PCB Analysis (ng/g)

Sample ID	Field ID	Sample Type	Gram-equivalents for Analysis (g)	% Lipid	001	003	004	005	006	007	008	009	010	015	016	017	018	019	020
18764-1 ^a	TSC304-98	TS Nestling	5.88	11.5	< 0.02	< 0.03	14	< 0.01	0.86	< 0.01	7.0	0.15	11	31	40	91	37	50	2.5
18764-2 ^a	TSC304-98	TS Nestling	5.88	11.5	< 0.02	< 0.03	13	< 0.01	0.84	< 0.01	7.1	0.31	11	33	35	88	36	46	2.5
18764-3 ^a	TSC304-98	TS Nestling	5.88	11.5	< 0.02	< 0.03	14	< 0.01	0.90	< 0.01	7.6	0.26	12	35	35	89	37	48	2.6
Average					< 0.02	< 0.03	13	< 0.01	0.87	< 0.01	7.3	0.24	11	33	37	90	37	48	2.6
SD(n-1)							0.5		0.02		0.24	0.07	0.3	2	3	0.9	0.6	1.5	0.05
%RSD							4		3		3	28	3	5	7	1	2	3	2
MS 032999 GCR1 ^a	Matrix Spike	Bluegill	9.81	4.25	0.30	< 0.03	2.2	0.13	1.3	0.23	6.6	0.37	0.09	1.3	9.3	13	21	1.4	0.50
MS 032999 GCR2 ^a	Matrix Spike	Bluegill	9.81	4.25	0.30	< 0.03	2.3	0.12	1.3	0.20	6.8	0.37	0.09	1.1	8.6	12	19	1.3	0.49
MS 032999 GCR3 ^a	Matrix Spike	Bluegill	9.81	4.25	0.35	< 0.03	2.3	0.14	1.3	0.20	6.7	0.38	0.09	1.1	8.3	12	19	1.3	0.51
Average					0.32	< 0.03	2.3	0.1	1.3	0.21	6.6	0.4	0.1	1.2	8.7	13	20	1.3	0.50
SD(n-1)					0.03		0.06	0.01	0.05	0.02	0.07	0.01	0.0	0.1	0.5	0.5	1.0	0.04	0.01
%RSD					9		3	8	4	8	1	2	0	11	6	4	5.0	3	2
MS amount*	total ng				3.1		22	1.3	13	2.1	65	3.7	0.88	12	86	123	192	13	4.9
Recovery					25		49	63	60	50	60	51	47	58	68	67	67	58	65
MS 030899 ^a	Matrix Spike	Bluegill	4.90	3.70	0.85	0.25	4.6	0.20	2.2	0.39	11	0.69	0.19	1.9	11	17	27	2.0	0.73
MS amount*	total ng				4.2	1.2	23	1.0	11	1.9	54	3.4	0.93	9.5	53	82	133	9.8	3.6
Recovery					66	132	101	98	103	92	100	94	100	95	85	90	93	88	95
MOCK 100% 032999 ^a	Aroclor A1111 std	Std Solution	—	—	13	1.9	45	2.0	21	4.1	108	7.2	1.9	20	126	185	286	22	7.6
MB 030899 ^a	Matrix Blank	Bluegill	4.90	3.40	0.16	3.56	< 0.01	< 0.01	< 0.01	< 0.01	0.22	< 0.01	< 0.01	< 0.01	0.20	0.37	2.5	< 0.13	< 0.01
MB 032999 ^a	Matrix Blank	Bluegill	9.81	3.95	< 0.02	< 0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.22	0.59	1.2	2.1	< 0.01
PB 030899 ^{a,2}	Procedural Blank	Na ₂ SO ₄	—	—	0.10	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	0.00
PB 031699 GCR1 ^{a,2}	Procedural Blank	Na ₂ SO ₄	—	—	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PB 031699 GCR2 ^{a,2}	Procedural Blank	Na ₂ SO ₄	—	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PB 031699 GCR3 ^{a,2}	Procedural Blank	Na ₂ SO ₄	—	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average					0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00
SD (n-1)					0.05	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.00
MDL	MDL = PB Average + 3 (SD)				0.17	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02	0.00
mass normalized MDL	average mass		7.70	grams	0.02	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.13	0.01
18788-1 ^b	TSA227-98	TS Nestling	5.80	8.1	0.37	< 0.14	0.88	< 0.01	0.05	0.02	0.25	0.05	0.03	22	0.98	2.4	4.8	1.4	0.15
18788-2 ^b	TSA227-98	TS Nestling	5.88	8.2	0.38	< 0.14	0.86	< 0.01	0.06	0.01	0.26	0.04	0.03	23	0.90	2.0	4.8	1.5	0.13
18788-3 ^b	TSA227-98	TS Nestling	5.89	8.2	0.32	< 0.14	0.93	< 0.01	0.07	0.02	0.27	0.04	0.03	23	0.97	2.1	4.8	1.5	0.13
Average				8.1	0.35	< 0.14	0.89	< 0.01	0.06	0.02	0.26	0.04	0.03	23	0.95	2.1	4.8	1.5	0.13
SD (n-1)				0.05	0.03		0.03		0.01	0.00	0.01	0.01	0.00	0.8	0.04	0.2	0.04	0.02	0.01
%RSD				0.6	7		3		14	12	4	14	3	3	4	8	1	2	6
MS 090799 GCR1 ^{a,b}	Matrix Spike	Bluegill	4.94	4.56	5.8	5.9	29	1.3	15	2.0	52	3.8	1.1	14	38	39	109	9.1	5.3
MS 090799 GCR2 ^{a,b}	Matrix Spike	Bluegill	4.94	4.56	5.8	6.3	28	1.3	15	2.0	52	3.7	1.0	15	38	39	109	9.0	5.3
MS 090799 GCR3 ^{a,b}	Matrix Spike	Bluegill	4.94	4.56	6.3	6.8	28	1.2	14	2.0	52	3.6	1.0	15	38	39	108	9.0	5.2
Average					5.9	6.3	28	1.3	15	2.0	52	3.7	1.0	15	38	39	109	9.0	5.2
SD (n-1)					0.29	0.45	0.4	0.04	0.3	0.01	0.2	0.1	0.05	0.53	0.32	0.32	0.2	0.04	0.07
%RSD					5	7	2	3	2	0	0	3	5	4	1	1	0.2	0	1

Table 2. Quality Control Results for Congener-Specific PCB Analysis (ng/g)

Sample ID	Field ID	Sample Type	Gram-equivalents for Analysis (g)	% Lipid	001	003	004	005	006	007	008	009	010	015	016	017	018	019	020
Recovery					24	84	85	68	61	39	58	58	70	86	83	60	56	45	48
MOCK 100% 090799	225W-1 & 182W-10	Std Solution	---	---	25	7.5	51	1.9	24	5.0	89	6.4	1.4	17	72	65	194	20	11
MB 090799^b	Matrix Blank	Bluegill	4.95	4.56	1.9	1.1	1.5	< 0.01	< 0.01	< 0.01	0.17	< 0.01	< 0.01	< 0.01	< 0.01	0.13	0.35	< 0.01	< 0.01
PB 081899 GCR1^{a,2}	Procedure Blank	Na ₂ SO ₄	---	---	0.00	1.24	3.77	0.07	0.09	0.04	0.33	0.19	0.00	0.06	0.00	0.29	0.65	0.00	0.09
PB 081899 GCR2^{a,2}	Procedure Blank	Na ₂ SO ₄	---	---	0.00	1.25	3.63	0.10	0.07	0.05	0.35	0.13	0.00	0.07	0.00	0.29	0.65	0.00	0.09
PB 081899 GCR3^{a,2}	Procedure Blank	Na ₂ SO ₄	---	---	0.00	1.25	3.78	0.08	0.07	0.04	0.32	0.17	0.00	0.08	0.00	0.29	0.65	0.00	0.07
Average					0.00	1.25	3.72	0.08	0.08	0.04	0.33	0.16	0.00	0.07	0.00	0.29	0.65	0.00	0.08
SD (n-1)					0.00	0.00	0.07	0.01	0.01	0.00	0.01	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.01
MDL	MDL = PB Average + 3 (SD)				0.00	1.3	3.9	0.11	0.10	0.05	0.36	0.23	0.00	0.10	0.00	0.29	0.65	0.00	0.11
mass normalized MDL		average mass	8.80	grams	0.01	0.14	0.45	0.01	0.01	0.01	0.04	0.03	0.01	0.01	0.01	0.03	0.07	0.01	0.01
Note: Values used in QC calculations are not rounded.																			
Note: GCR = GC replicate injections; MB = matrix blank; MS = matrix spike; PC = positive control; PB = procedural blank; MDL = method detection limit.																			
*MS values presented as total ng, uncorrected.																			
^a Sample sets 1 & 2; ^b Sample sets 3 & 4.																			
¹ NQ = not quantified.																			
² PB values presented as total ng, uncorrected.																			

Table 2. Quality Control Results for Congener-Specific PCB Analysis (ng/g)

Sample ID	Field ID	Sample Type	022	024	025	026	027	028	031	032	033	034	035	037,059	040	041	042	043	044
18764-1 ^a	TSC304-98	TS Nestling	38	0.10	37	71	75	494	269	76	11	2.9	< 0.01	124	20	7.7	138	18	244
18764-2 ^a	TSC304-98	TS Nestling	37	< 0.01	37	72	77	501	298	76	12	3.0	< 0.01	120	22	8.1	150	16	247
18764-3 ^a	TSC304-98	TS Nestling	38	< 0.01	39	75	81	517	305	79	12	3.4	< 0.01	127	23	8.9	153	18	254
Average			37		38	73	77	504	291	77	12	3.1	< 0.01	124	22	8.3	147	17	248
SD(n-1)			0.5		0.9	1.7	2.5	10	16	1.6	0.3	0.2		2.8	0.9	0.5	6	1.2	4
%RSD			1		2	2	3	2	5	2	3	6		2	4	6	4	7	2
MS 032999 GCR1 ^a	Matrix Spike	Bluegill	5.6	0.10	0.94	2.2	0.51	12	12	2.7	8.1	0.06	< 0.01	5.3	2.2	1.4	3.3	1.1	15
MS 032999 GCR2 ^a	Matrix Spike	Bluegill	5.4	0.15	0.92	2.1	0.52	12	12	2.7	8.3	< 0.01	0.1	5.3	2.5	1.5	3.5	0.71	15
MS 032999 GCR3 ^a	Matrix Spike	Bluegill	5.4	0.15	0.9	2.2	0.51	12	12	2.7	8.5	< 0.01	0.07	4.8	2.5	1.5	3.5	0.76	15
Average			5.5	0.1	0.9	2.2	0.5	12	12	2.7	8.3			5.2	2.4	1.4	3.4	0.9	15
SD(n-1)			0.13	0.03	0.02	0.04	0.01	0.06	0.11	0.01	0.2			0.3	0.2	0.04	0.08	0.2	0.2
%RSD			2	23	2	2	1	1	1	0	2			6	7	3	2	24	1
MS amount ^c	total ng		54	1.3	9.0	21	5.0	115	120	26	81			51	23	14	33	8.3	146
Recovery			71	72	60	69	65	70	69	68	69			75	81	77	75	85	76
MS 030899 ^a	Matrix Spike	Bluegill	6.6	0.24	1.1	2.8	0.78	15	17	4.0	12	< 0.01	< 0.01	6.1	2.9	1.9	4.3	0.68	18
MS amount ^c	total ng		32	1.2	5.6	14	3.8	75	82	20	57			30	14	9.1	21	3.3	90
Recovery			85	130	75	91	99	91	95	103	96			88	100	99	94	68	93
MOCK 100% 032999 ^a	Aroclor A1111 std	Std Solution	76	1.8	15	31	7.8	165	173	38	118	0.7	< 0.01	68	29	18	45	9.8	193
MB 030899 ^a	Matrix Blank	Bluegill	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.18	0.14	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.04	< 0.01	0.22
MB 032999 ^a	Matrix Blank	Bluegill	0.10	< 0.01	< 0.01	< 0.01	< 0.01	0.41	0.27	< 0.01	< 0.01	< 0.01	< 0.01	0.20	< 0.01	< 0.01	0.10	< 0.01	0.43
PB 030899 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55
PB 031699 GCR1 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PB 031699 GCR2 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PB 031699 GCR3 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31
Average			0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
SD (n-1)			0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27
MDL	MDL = PB Average + 3 (SD)		0.00	0.00	0.00	0.00	0.00	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.01
mass normalized MDL	average mass		0.01	0.01	0.01	0.01	0.01	0.08	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.13
18788-1 ^b	TSA227-98	TS Nestling	2.7	< 0.01	7.9	8.5	2.8	682	190	7.8	1.6	0.14	< 0.01	35	1.5	1.1	40	< 0.04	41
18788-2 ^b	TSA227-98	TS Nestling	2.7	0.02	7.8	8.4	2.7	705	204	7.5	1.6	0.10	< 0.01	36	1.4	1.1	43	< 0.04	44
18788-3 ^b	TSA227-98	TS Nestling	2.6	< 0.01	7.6	8.3	2.7	687	192	7.5	1.6	0.12	< 0.01	35	1.3	1.1	43	< 0.04	44
Average			2.7	< 0.01	7.8	8.4	2.7	691	195	7.5	1.6	0.12	< 0.01	35	1.4	1.1	42	< 0.04	43
SD (n-1)			0.06		0.10	0.10	0.03	10	6	0.03	0.02	0.01		0.4	0.06	0.02	1		1.4
%RSD			2		1	1	1	1	3	0	1	12		1	4	2	3		3
MS 090799 GCR1 ^{a,b}	Matrix Spike	Bluegill	37	1.3	5.6	18	4.8	83	80	35	53	0.34	0.24	9.8	25	13	34	3.4	100
MS 090799 GCR2 ^{a,b}	Matrix Spike	Bluegill	36	1.2	5.6	18	4.7	84	80	34	54	0.36	0.26	10	24	13	34	4.0	99
MS 090799 GCR3 ^{a,b}	Matrix Spike	Bluegill	37	1.2	6.1	18	4.6	84	81	34	53	0.33	0.22	10	24	13	33	3.5	99
Average			37	1.2	5.8	18	4.7	84	81	34	53	0.34	0.24	10	24	13	34	3.6	99
SD (n-1)			0.18	0.04	0.31	0.2	0.12	0.7	0.6	0.4	0.6	0.01	0.02	0.27	0.3	0.2	0.4	0.32	0.5
%RSD			0	3	5	1	3	1	1	1	1	4	7	3	1	2	1	9	0

Table 2. Quality Control Results for Congener-Specific PCB Analysis (ng/g)

Sample ID	Field ID	Sample Type	022	024	025	026	027	028	031	032	033	034	035	037,059	040	041	042	043	044
Recovery			68	230	53	60	63	65	75	74	65	20		49	77	115	70	50	65
MOCK 100% 090799	225W-1 & 162W-10	Std Solution	54	0.5	11	31	7.4	128	108	46	82	1.7	---	21	32	11	48	7.2	153
MB 090799 ^b	Matrix Blank	Bluegill	0.10	< 0.01	0.01	0.24	< 0.01	0.37	0.28	0.46	0.10	0.05	< 0.01	0.06	< 0.02	< 0.01	0.14	0.06	0.28
PB 081899 GCR1 ^{a,2}	Procedure Blank	Na ₂ SO ₄	0.27	0.02	0.04	0.16	0.02	2.83	1.26	1.09	0.40	0.00	0.02	0.28	0.14	0.06	0.42	0.31	0.98
PB 081899 GCR2 ^{a,2}	Procedure Blank	Na ₂ SO ₄	0.35	0.02	0.05	0.17	0.03	2.96	1.16	0.87	0.43	0.00	0.02	0.30	0.11	0.05	0.42	0.27	0.99
PB 081899 GCR3 ^{a,2}	Procedure Blank	Na ₂ SO ₄	0.31	0.02	0.06	0.12	0.02	2.91	1.19	0.87	0.44	0.00	0.03	0.34	0.12	0.07	0.39	0.30	1.03
Average			0.31	0.02	0.05	0.15	0.02	2.90	1.20	0.94	0.42	0.00	0.02	0.31	0.12	0.06	0.41	0.30	1.00
SD (n-1)			0.03	0.00	0.01	0.02	0.00	0.05	0.04	0.10	0.02	0.00	0.00	0.03	0.01	0.01	0.01	0.02	0.02
MDL	MDL = PB Average + 3 (SD)		0.40	0.02	0.07	0.22	0.03	3.1	1.3	1.2	0.47	0.00	0.03	0.38	0.16	0.08	0.45	0.35	1.1
mass normalized MDL		average mass	0.05	0.01	0.01	0.02	0.01	0.35	0.15	0.14	0.05	0.01	0.01	0.04	0.02	0.01	0.05	0.04	0.12
Note: Values used in QC calculations are not rounded.																			
Note: GCR = GC replicate injections; MB = matrix blank; MS = matrix spike; PC = positive control; PB = procedural blank; MDL = method detection limit.																			
*MS values presented as total ng, uncorrected.																			
^a Sample sets 1 & 2; ^b Sample sets 3 & 4.																			
¹ NQ = not quantified.																			
² PB values presented as total ng, uncorrected.																			

Table 2. Quality Control Results for Longener-Specific PCB Analysis (ng/g)

Sample ID	Field ID	Sample Type	045	046	047	048	049	051	052	053	054	055	056,060	057	058	063	064	066	067	069
18764-1 ^a	TSC304-98	TS Nestling	6.8	8.7	352	48	526	33	547	80	< 0.01	6.1	283	< 0.01	< 0.01	66	7.7	517	21	< 0.01
18764-2 ^a	TSC304-98	TS Nestling	6.4	8.5	377	51	491	32	586	78	< 0.01	6.4	304	< 0.01	< 0.01	73	8.1	596	24	< 0.01
18764-3 ^a	TSC304-98	TS Nestling	6.6	8.7	395	83	499	33	611	81	< 0.01	6.6	308	< 0.01	< 0.01	76	8.9	617	26	< 0.01
Average			6.6	8.6	375	61	505	33	581	80	< 0.01	6.4	298	< 0.01	< 0.01	72	8.3	577	24	< 0.01
SD(n-1)			0.1	0.08	18	16	15	0.5	26	1.4		0.2	11			4	0.5	43	2	
%RSD			2	1	5	26	3	2	5	2		4	4			6	6	7	8	
MS 032999 GCR1 ^a	Matrix Spike	Bluegill	3.3	1.1	1.4	4.3	12	0.66	18	2.4	< 0.01	0.1	8.1	< 0.01	< 0.01	0.39	1.4	8.3	0.28	< 0.01
MS 032999 GCR2 ^a	Matrix Spike	Bluegill	3.1	1.1	1.7	4.1	12	0.64	19	2.3	< 0.01	0.1	8.1	< 0.01	< 0.01	0.42	1.5	9.3	0.27	< 0.01
MS 032999 GCR3 ^a	Matrix Spike	Bluegill	3.1	1.1	1.7	4.0	11	0.63	19	2.3	< 0.01	0.1	8.1	< 0.01	< 0.01	0.43	1.5	9.1	0.27	< 0.01
Average			3.2	1.1	1.6	4.2	12	0.64	19	2.3	< 0.01	0.1	8.1	< 0.01	< 0.01	0.4	1.4	8.9	0.3	< 0.01
SD(n-1)			0.13	0.03	0.17	0.2	0.4	0.01	0.3	0.04		0.0	0.01			0.02	0.04	0.5	0.01	
%RSD			4	3	11	4	3	2	2	2		0	0			5	3	6	2	
MS amount ^a	total ng		31	11	16	41	115	6.3	182	23		0.98	80			4.1	14	87	2.7	
Recovery			68	74	86	76	75	71	76	72		50	74			79	77	75	74	
MS 030899 ^a	Matrix Spike	Bluegill	4.0	1.4	2.2	5.0	14	0.84	24	3.1	< 0.01	0.18	9.7	< 0.01	< 0.01	0.50	1.9	11	0.32	< 0.01
MS amount ^a	total ng		20	7.0	11	25	70	4.1	119	15		0.88	48			2.5	9.1	55	1.6	
Recovery			86	97	119	92	92	92	99	97		90	89			95	99	95	86	
MOCK 100% 032999 ^a	Aroclor A1111 std	Std Solution	46	14	18	54	154	8.9	240	32	< 0.01	2.0	107	< 0.01	< 0.01	5.2	18	117	3.6	< 0.01
MB 030899 ^a	Matrix Blank	Bluegill	< 0.01	< 0.01	< 0.05	< 0.01	0.30	< 0.01	0.66	< 0.01	< 0.01	< 0.01	0.10	< 0.01	< 0.01	0.05	< 0.01	0.25	< 0.01	< 0.01
MB 032999 ^a	Matrix Blank	Bluegill	< 0.01	< 0.01	0.18	< 0.01	0.61	< 0.01	1.0	0.05	< 0.01	< 0.01	0.39	< 0.01	< 0.01	< 0.01	< 0.01	0.59	< 0.01	< 0.01
PB 030899 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.22	0.00	0.61	0.00	0.70	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.98	0.00	0.00
PB 031699 GCR1 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00
PB 031699 GCR2 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00
PB 031699 GCR3 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	0.00	0.00	0.00	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.00	0.00
Average			0.00	0.00	0.06	0.00	0.15	0.00	0.46	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.41	0.00	0.00
SD (n-1)			0.00	0.00	0.11	0.00	0.31	0.00	0.26	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.46	0.00	0.00
MDL	MDL = PB Average + 3 (SD)		0.00	0.00	0.39	0.00	1.07	0.00	1.22	0.00	0.00	0.00	0.79	0.00	0.00	0.00	0.00	1.78	0.00	0.00
mass normalized MDL	average mass		0.01	0.01	0.05	0.01	0.14	0.01	0.16	0.01	0.01	0.01	0.10	0.01	0.01	0.01	0.01	0.23	0.01	0.01
18788-1 ^b	TSA227-98	TS Nestling	0.92	2.0	260	11	523	5.4	461	24	0.42	0.53	313	0.24	0.32	63	1.1	677	9.2	7.2
18788-2 ^b	TSA227-98	TS Nestling	0.99	2.0	285	9.8	569	5.8	496	26	0.42	0.54	347	0.36	0.30	68	1.1	754	9.8	7.8
18788-3 ^b	TSA227-98	TS Nestling	0.95	2.0	284	10	556	5.8	496	26	0.46	0.55	337	0.38	0.33	68	1.1	738	9.7	7.7
Average			0.96	2.0	277	10	549	5.7	484	26	0.44	0.54	333	0.33	0.31	66	1.1	723	9.6	7.5
SD (n-1)			0.03	0.03	12	0.4	19	0.2	17	0.8	0.02	0.01	14	0.06	0.01	2	0.02	33	0.3	0.25
%RSD			3	1	4	4	4	3	3	3	4	2	4	19	4	4	2	5	3	3
MS 090799 GCR1 ^{a,b}	Matrix Spike	Bluegill	22	8.4	30	20	77	5.2	126	21	0.2	1.4	76	< 0.01	0.05	3.9	13	69	2.2	0.4
MS 090799 GCR2 ^{a,b}	Matrix Spike	Bluegill	22	8.2	29	27	75	5.1	125	20	0.3	1.3	76	< 0.01	0.06	3.8	13	69	2.4	0.3
MS 090799 GCR3 ^{a,b}	Matrix Spike	Bluegill	22	8.1	29	22	78	5.1	124	20	0.3	1.2	76	< 0.01	0.07	3.7	13	68	2.3	0.3
Average			22	8.3	29	23	77	5.1	125	20	0.3	1.3	76	< 0.01	0.06	3.8	13	69	2.3	0.3
SD (n-1)			0.2	0.15	0.3	4	1	0.08	1	0.3	0.01	0.08	0.24		0.01	0.1	0.2	0.6	0.09	0.04
%RSD			1	2	1	16	2	2	1	1	4	6	0		15	3	2	1	4	13

Table 2. Quality Control Results for Congener-Specific PCB Analysis (ng/g)

Sample ID	Field ID	Sample Type	045	046	047	048	049	051	052	053	054	055	056,060	057	058	063	064	066	067	069
Recovery			61	36	92	52	65	60	74	76	24	54	73			90	115	71	22	201
MOCK 100% 090799	225W-1 & 162W-10	Std Solution	36	23	32	44	118	8.5	168	27	1.0	2.5	105	< 0.01	< 0.01	4.2	11	97	11	0.2
MB 090799 ^a	Matrix Blank	Bluegill	0.07	< 0.01	0.23	< 0.02	0.39	0.01	0.77	0.04	0.03	< 0.01	0.41	0.38	< 0.01	< 0.03	0.01	0.51	< 0.02	0.03
PB 081899 GCR1 ^{b,1}	Procedure Blank	Na ₂ SO ₄	0.09	0.07	1.75	0.14	2.41	0.06	2.75	0.21	0.01	0.01	2.23	0.02	0.00	0.17	0.06	3.32	0.15	0.03
PB 081899 GCR2 ^{b,1}	Procedure Blank	Na ₂ SO ₄	0.10	0.07	1.76	0.11	2.41	0.05	2.74	0.20	0.01	0.01	2.24	0.02	0.00	0.18	0.05	3.38	0.15	0.03
PB 081899 GCR3 ^{b,1}	Procedure Blank	Na ₂ SO ₄	0.08	0.06	1.83	0.11	2.44	0.05	2.67	0.19	0.01	0.01	2.18	0.02	0.00	0.23	0.07	3.28	0.14	0.03
Average			0.09	0.07	1.78	0.12	2.42	0.05	2.72	0.20	0.01	0.01	2.22	0.02	0.00	0.20	0.06	3.33	0.15	0.03
SD (n-1)			0.01	0.00	0.04	0.01	0.01	0.00	0.03	0.01	0.00	0.00	0.03	0.00	0.00	0.02	0.01	0.04	0.00	0.00
MDL	MDL = PB Average + 3 (SD)		0.12	0.08	1.9	0.16	2.5	0.06	2.8	0.23	0.01	0.01	2.3	0.02	0.00	0.27	0.08	3.4	0.16	0.04
mass normalized MDL		average mass	0.01	0.01	0.21	0.02	0.28	0.01	0.32	0.03	0.01	0.01	0.26	0.01	0.01	0.03	0.01	0.39	0.02	0.01
Note: Values used in QC calculations are not rounded.																				
Note: GCR = GC replicate injections; MB = matrix blank; MS = matrix spike; PC = positive control; PB = procedural blank; MDL = method detection limit.																				
^a MS values presented as total ng, uncorrected.																				
^b Sample sets 1 & 2; ^c Sample sets 3 & 4.																				
¹ NQ = not quantified.																				
² PB values presented as total ng, uncorrected.																				

Table 2. Quality Control Results for Congener-Specific PCB Analysis (ng/g)

Sample ID	Field ID	Sample Type	070	071	072	074	075	082	083	084	085	086	087	089	091	092	095	096	097	099	101
18764-1 ^a	TSC304-98	TS Nestling	411	70	<0.01	343	14	44	15	38	NQ ^c	<0.01	135	2.4	78	90	171	<0.01	130	217	260
18764-2 ^a	TSC304-98	TS Nestling	407	78	<0.01	396	13	44	16	36	NQ ^c	<0.01	143	1.4	73	86	174	<0.01	126	236	297
18764-3 ^a	TSC304-98	TS Nestling	411	84	<0.01	411	15	44	16	37	NQ ^c	<0.01	146	1.5	73	86	177	<0.01	124	244	312
Average			409	77	<0.01	383	14	44	16	37	NC ^c	<0.01	141	1.8	74	87	174	<0.01	127	232	290
SD(n-1)			1	6		29	0.5	0.2	0.4	0.6			5	0.4	2	2	3		3	12	22
%RSD			0.4	8		8	3	0.6	3	2			3	25	3	2	1		2	5	8
MS 032999 GCR1 ^a	Matrix Spike	Bluegill	21	2.7	<0.01	5.2	0.08	2.7	0.80	6.9	6.2	<0.01	8.0	0.10	3.0	4.2	22	<0.01	7.5	6.5	16
MS 032999 GCR2 ^a	Matrix Spike	Bluegill	20	2.8	<0.01	5.4	0.06	2.6	0.81	6.5	6.0	<0.01	8.2	0.11	2.9	4.1	21	<0.01	7.3	6.7	18
MS 032999 GCR3 ^a	Matrix Spike	Bluegill	20	2.8	<0.01	5.4	0.12	2.6	0.83	6.4	6.0	<0.01	8.3	0.11	2.9	4.0	21	<0.01	7.3	6.8	18
Average			20	2.7	<0.01	5.3	0.1	2.7	0.81	6.6	6.1	<0.01	8.2	0.1	2.9	4.1	21	<0.01	7.4	6.7	17
SD(n-1)			0.5	0.05		0.1	0.03	0.06	0.02	0.2	0.1		0.2	0.01	0.09	0.1	0.5		0.2	0.2	0.9
%RSD			2.6	2		2	35	2.2	2	3	2.0		2	5	2.9	3	2		2.1	3	4.9
MS amount ^a	total ng		197	27		52	0.85	26	8.0	65	28		80	1.0	29	40	208		72	65	171
Recovery			77	73		76	63	77	69	77	50		81	22	76	93	80		85	89	83
MS 030899 ^a	Matrix Spike	Bluegill	23.6	3.4	<0.01	6.6	0.15	3.0	1.1	7.9	6.8	<0.01	11	0.13	3.6	4.8	26	<0.01	8.6	8.3	22
MS amount ^a	total ng		115	17		32	0.74	15	5.2	39	19		52	0.64	17	24	126		42	41	108
Recovery			90	91		95	108	87	90	92	83		105	27	92	110	96		99	111	105
MOCK 100% 032999 ^a	Aroclor A1111 std	Std Solution	256	37	<0.01	69	1.4	34	12	84	46	<0.01	99	4.8	38	43	262	<0.01	85	73	206
MB 030899 ^a	Matrix Blank	Bluegill	0.91	<0.01	<0.01	0.18	<0.01	0.10	<0.01	0.31	2.9	<0.01	0.78	<0.01	<0.01	0.70	0.70	<0.01	0.65	1.4	2.5
MB 032999 ^a	Matrix Blank	Bluegill	1.4	<0.01	<0.01	0.43	<0.01	<0.04	<0.01	0.22	3.7	<0.01	0.94	<0.01	0.24	0.59	4.6	<0.01	0.80	1.8	2.9
PB 030899 ^{a,2}	Procedural Blank	Na ₂ SO ₄	1.13	0.00	0.00	0.58	0.00	0.17	0.00	0.50	1.22	0.00	0.00	0.00	0.00	0.00	0.77	0.00	0.49	0.66	1.26
PB 031699 GCR1 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.37	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.84
PB 031699 GCR2 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.35	0.00	0.00	0.00	0.32	0.00	0.00	0.00	1.04
PB 031699 GCR3 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.34	0.00	0.00	0.00	0.36	0.00	0.00	0.00	0.93
Average			0.28	0.00	0.00	0.15	0.00	0.04	0.00	0.13	0.62	0.00	0.26	0.00	0.00	0.00	0.45	0.00	0.12	0.17	1.02
SD (n-1)			0.57	0.00	0.00	0.29	0.00	0.09	0.00	0.25	0.41	0.00	0.18	0.00	0.00	0.00	0.22	0.00	0.25	0.33	0.18
MDL	MDL = PB Average + 3 (SD)		1.98	0.00	0.00	1.02	0.00	0.30	0.00	0.88	1.84	0.00	0.80	0.00	0.00	0.00	1.09	0.00	0.86	1.16	1.56
mass normalized MDL	average mass		0.26	0.01	0.01	0.13	0.01	0.04	0.01	0.11	0.24	0.01	0.10	0.01	0.01	0.01	0.14	0.01	0.11	0.15	0.20
18788-1 ^b	TSA227-98	TS Nestling	330	31	26	372	28	8.6	2.3	5.3	366	1.6	119	0.76	89	108	149	0.42	47	293	353
18788-2 ^b	TSA227-98	TS Nestling	360	33	28	412	27	9.2	2.4	5.6	412	1.2	134	0.72	94	114	160	0.47	50	323	386
18788-3 ^b	TSA227-98	TS Nestling	347	33	27	406	25	8.9	2.3	5.3	403	1.6	129	0.78	92	111	158	0.44	49	313	377
Average			346	33	27	397	27	8.9	2.3	5.4	394	1.5	127	0.75	92	111	155	0.45	48	310	372
SD (n-1)			12	1	0.5	18	1.4	0.24	0.04	0.1	20	0.2	6	0.03	2.2	3	5	0.02	1.4	13	14
%RSD			3	3	2	4	5	3	2	3	5	13	5	4	2	2	3	5	3	4	4
MS 090799 GCR1 ^{a,b}	Matrix Spike	Bluegill	126	33	1.7	54	1.0	17	6.9	38	36	0.4	73	2.1	18	25	114	0.6	43	45	117
MS 090799 GCR2 ^{a,b}	Matrix Spike	Bluegill	127	34	1.4	55	1.3	17	6.8	38	36	0.4	71	2.2	18	25	122	0.6	43	44	117
MS 090799 GCR3 ^{a,b}	Matrix Spike	Bluegill	126	33	1.5	54	1.4	17	6.7	39	36	0.6	72	2.4	18	25	112	0.7	43	44	117
Average			126	33	1.5	54	1.2	17	6.8	39	36	0.5	72	2.2	18	25	116	0.6	43	45	117
SD (n-1)			0.5	0.3	0.1	0.5	0.2	0.06	0.11	0.26	0.14	0.08	0.6	0.2	0.07	0.20	6	0.03	0.2	0.3	0.2
%RSD			0.4	1	10	1	18	0.3	2	1	0.4	17	1	7	0.4	1	5	5	0.4	1	0.2

Table 2. Quality Control Results for Congener-Specific PCB Analysis (ng/g)

Sample ID	Field ID	Sample Type	070	071	072	074	075	082	083	084	085	086	087	089	091	092	095	096	097	099	101
Recovery			67	89	124	80	44	66	69	71	105	40	82	35	66	87	73	24	79	83	83
MOCK 100% 090799	225W-1 & 162W-10	Std Solution	188	56	1.2	67	2.8	26	10	54	34	1.2	88	6.4	28	28	159	2.7	54	54	141
MB 090799 ^b	Matrix Blank	Bluegill	1.1	0.07	< 0.02	0.58	< 0.01	0.11	0.05	0.21	3.4	< 0.01	1.3	< 0.01	0.25	0.53	1.0	< 0.01	0.66	1.5	2.2
PB 081899 GCR1 ^{a,2}	Procedure Blank	Na ₂ SO ₄	3.10	0.43	0.13	2.51	0.02	0.19	0.09	0.50	1.51	0.02	1.58	0.01	0.43	0.49	1.68	0.03	0.70	1.25	2.57
PB 081899 GCR2 ^{a,2}	Procedure Blank	Na ₂ SO ₄	3.16	0.47	0.11	2.51	0.02	0.21	0.07	0.50	1.51	0.02	1.64	0.01	0.41	0.56	1.65	0.04	0.72	1.24	2.54
PB 081899 GCR3 ^{a,2}	Procedure Blank	Na ₂ SO ₄	3.19	0.42	0.12	2.58	0.02	0.20	0.07	0.49	1.51	0.02	1.62	0.01	0.37	0.49	1.66	0.03	0.75	1.26	2.57
Average			3.15	0.44	0.12	2.53	0.02	0.20	0.08	0.50	1.51	0.02	1.61	0.01	0.40	0.51	1.66	0.03	0.72	1.25	2.56
SD (n-1)			0.04	0.02	0.01	0.03	0.00	0.01	0.01	0.00	0.00	0.00	0.02	0.00	0.02	0.03	0.01	0.01	0.02	0.01	0.01
MDL	MDL = PB Average + 3 (SD)		3.3	0.51	0.15	2.6	0.02	0.22	0.10	0.51	1.5	0.03	1.7	0.01	0.47	0.61	1.7	0.05	0.79	1.3	2.6
mass normalized MDL		average mass	0.37	0.06	0.02	0.30	0.01	0.03	0.01	0.05	0.17	0.01	0.19	0.01	0.05	0.07	0.19	0.01	0.09	0.15	0.30
Note: Values used in QC calculations are not rounded.																					
Note: GCR = GC replicate injections; MB = matrix blank; MS = matrix spike; PC = positive control; PB = procedural blank; MDL = method detection limit.																					
*MS values presented as total ng, uncorrected.																					
^a Sample sets 1 & 2; ^b Sample sets 3 & 4.																					
¹ NQ = not quantified.																					
² PB values presented as total ng, uncorrected.																					

Table 2. Quality Control Results for Congener-Specific PCB Analysis (ng/g)

Sample ID	Field ID	Sample Type	102	105	109	110	112	113	114	115	117	118	119	122	123	128	129	130	131	132	133
18764-1 ^a	TSC304-98	TS Nestling	15	145	27	250	< 0.01	< 0.01	15	13	17	333	13	3.5	9.6	35	8.8	12	1.5	12	6.7
18764-2 ^a	TSC304-98	TS Nestling	13	143	29	242	< 0.01	< 0.01	15	13	16	342	14	3.4	9.7	35	8.9	12	1.4	11	6.2
18764-3 ^a	TSC304-98	TS Nestling	15	144	29	249	< 0.01	< 0.01	15	14	17	337	15	3.6	10	36	9.0	12	1.4	12	4.8
Average			14	144	29	247	< 0.01	< 0.01	15	13	16	338	14	3.5	9.8	36	8.9	12	1.4	12	5.9
SD(n-1)			1	1	1	3			0.2	0.4	0.3	4	0.6	0.07	0.2	0.5	0.08	0.3	0.06	0.7	0.8
%RSD			5	1	4	1			1	3	2	1	4	2	2	1	0.9	2	4	6	14
MS 032999 GCR1 ^a	Matrix Spike	Bluegill	0.74	5.1	1.2	22	< 0.01	< 0.01	0.32	0.35	0.34	18	0.19	0.15	0.17	3.6	1.3	1.1	0.29	6.2	0.24
MS 032999 GCR2 ^a	Matrix Spike	Bluegill	0.59	4.7	1.2	22	< 0.01	< 0.01	0.38	0.36	0.33	18	0.20	0.13	0.15	3.5	1.3	1.0	0.27	6.1	0.2
MS 032999 GCR3 ^a	Matrix Spike	Bluegill	0.72	4.7	1.3	21	< 0.01	< 0.01	0.39	0.36	0.33	17	0.20	0.15	0.16	3.5	1.2	1.0	0.27	6.0	0.27
Average			0.7	4.9	1.2	22	< 0.01	< 0.01	0.36	0.36	0.33	18	0.20	0.14	0.16	3.5	1.3	1.1	0.3	6	0.2
SD(n-1)			0.1	0.2	0.02	0.6			0.04	0.01	0.01	0.3	0.01	0.01	0.01	0.1	0.03	0.06	0.01	0.1	0.04
%RSD			12	5	2	3			10	2	2	2	3	8	6	2	2	5	4	2	15
MS amount ^a	total ng		6.7	48	12	213			3.6	3.5	3.3	174	1.9	1.4	1.5	35	12	10	2.7	60	2.3
Recovery			74	85	89	82			84	75	80	85	85	80	83	83	79	86	78	79	89
MS 030899 ^a	Matrix Spike	Bluegill	0.97	6.5	1.5	25	< 0.01	< 0.01	0.55	0.45	0.40	20	0.23	0.18	0.21	4.2	1.5	1.4	0.36	7.9	0.34
MS amount ^a	total ng		4.8	32	7.3	123			2.7	2.2	2.1	97	1.1	0.88	1.0	21	7.2	6.6	1.8	39	1.7
Recovery			104	113	107	94			128	94	96	95	100	101	112	98	92	109	102	103	128
MOCK 100% 032999 ^a	Aroclor A1111 std	Std Solution	9.1	56	14	261	< 0.01	< 0.01	4.2	4.7	4.1	205	2.3	1.8	1.8	42	16	12	3.5	76	2.6
MB 030899 ^a	Matrix Blank	Bluegill	< 0.01	0.66	0.19	1.8	< 0.01	< 0.01	< 0.01	< 0.01	0.05	3.3	< 0.01	< 0.01	0.02	0.34	0.13	0.11	< 0.01	0.19	0.08
MB 032999 ^a	Matrix Blank	Bluegill	< 0.01	0.79	0.25	2.1	< 0.01	< 0.01	< 0.01	< 0.01	0.07	4.2	< 0.01	< 0.01	< 0.01	0.46	< 0.09	0.09	< 0.01	0.11	< 0.01
PB 030899 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.65	0.00	1.48	0.00	0.00	0.00	0.00	0.00	2.49	0.00	0.00	0.00	0.10	0.41	0.00	0.00	0.21	0.00
PB 031699 GCR1 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	1.03	0.00	0.00	0.00	0.00	0.00	1.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PB 031699 GCR2 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	0.84	0.00	0.00	0.00	0.00	0.00	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PB 031699 GCR3 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	1.01	0.00	0.00	0.00	0.00	0.00	1.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average			0.00	0.16	0.00	1.09	0.00	0.00	0.00	0.00	0.00	1.91	0.00	0.00	0.00	0.03	0.10	0.00	0.00	0.05	0.00
SD (n-1)			0.00	0.33	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.05	0.21	0.00	0.00	0.11	0.00
MDL	MDL = PB Average + 3 (SD)		0.00	1.14	0.00	1.91	0.00	0.00	0.00	0.00	0.00	3.08	0.00	0.00	0.00	0.18	0.72	0.00	0.00	0.37	0.00
mass normalized MDL	average mass		0.01	0.15	0.01	0.25	0.01	0.01	0.01	0.01	0.01	0.40	0.01	0.01	0.01	0.02	0.09	0.01	0.01	0.05	0.01
18788-1 ^b	TSA227-98	TS Nestling	< 0.01	280	70	312	0.51	3.7	28	24	58	634	21	1.1	18	90	6.4	30	1.9	37	17
18788-2 ^b	TSA227-98	TS Nestling	< 0.01	317	76	338	0.46	4.6	30	27	63	676	22	1.0	19	99	6.8	32	1.9	42	19
18788-3 ^b	TSA227-98	TS Nestling	< 0.01	309	75	325	0.45	4.1	30	25	61	667	22	1.1	19	95	6.7	31	2.0	34	17
Average			< 0.01	302	74	325	0.47	4.1	29	25	61	659	22	1.1	19	95	6.6	31	1.9	38	18
SD (n-1)				16	2.8	10	0.03	0.4	1.2	1.1	1.8	18	0.8	0.1	0.5	4	0.1	1	0.03	3.4	0.7
%RSD				5	4	3	6	9	4	4	3	3	4	7	3	4	2	3	2	9	4
MS 090799 GCR1 ^{a,b}	Matrix Spike	Bluegill	2.1	49	9.7	123	0.3	< 0.01	3.4	3.4	5.3	93	2.4	1.2	1.7	23	7.2	7.7	2.6	62	2.7
MS 090799 GCR2 ^{a,b}	Matrix Spike	Bluegill	2.3	49	9.7	125	0.3	< 0.01	3.6	3.3	5.3	97	2.9	1.3	1.8	23	7.2	7.6	2.6	61	2.4
MS 090799 GCR3 ^{a,b}	Matrix Spike	Bluegill	2.6	50	8.6	124	0.2	< 0.01	3.4	2.9	5.5	96	2.4	1.3	1.8	23	7.3	7.6	2.6	61	2.7
Average			2.3	50	9.4	124	0.3	< 0.01	3.5	3.2	5.4	95	2.6	1.2	1.8	23	7.3	7.6	2.6	61	2.6
SD (n-1)			0.2	0.45	0.6	0.9	0.02		0.12	0.23	0.08	2	0.29	0.02	0.07	0.2	0.06	0.06	0.03	0.6	0.16
%RSD			10	1	7	1	9		3	7	1	2	11	2	4	1	1	1	1	1	6

Table 2. Quality Control Results for Congener-Specific PCB Analysis (ng/g)

Sample ID	Field ID	Sample Type	102	105	109	110	112	113	114	115	117	118	119	122	123	128	129	130	131	132	133
Recovery			48	82	86	73			123	93	57	74	110	77	71	78	73	87	81	84	68
MOCK 100% 090799	225W-1 & 162W-10	Std Solution	5.1	61	11	170	< 0.01	0.5	2.8	3.4	9.4	130	2.3	1.6	2.5	30	10	8.8	3.2	73	3.8
MB 090799 ⁶	Matrix Blank	Bluegill	< 0.01	1.5	0.36	2.0	< 0.01	0.07	0.09	0.09	0.15	3.5	0.05	< 0.01	0.04	0.55	0.11	0.22	< 0.01	0.49	0.13
PB 081899 GCR1 ^{1,2}	Procedure Blank	Na ₂ SO ₄	0.03	2.68	0.33	2.98	0.00	0.15	0.09	0.07	0.20	4.95	0.07	0.01	0.05	0.64	0.14	0.19	0.01	1.33	0.11
PB 081899 GCR2 ^{1,2}	Procedure Blank	Na ₂ SO ₄	0.04	2.75	0.32	2.98	0.00	0.15	0.10	0.06	0.21	4.78	0.05	0.02	0.04	0.66	0.14	0.18	0.01	1.34	0.10
PB 081899 GCR3 ^{1,2}	Procedure Blank	Na ₂ SO ₄	0.03	2.67	0.28	3.02	0.00	0.13	0.10	0.08	0.19	4.91	0.05	0.02	0.05	0.67	0.16	0.18	0.01	1.23	0.10
Average			0.03	2.70	0.31	2.99	0.00	0.14	0.10	0.07	0.20	4.88	0.06	0.02	0.04	0.66	0.15	0.18	0.01	1.30	0.10
SD (n-1)			0.00	0.04	0.02	0.02	0.00	0.01	0.01	0.00	0.01	0.07	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.05	0.00
MDL	MDL = PB Average + 3 (SD)		0.04	2.8	0.38	3.0	0.00	0.17	0.12	0.09	0.22	5.1	0.08	0.02	0.06	0.70	0.17	0.19	0.01	1.5	0.12
mass normalized MDL		average mass	0.01	0.32	0.04	0.35	0.01	0.02	0.01	0.01	0.02	0.58	0.01	0.01	0.01	0.08	0.02	0.02	0.01	0.17	0.01
Note: Values used in QC calculations are not rounded.																					
Note: GCR = GC replicate injections; MB = matrix blank; MS = matrix spike; PC = positive control; PB = procedural blank; MDL = method detection limit.																					
*MS values presented as total ng, uncorrected.																					
*Sample sets 1 & 2; *Sample sets 3 & 4.																					
*NQ = not quantified.																					
*PB values presented as total ng, uncorrected.																					

Table 2. Quality Control Results for Congener-Specific PCB Analysis (ng/g)

Sample ID	Field ID	Sample Type	134	136	137	138	139	141	144	146	147	149	151	153	156	157	158	163	164	166	167
18764-1 ^a	TSC304-98	TS Nestling	1.9	9.2	13	148	3.1	26	3.5	40	8.1	92	30	185	17	4.8	20	50	8.3	1.6	8.4
18764-2 ^a	TSC304-98	TS Nestling	1.8	8.6	13	144	3.1	26	3.4	39	6.2	90	29	183	17	4.6	20	49	7.4	1.6	8.2
18764-3 ^a	TSC304-98	TS Nestling	1.9	8.8	13	149	3.0	27	3.7	40	6.7	95	29	189	18	5.0	21	52	7.3	1.9	8.7
Average			1.9	8.9	13	147	3.1	26	3.5	40	7.0	92	30	186	17	4.8	20	50	7.7	1.7	8.4
SD(n-1)			0.04	0.3	0.1	2	0.04	0.3	0.1	0.3	0.8	2	0.6	2	0.4	0.2	0.2	1.1	0.4	0.2	0.2
%RSD			2	3	1	1	1	1	3	1	11	3	2	1	2	3	1	2	6	9	2
MS 032999 GCR1 ^a	Matrix Spike	Bluegill	2.1	5.1	1.1	19	0.16	6.8	1.2	4.5	0.37	21	9.0	28	1.3	0.39	3.4	5.4	1.2	0.07	0.87
MS 032999 GCR2 ^a	Matrix Spike	Bluegill	2.0	4.8	1.1	19	0.23	6.6	1.2	4.3	0.35	21	8.4	27	1.1	0.42	3.3	5.4	1.1	0.08	0.86
MS 032999 GCR3 ^a	Matrix Spike	Bluegill	2.0	4.7	1.1	18	0.24	6.5	1.3	4.2	0.28	21	8.3	27	1.1	0.36	3.2	5.3	1.1	0.07	0.86
Average			2.0	4.9	1.1	19	0.2	6.6	1.2	4.3	0.33	21	8.6	27	1.2	0.4	3.3	5.4	1.1	0.1	0.86
SD(n-1)			0.09	0.2	0.03	0.2	0.04	0.1	0.02	0.1	0.05	0.1	0.3	0.6	0.1	0.03	0.1	0.1	0.1	0.01	0.01
%RSD			4	4	3	1	21	2	2	3.4	14	1	4	2	12	7	2	1	6	8	1
MS amount*	total ng		20	48	11	182	2.1	65	12	42	3.3	209	84	267	11	3.8	32	53	10	0.72	8.5
Recovery			102	80	91	84	113	80	78	90	87	81	81	88	77	107	83	73	116	41	84
MS 030899 ^a	Matrix Spike	Bluegill	2.5	5.8	1.3	24	0.34	8.1	1.6	5.0	0.32	28	10	33	1.71	0.34	3.7	8.2	0.87	0.08	0.99
MS amount*	total ng		12	28	6.1	118	1.7	40	7.9	24	1.6	137	49	161	8.4	1.7	18	40	4.3	0.4	4.9
Recovery			123	95	103	109	183	98	103	104	83	107	95	107	113	93	93	111	104	44	96
MOCK 100% 032999 ^a	Aroclor A1111 std	Std Solution	20	60	12	217	1.8	81	15	47	3.8	257	104	302	15	3.6	39	72	8.2	1.8	10
MB 030899 ^a	Matrix Blank	Bluegill	0.57	0.29	0.15	2.7	0.06	0.38	< 0.01	0.81	< 0.01	1.6	0.50	4.4	0.04	0.02	0.28	0.81	0.05	< 0.01	< 0.01
MB 032999 ^a	Matrix Blank	Bluegill	0.61	0.11	0.19	2.9	< 0.01	0.46	0.07	1.1	0.07	1.8	0.56	5.2	0.03	0.04	0.35	0.65	0.14	< 0.01	0.11
PB 030899 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	1.07	0.00	0.09	0.00	0.50	0.00	0.68	0.00	1.65	0.00	0.00	0.00	0.15	0.00	0.00	0.00
PB 031699 GCR1 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.81	0.00	2.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PB 031699 GCR2 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	0.79	0.00	0.00	0.00	0.00	0.00	0.60	0.00	1.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PB 031699 GCR3 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.72	0.00	1.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average			0.00	0.00	0.00	0.70	0.00	0.02	0.00	0.13	0.00	0.70	0.00	1.62	0.00	0.00	0.00	0.04	0.00	0.00	0.00
SD (n-1)			0.00	0.00	0.00	0.48	0.00	0.05	0.00	0.25	0.00	0.09	0.00	0.40	0.00	0.00	0.00	0.08	0.00	0.00	0.00
MDL	MDL = PB Average + 3 (SD)		0.00	0.00	0.00	2.14	0.00	0.16	0.00	0.88	0.00	0.96	0.00	2.82	0.00	0.00	0.00	0.26	0.00	0.00	0.00
mass normalized MDL	average mass		0.01	0.01	0.01	0.28	0.01	0.02	0.01	0.11	0.01	0.13	0.01	0.37	0.01	0.01	0.01	0.03	0.01	0.01	0.01
18788-1 ^b	TSA227-98	TS Nestling	1.2	7.5	31	305	8.3	54	11	86	7.7	174	30	380	59	12	52	110	25	4.3	18
18788-2 ^b	TSA227-98	TS Nestling	1.2	7.9	33	339	9.1	58	12	92	7.4	193	32	419	68	12	56	113	36	4.0	19
18788-3 ^b	TSA227-98	TS Nestling	1.6	7.8	33	329	8.7	57	12	90	6.9	186	31	406	65	13	54	104	41	3.8	19
Average			1.3	7.7	32	324	8.7	56	12	89	7.4	185	31	402	64	13	54	109	34	4.0	19
SD (n-1)			0.2	0.2	0.9	14	0.3	1.8	0.3	2.6	0.3	8	0.8	16	3.8	0.2	1.7	4	6.3	0.2	0.6
%RSD			15	2	3	4	4	3	3	3	4	4	3	4	6	1	3	4	19	5	3
MS 090799 GCR1 ^{a,b}	Matrix Spike	Bluegill	14	26	7.4	142	2.5	48	14	23	0.8	125	44	147	11	2.3	19	30	15	0.6	4.1
MS 090799 GCR2 ^{a,b}	Matrix Spike	Bluegill	13	26	7.4	142	2.5	48	14	23	0.8	123	44	148	11	2.3	19	29	15	0.6	4.2
MS 090799 GCR3 ^{a,b}	Matrix Spike	Bluegill	14	25	7.4	143	2.5	48	14	23	0.8	125	44	150	9.9	2.2	19	30	14	0.6	4.2
Average			13	26	7.4	142	2.5	48	14	23	0.8	125	44	148	10	2.3	19	30	14	0.6	4.1
SD (n-1)			0.07	0.2	0.02	0.8	0.03	0.2	0.3	0.04	0.02	1	0.3	1.4	0.50	0.08	0.1	0.3	0.2	0.01	0.07
%RSD			1	1	0	1	1	1	2	0.2	2	1	1	1	5	3	1	1	2	2	2

Table 2. Quality Control Results for Congener-Specific PCB Analysis (ng/g)

Sample ID	Field ID	Sample Type	134	136	137	138	139	141	144	146	147	149	151	153	156	157	158	163	164	166	167
Recovery			81	70	78	82	90	74	79	76	45	78	70	79	78	98	73	83	83		76
MOCK 100% 090799	225W-1 & 162W-10	Std Solution	17	36	10	173	2.8	65	18	30	1.7	161	63	188	13	2.3	26	36	17	< 0.01	5.4
MB 090799 ^a	Matrix Blank	Bluegill	0.50	0.10	0.27	4.3	0.06	0.74	0.13	0.83	0.02	1.7	0.6	4.5	0.14	0.13	0.41	0.69	0.42	0.08	0.17
PB 081899 GCR1 ^{b,2}	Procedure Blank	Na ₂ SO ₄	0.13	0.27	0.18	4.14	0.03	0.81	0.18	0.51	0.06	1.97	0.50	3.94	0.24	0.19	0.47	0.51	0.26	0.00	0.12
PB 081899 GCR2 ^{b,2}	Procedure Blank	Na ₂ SO ₄	0.14	0.26	0.20	4.11	0.03	0.79	0.20	0.53	0.05	1.92	0.54	3.96	0.14	0.20	0.43	0.52	0.26	0.00	0.15
PB 081899 GCR3 ^{b,2}	Procedure Blank	Na ₂ SO ₄	0.13	0.27	0.16	4.08	0.03	0.81	0.14	0.51	0.06	1.90	0.52	3.98	0.14	0.17	0.47	0.49	0.31	0.00	0.18
Average			0.14	0.27	0.18	4.11	0.03	0.81	0.18	0.52	0.06	1.93	0.52	3.96	0.17	0.19	0.46	0.50	0.28	0.00	0.15
SD (n-1)			0.00	0.00	0.01	0.02	0.00	0.01	0.02	0.01	0.00	0.03	0.02	0.02	0.05	0.01	0.02	0.01	0.02	0.00	0.02
MDL	MDL = PB Average + 3 (SD)		0.14	0.27	0.22	4.2	0.03	0.83	0.24	0.54	0.07	2.0	0.56	4.0	0.31	0.23	0.51	0.54	0.35	0.00	0.22
mass normalized MDL		average mass	0.02	0.03	0.02	0.47	0.01	0.09	0.03	0.06	0.01	0.23	0.06	0.46	0.04	0.03	0.06	0.06	0.04	0.01	0.03
Note: Values used in QC calculations are not rounded.																					
Note: GCR = GC replicate injections; MB = matrix blank; MS = matrix spike; PC = positive control; PB = procedural blank; MDL = method detection limit.																					
*MS values presented as total ng, uncorrected.																					
Sample sets 1 & 2; Sample sets 3 & 4.																					
1NQ = not quantified.																					
2PB values presented as total ng, uncorrected.																					

Table 2. Quality Control Results for Congener-Specific PCB Analysis (ng/g)

Sample ID	Field ID	Sample Type	170	171	172	173	174	175	176	177	178	179	180	183	185	187	189	190	191	193	194
18764-1 ^a	TSC304-98	TS Nestling	38	5.2	5.7	0.61	11	0.93	0.45	14	9.6	4.9	66	12	1.2	44	1.2	< 0.33	0.77	3.5	9.9
18764-2 ^a	TSC304-98	TS Nestling	39	5.0	5.7	0.67	11	0.89	0.67	14	9.3	4.7	67	11	1.4	43	1.2	< 0.33	0.73	3.4	9.9
18764-3 ^a	TSC304-98	TS Nestling	41	5.3	5.9	0.46	11	0.91	0.60	14	9.5	4.7	73	12	1.6	44	1.2	< 0.33	0.74	3.5	10
Average			39	5.2	5.8	0.58	11	0.91	0.57	14	9.5	4.8	69	12	1.4	44	1.2	< 0.33	0.75	3.5	10
SD(n-1)			1.4	0.1	0.07	0.09	0.3	0.02	0.09	0.2	0.1	0.07	3	0.3	0.1	0.4	0.03		0.02	0.05	0.1
%RSD			4	3	1	15	3	2	16	1	1	2	4	2	10	1	2		2	1	1
MS 032999 GCR1 ^a	Matrix Spike	Bluegill	6.2	2.2	1.6	0.17	8.0	0.44	0.69	5.7	2.1	4.4	20	4.5	0.92	14	0.33	< 0.33	0.32	1.1	3.7
MS 032999 GCR2 ^a	Matrix Spike	Bluegill	6.3	2.2	1.6	0.16	8.0	0.43	0.70	5.5	2.0	4.2	20	4.4	0.93	13	0.28	< 0.33	0.32	1.0	3.7
MS 032999 GCR3 ^a	Matrix Spike	Bluegill	6.1	2.1	1.6	0.19	7.8	0.41	0.60	5.4	1.9	4.1	20	4.3	0.89	13	0.28	< 0.33	0.32	1.0	3.6
Average			6.2	2.2	1.6	0.2	7.9	0.4	0.66	5.5	2.0	4.2	20	4.4	0.91	13	0.30	< 0.33	0.32	1.0	3.7
SD(n-1)			0.1	0.03	0.01	0.02	0.1	0.02	0.06	0.1	0.1	0.2	0.4	0.1	0.02	0.5	0.03		0.0	0.02	0.05
%RSD			1	1	1	9	2	4	8	3	4	4	2	2	2	3	10		0	2	1
MS amount ^a	total ng		61	21	16	1.7	78	4.2	6.5	54	20	42	195	43	9.0	128	2.9		3.1	10	36
Recovery			78	79	85	75	77	74	44	82	85	78	90	82	81	91	87		76	88	81
MS 030899 ^a	Matrix Spike	Bluegill	8.3	2.8	1.8	0.21	10	0.52	1.0	6.4	2.3	5.0	23	5.7	0.90	15	0.32	< 0.33	0.36	1.2	4.3
MS amount ^a	total ng		41	14	9.0	1.0	50	2.5	4.9	31	11	25	111	28	4.4	74	1.5		1.8	5.9	21
Recovery			104	103	98	91	100	90	66	95	100	93	102	107	80	105	93		85	101	94
MOCK 100% 032999 ^a	Aroclor A1111 std	Std Solution	78	27	19	2.3	101	5.7	15	66	23	53	217	52	11	140	3.3	< 0.33	4.1	12	44
MB 030899 ^a	Matrix Blank	Bluegill	0.52	0.07	0.18	< 0.01	0.29	< 0.01	< 0.01	0.37	0.24	0.11	2.0	0.37	< 0.01	2.7	0.02	< 0.33	< 0.01	0.14	0.29
MB 032999 ^a	Matrix Blank	Bluegill	0.84	< 0.01	0.21	< 0.01	0.35	0.07	< 0.01	0.37	0.25	0.11	2.4	0.40	0.23	3.2	0.03	< 0.33	< 0.01	0.18	0.35
PB 030899 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.00	0.83	0.00	0.00	0.00	0.00	0.00
PB 031699 GCR1 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.00	0.00	1.60	0.00	1.45	0.00	0.00	0.00
PB 031699 GCR2 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.78	0.00	0.81	0.00	0.00	0.00
PB 031699 GCR3 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.00	0.00	0.69	0.00	0.90	0.00	0.00	0.00
Average			0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.98	0.00	0.79	0.00	0.00	0.00
SD (n-1)			0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.42	0.00	0.60	0.00	0.00	0.00
MDL	MDL = PB Average + 3 (SD)		0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08	0.00	0.00	2.24	0.00	2.58	0.00	0.00	0.00
mass normalized MDL	average mass		0.07	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.14	0.01	0.01	0.29	0.01	0.33	0.01	0.01	0.01
18788-1 ^b	TSA227-98	TS Nestling	210	16	16	1.3	34	3.4	2.4	35	26	4.4	169	53	3.7	119	4.3	19	2.8	12	28
18788-2 ^b	TSA227-98	TS Nestling	244	17	17	1.1	36	3.4	2.2	35	26	4.4	158	54	3.8	121	4.0	21	2.8	12	29
18788-3 ^b	TSA227-98	TS Nestling	231	16	16	1.3	33	3.3	2.4	35	25	4.3	172	53	3.5	117	4.0	20	2.8	11	28
Average			228	16	16	1.2	34	3.4	2.3	35	26	4.4	166	54	3.7	119	4.1	20	2.8	11	28
SD (n-1)			14	0.7	0.1	0.1	1.1	0.05	0.07	0.3	0.41	0.03	6.0	0.5	0.1	1.9	0.2	0.9	0.03	0.3	0.4
%RSD			6	4	1	9	3	2	3	1	2	1	4	1	3	2	4	5	1	2	1
MS 090799 GCR1 ^{a,b}	Matrix Spike	Bluegill	59	15	9.1	1.2	56	2.8	5.5	28	11	22	102	43	6.4	61	2.1	22	2.1	5.8	20
MS 090799 GCR2 ^{a,b}	Matrix Spike	Bluegill	58	15	9.2	1.5	55	2.9	5.7	28	11	22	104	42	6.2	61	2.0	22	2.1	5.8	20
MS 090799 GCR3 ^{a,b}	Matrix Spike	Bluegill	60	15	9.4	1.3	55	2.9	5.4	28	12	22	103	42	6.0	62	2.1	23	2.1	5.8	20
Average			59	15	9.2	1.4	55	2.9	5.5	28	12	22	103	42	6.2	61	2.1	22	2.1	5.8	20
SD (n-1)			0.7	0.2	0.2	0.1	0.4	0.05	0.2	0.1	0.1	0.1	1	0.4	0.2	0.5	0.04	0.5	0.01	0.02	0.2
%RSD			1	1	2	9	1	2	3	0.5	1	0.4	1	1	3	1	2	2	0	0	1

Table 2. Quality Control Results for Congener-Specific PCB Analysis (ng/g)

Sample ID	Field ID	Sample Type	170	171	172	173	174	175	176	177	178	179	180	183	185	187	189	190	191	193	194
Recovery			79	76	73	77	75	107	12	72	72	67	95	83	86	79	88	172	73	76	102
MOCK 100% 090799	225W-1 & 162W-10	Std Solution	74	20	13	1.8	74	2.7	46	39	16	33	109	51	7.2	77	2.3	11	2.9	7.6	20
MB 090799 ^b	Matrix Blank	Bluegill	1.2	0.18	0.25	0.02	0.5	0.02	< 0.01	0.47	0.36	0.16	2.5	0.85	0.23	2.5	0.06	0.63	0.04	0.25	0.48
PB 081899 GCR1 ^{a,2}	Procedure Blank	Na ₂ SO ₄	1.63	0.12	0.17	0.04	0.63	0.03	0.05	0.33	0.12	0.17	1.60	0.64	0.13	0.88	0.04	0.66	0.04	0.08	0.24
PB 081899 GCR2 ^{a,2}	Procedure Blank	Na ₂ SO ₄	1.83	0.13	0.17	0.03	0.67	0.03	0.05	0.33	0.12	0.21	1.53	0.61	0.12	0.89	0.05	0.67	0.04	0.07	0.26
PB 081899 GCR3 ^{a,2}	Procedure Blank	Na ₂ SO ₄	1.72	0.12	0.14	0.04	0.65	0.02	0.04	0.33	0.16	0.25	1.56	0.62	0.11	0.86	0.04	0.65	0.04	0.10	0.27
Average			1.73	0.12	0.16	0.03	0.65	0.03	0.04	0.33	0.13	0.21	1.56	0.63	0.12	0.88	0.04	0.66	0.04	0.08	0.26
SD (n-1)			0.08	0.00	0.01	0.00	0.02	0.00	0.01	0.00	0.02	0.03	0.03	0.01	0.01	0.01	0.00	0.01	0.00	0.01	0.01
MDL	MDL = PB Average + 3 (SD)		2.0	0.14	0.20	0.04	0.70	0.03	0.07	0.33	0.19	0.30	1.6	0.66	0.14	0.91	0.05	0.69	0.04	0.11	0.29
mass normalized MDL		average mass	0.22	0.02	0.02	0.01	0.08	0.01	0.01	0.04	0.02	0.03	0.19	0.08	0.02	0.10	0.01	0.08	0.01	0.01	0.03
Note: Values used in QC calculations are not rounded.																					
Note: GCR = GC replicate injections; MB = matrix blank; MS = matrix spike; PC = positive control; PB = procedural blank; MDL = method detection limit.																					
^a MS values presented as total ng, uncorrected.																					
^b Sample sets 1 & 2; ^c Sample sets 3 & 4.																					
^d NQ = not quantified.																					
^e PB values presented as total ng, uncorrected.																					

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Table 2. Quality Control Results for Congener-Specific PCB Analysis (ng/g)

Sample ID	Field ID	Sample Type	195	196	197	198	199	200	201	202	203	205	206	208	209	Total PCBs	units
18764-1 ^a	TSC304-98	TS Nestling	2.5	3.3	0.28	0.51	11	0.51	0.78	2.4	7.8	0.62	3.6	1.0	0.66	8297	
18764-2 ^a	TSC304-98	TS Nestling	2.4	3.0	0.27	0.52	11	0.48	0.67	2.3	7.5	0.62	3.5	0.93	0.61	8572	
18764-3 ^a	TSC304-98	TS Nestling	2.5	2.9	0.27	0.52	12	<0.01	0.81	2.4	8.0	0.63	3.7	1.0	0.64	8552	
Average			2.5	3.1	0.27	0.52	12	0.50	0.75	2.4	7.7	0.62	3.6	1.0	0.64	8574	ng/g
SD(n-1)			0.07	0.2	0.00	0.00	0.2	0.02	0.06	0.07	0.2	0.01	0.09	0.03	0.02	227	
%RSD			3	5	2	0.7	2	3	8	3	2	1	3	3	3	3	
MS 032999 GCR1 ^a	Matrix Spike	Bluegill	1.2	1.8	0.15	0.17	4.1	0.54	0.40	0.47	1.9	0.20	0.72	0.11	0.17	565	
MS 032999 GCR2 ^a	Matrix Spike	Bluegill	1.3	1.8	0.15	0.21	3.9	0.52	0.39	0.50	2.0	0.22	0.75	0.12	0.15	556	
MS 032999 GCR3 ^a	Matrix Spike	Bluegill	1.2	1.8	0.15	0.21	3.9	0.52	0.39	0.49	2.0	0.21	0.74	0.12	0.16	551	
Average			1.2	1.8	0.2	0.2	4.0	0.5	0.4	0.49	2.0	0.21	0.74	0.12	0.16	557	ng/g
SD(n-1)			0.01	0.04	0.0	0.02	0.08	0.01	0.01	0.02	0.0	0.01	0.02	0.01	0.01	7	
%RSD			1	2	0	12	2	2	1	3	2	5	2	5	8	1	
MS amount ^a	total ng		12	18	1.5	1.9	39		3.9	4.8	19	2.1	7.2	1.1	1.5	5466	total ng
Recovery			79	76	80	70	86	Int.	95	87	80	89	90	97	70	69	
MS 030899 ^a	Matrix Spike	Bluegill	1.6	2.2	0.18	0.24	4.6	0.62	0.35	0.70	2.6	0.22	0.91	0.15	0.20	699	ng/g
MS amount ^a	total ng		8.0	11	0.88	1.2	23		1.7	3.4	13	1.1	4.5	0.74	0.96	3426	total ng
Recovery			103	94	96	86	100		84	125	104	93	111	125	87	87	
MOCK 100% 032999 ^a	Aroclor A1111 std	Std Solution	16	23	1.8	2.7	45	0.5	4.1	5.5	24	2.3	8.1	1.2	2.2	7900	total ng
MB 030899 ^a	Matrix Blank	Bluegill	0.07	0.08	<0.01	<0.01	0.48	<0.01	<0.01	0.13	0.19	<0.01	0.27	<0.01	0.17	48	ng/g
MB 032999 ^a	Matrix Blank	Bluegill	<0.01	0.07	<0.01	<0.01	0.58	<0.01	<0.01	0.05	0.18	<0.01	<0.01	<0.01	0.14	60	ng/g
PB 030899 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	23	total ng
PB 031699 GCR1 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	14	
PB 031699 GCR2 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94	10	
PB 031699 GCR3 ^{a,2}	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86	11	
Average			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88	15	total ng
SD (n-1)			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	6	
MDL	MDL = PB Average + 3 (SD)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.51	32	
mass normalized MDL	average mass		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.20	4.2	
18788-1 ^b	TSA227-98	TS Nestling	10	10	1.2	1.9	34	1.2	2.3	8.4	29	5.4	16	4.9	4.6	9642	
18788-2 ^b	TSA227-98	TS Nestling	11	11	1.1	1.9	35	1.2	2.9	8.4	31	5.9	16	5.0	4.8	10454	
18788-3 ^b	TSA227-98	TS Nestling	10	11	1.1	1.9	34	1.2	2.3	8.0	29	5.7	16	4.9	4.7	10201	
Average			11	11	1.1	1.9	34	1.2	2.5	8.3	30	5.7	16	4.9	4.7	10099	ng/g
SD (n-1)			0.2	0.61	0.01	0.03	0.5	0.01	0.3	0.2	0.7	0.21	0.32	0.05	0.07	339	
%RSD			2	6	0	1	1	1	11	2	2	4	2	1	1	3	
MS 090799 GCR1 ^{a,b}	Matrix Spike	Bluegill	11	12	1.4	1.3	21	3.3	2.8	4.1	15	1.4	6.0	1.7	3.0	3692	
MS 090799 GCR2 ^{a,b}	Matrix Spike	Bluegill	10	12	1.3	1.2	21	3.3	2.7	4.1	15	1.4	5.8	1.4	2.9	3705	
MS 090799 GCR3 ^{a,b}	Matrix Spike	Bluegill	10	13	1.7	1.3	21	3.3	3.0	3.9	15	1.6	5.9	1.4	3.1	3698	
Average			10	12	1.5	1.3	21	3.3	2.8	4.0	15	1.5	5.9	1.5	3.0	3698	total ng
SD (n-1)			0.2	0.3	0.22	0.03	0.12	0.02	0.11	0.14	0.3	0.1	0.06	0.2	0.1	6	
%RSD			2	2	15	3	1	1	4	3	2	9	1	12	4	0.2	

Table 2. Quality Control Results for Congener-Specific PCB Analysis (ng/g)

Sample ID	Field ID	Sample Type	195	196	197	198	199	200	201	202	203	205	206	208	209	Total PCBs	units
Recovery			75	73	90	77	73	141	82	93	83	30	77	81	81	73	
MOCK 100% 090799	225W-1 & 162W-10	Std Solution	14	17	1.7	1.7	28	2.3	3.5	4.4	18	4.9	7.6	0.9	3.7	5088	total ng
MB 090799 ^b	Matrix Blank	Bluegill	0.20	0.21	0.09	0.02	0.58	0.01	0.04	0.18	0.28	0.10	0.26	0.14	0.81	62	ng/g
PB 081899 GCR1 ^{a,2}	Procedure Blank	Na ₂ SO ₄	0.18	0.48	0.26	0.00	0.21	0.07	0.03	0.04	0.12	0.00	0.10	0.26	2.52	86	
PB 081899 GCR2 ^{a,2}	Procedure Blank	Na ₂ SO ₄	0.22	0.32	0.18	0.00	0.23	0.06	0.02	0.04	0.11	0.00	0.13	0.28	2.54	86	
PB 081899 GCR3 ^{a,2}	Procedure Blank	Na ₂ SO ₄	0.21	0.42	0.21	0.00	0.23	0.06	0.03	0.03	0.14	0.00	0.12	0.24	2.55	86	
Average			0.20	0.41	0.22	0.00	0.22	0.06	0.03	0.03	0.12	0.00	0.12	0.26	2.54	86	
SD (n-1)			0.01	0.07	0.03	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.02	0.01	0.13	
MDL	MDL = PB Average + 3 (SD)		0.24	0.60	0.32	0.00	0.25	0.07	0.04	0.05	0.15	0.00	0.15	0.31	2.6	86	
mass normalized MDL		average mass	0.03	0.07	0.04	0.01	0.03	0.01	0.01	0.01	0.02	0.01	0.02	0.04	0.29	9.8	
Note: Values used in QC calculations are not rounded.																	
Note: GCR = GC replicate injections; MB = matrix blank; MS = matrix spike; PC = positive control; PB = procedural blank; MDL = method detection limit.																	
*MS values presented as total ng, uncorrected.																	
^a Sample sets 1 & 2; ^b Sample sets 3 & 4.																	
¹ NQ = not quantified.																	
² PB values presented as total ng, uncorrected.																	

Table 3. Recoveries of PCB procedural Internal Standards

	Sample ID	Field ID	Sample Type	Gram-equivalents for Analysis (g)	% Lipid	028		155		204	
						ng/g	% Recovery	ng/g	% Recovery	ng/g	% Recovery
sets 3&4	MS 090799 GCR1	Matrix Spike	Bluegill	4.94	4.56	147	65	168	77	166	69
	MS 090799 GCR2	Matrix Spike	Bluegill	4.94	4.56	149	66	166	76	168	71
	MS 090799 GCR3	Matrix Spike	Bluegill	4.94	4.56	149	66	167	77	168	71
	PB 081899 GCR1	Procedural Blank	Na ₂ SO ₄	---	---	154	68	171	78	171	72
	PB 081899 GCR2	Procedural Blank	Na ₂ SO ₄	---	---	155	69	170	78	172	72
	PB 081899 GCR3	Procedural Blank	Na ₂ SO ₄	---	---	154	68	169	78	172	72
	MB 090799	Matrix Blank	Bluegill	4.95	4.56	151	67	164	75	162	68
	18780	TSC804-98	Nestling	9.81	9.84	34	76	36	83	36	74
	18781	TSC811-98	Nestling	9.81	10.7	31	69	35	81	35	72
	18783	TSC907-98	Nestling	9.8	9.4	33	73	35	81	35	73
	18784	TSC909-98	Nestling	9.81	4.15	33	72	35	81	36	74
	18785	TSC910-98	Nestling	5.88	3.42	31	68	34	78	34	71
	18786	TSC913-98	Nestling	9.64	13.8	28	61	32	73	32	66
	18788-1	TSA227-98	Nestling	5.9	8.06	30	65	35	81	33	68
	18788-2	TSA227-98	Nestling	5.88	8.17	31	68	34	77	33	69
	18788-3	TSA227-98	Nestling	5.89	8.15	30	66	32	73	31	65
	18789	TSA027-98	Adult	9.8	11.1	33	73	36	83	35	73
	18790	TSA210-98	Adult	9.79	12.76	32	70	36	83	36	76
	18791	TSA302-98	Adult	9.75	6.58	36	80	39	90	37	78
	18792	TSA303-98	Adult	9.79	6.86	35	77	39	89	37	78
	18793	TSA321-98	Adult	9.8	7.7	34	74	37	84	36	76
	18794	TSA412-98	Adult	9.8	9.6	33	73	36	82	36	76
	18795	TSA413-98	Adult	9.79	8.66	33	72	36	83	36	75
	18796	TSA428-98	Adult	9.8	9.2	35	76	38	88	37	77
	18798	TSCW12-98	Nestling	9.79	7.56	29	63	32	74	32	68
	18799	TSCW13-98	Nestling	9.76	13	32	71	35	81	35	73
	Average						70		80		72
	SD						5		5		4

Table 3. Recoveries of PCL Procedural Internal Standards

	Sample ID	Field ID	Sample Type	Gram-equivalents for Analysis (g)	% Lipid	030		204	
						ng/g	% Recovery	ng/g	% Recovery
sets 1&2	MS 030899	Matrix Spike	Bluegill	4.9	3.7	34	72	63	109
	MS 032999 GCR1	Matrix Spike	Bluegill	9.81	4.25	31	67	46	80
	MS 032999 GCR2	Matrix Spike	Bluegill	9.81	4.25	31	65	45	77
	MS 032999 GCR3	Matrix Spike	Bluegill	9.81	4.25	30	64	45	77
	PB 030899	Procedural Blank	Na ₂ SO ₄	---	---	214	92	288	101
	PB 031699 GCR1	Procedural Blank	Na ₂ SO ₄	---	---	307	66	462	81
	PB 031699 GCR2	Procedural Blank	Na ₂ SO ₄	---	---	301	65	457	80
	PB 031699 GCR3	Procedural Blank	Na ₂ SO ₄	---	---	303	65	450	79
	MB 030899	Matrix Blank	Bluegill	4.9	3.4	45	96	62	107
	MB 032999	Matrix Blank	Bluegill	9.81	3.95	24	51	33	57
	18759	TSC216-98	Nestling	9.8	10.2	35	75	51	87
	18760	TSC217-98	Nestling	9.8	10.5	33	71	51	87
	18761	TSC222-98	Nestling	9.8	6.7	33	71	50	86
	18762	TSC224-98	Nestling	9.8	8.5	37	78	55	94
	18764-1	TSC304-98	Nestling	5.88	11.5	31	65	48	82
	18764-2	TSC304-98	Nestling	5.88	11.5	33	70	52	89
	18764-3	TSC304-98	Nestling	5.88	11.5	31	66	47	81
	18765	TSC305-98	Nestling	9.8	11.9	33	70	48	82
	18766	TSC306-98	Nestling	9.8	9.1	34	71	50	86
	18767	TSC310-98	Nestling	9.8	10.7	39	82	57	98
	18769	TSC402-98	Nestling	9.8	3.6	32	67	43	75
	18770	TSC403-98	Nestling	9.8	1.75	35	73	44	75
	18771	TSC412-98	Nestling	9.8	8.7	38	81	46	80
	18772	TSC413-98	Nestling	9.8	1.6	38	81	46	79
	18774	TSC601-98	Nestling	9.8	11.1	33	70	41	70
	18775	TSC609-98	Nestling	9.8	8.2	30	62	37	64
	18777	TSC702-98	Nestling	9.8	7.25	28	60	35	60
	18778	TSC703-98	Nestling	9.8	9.1	36	75	42	73
	18803	GBHC401B-98	Nestling Brain	5.08	5.1	46	100	61	109
	18814	GBHC602B-98	Nestling Brain	1.67	1.2	52	93	77	112
	18815	GBHC603B-98	Nestling Brain	2.78	3.3	48	97	67	109
	18816	GBHC604B-98	Nestling Brain	3.40	3.6	40	98	55	110
	18817	GBHC605B-98	Nestling Brain	3.08	4	46	102	61	110
	18818	GBHC606B-98	Nestling Brain	3.25	3.5	46	107	63	119
							76		87
							14		16

Table 4. Organochlorine Pesticide Concentrations in Tree Swallow Nestlings and Adults (ng/g)

	Sample	Field	Sample	Location	Total geq	%	A-BHC	B-BHC	HCB	PCA	Lindane	D-BHC	Heptachlor	Dacthal	Heptachlor
	Name	ID	Type		for	Lipid									Epoxide
					Analysis										
Sets 1&2	18769	TSC216-98	Tree Swallow Nestling	REMNI	2.0	10.2	0.79	<0.64	3.1	0.42	0.87	<0.10	<0.01	4.4	2.1
	18760	TSC217-98	Tree Swallow Nestling	REMNI	2.0	10.5	2.4	<0.64	2.4	1.1	0.57	<0.10	<0.01	<3.5	1.2
	18761	TSC222-98	Tree Swallow Nestling	REMNI	2.0	6.7	2.7	<0.64	2.5	0.60	0.81	<0.10	<0.01	<3.5	2.1
	18762	TSC224-98	Tree Swallow Nestling	REMNI	2.0	8.5	1.4	<0.64	3.1	0.26	0.62	<0.10	<0.01	<3.5	1.2
	18764	TSC304-98	Tree Swallow Nestling	SA13	2.0	11.5	2.2	<0.64	2.6	0.51	0.71	<0.10	<0.01	5.9	0.94
	18765 ^a	TSC305-98	Tree Swallow Nestling	SA13	2.0	11.5	1.8	<0.64	2.6	0.46	0.80	0.14	<0.01	<3.5	1.2
	18766	TSC306-98	Tree Swallow Nestling	SA13	2.0	9.1	1.2	<0.64	2.4	0.48	0.91	<0.10	<0.01	11	1.1
	18767	TSC310-98	Tree Swallow Nestling	SA13	2.0	10.7	2.5	<0.64	1.8	0.44	0.80	<0.10	<0.01	<3.5	1.5
	18769	TSC402-98	Tree Swallow Nestling	SARA	2.0	3.6	0.7	<0.64	<0.80	0.14	0.29	<0.10	<0.01	<3.5	0.37
	18770	TSC403-98	Tree Swallow Nestling	SARA	2.0	1.8	0.5	<0.64	<0.80	<0.09	<0.09	<0.10	<0.01	<3.5	0.52
	18771	TSC412-98	Tree Swallow Nestling	SARA	2.0	8.7	1.6	<0.64	0.90	1.19	2.2	<0.10	<0.01	<3.5	1.4
	18772	TSC413-98	Tree Swallow Nestling	SARA	2.0	1.6	2.3	<0.64	1.0	0.61	0.74	<0.10	<0.01	5.5	2.2
	18774	TSC601-98	Tree Swallow Nestling	RVNA	2.0	11.1	0.7	<0.64	6.1	0.40	0.40	<0.10	<0.01	<3.5	1.6
	18775	TSC609-98	Tree Swallow Nestling	RVNA	2.0	8.2	0.8	<0.64	4.5	0.90	0.33	0.40	<0.01	<3.5	1.9
	18777	TSC702-98	Tree Swallow Nestling	STJO	2.0	7.3	0.7	<0.64	1.8	0.39	0.34	<0.10	<0.01	<3.5	1.8
	18778	TSC703-98	Tree Swallow Nestling	STJO	2.0	9.1	0.5	<0.64	1.3	0.32	0.34	<0.10	<0.01	<3.5	2.9
Sets 3 &4	18780	TSC804-98	Tree Swallow Nestling	STAL	2.0	9.8	7.1	1.2	2.2	0.30	<0.20	<0.29	<0.01	<1.5	1.8
	18781	TSC811-98	Tree Swallow Nestling	STAL	2.0	10.7	7.0	0.60	0.90	0.50	<0.20	<0.29	<0.01	<1.5	2.8
	18783 ^a	TSC907-98	Tree Swallow Nestling	CHEL	2.0	9.4	13	<0.47	2.0	0.60	0.30	<0.29	<0.01	<1.5	1.8
	18784	TSC909-98	Tree Swallow Nestling	CHEL	2.0	4.2	7.8	0.70	2.3	0.40	<0.20	<0.29	<0.01	3.9	5.0
	18785	TSC910-98	Tree Swallow Nestling	CHEL	2.0	3.4	3.1	0.60	0.80	<0.22	<0.20	<0.29	<0.01	<1.5	2.5
	18786	TSC913-98	Tree Swallow Nestling	CHEL	2.0	13.8	23	<0.47	3.2	0.40	0.30	<0.29	<0.01	<1.5	2.9
	18788	TSA227-98	Tree Swallow Adult	REMNI	2.0	8.2	5.3	0.70	3.1	0.50	0.80	0.40	<0.01	<1.5	4.9
	18789	TSA207-98	Tree Swallow Adult	REMNI	2.0	11.2	6.0	0.50	2.7	0.30	0.30	0.40	<0.01	2.5	2.0
	18790	TSA210-98	Tree Swallow Adult	REMNI	2.0	12.8	7.9	0.60	3.4	0.60	0.50	0.30	<0.01	<1.5	5.1
	18791	TSA302-98	Tree Swallow Adult	SA13	2.0	6.6	6.8	0.50	3.2	<0.22	0.30	<0.29	<0.01	<1.5	2.5
	18792	TSA303-98	Tree Swallow Adult	SA13	2.0	6.9	7.5	0.80	1.6	0.30	0.50	0.30	<0.01	<1.5	2.3
	18793	TSA321-98	Tree Swallow Adult	SA13	2.0	7.7	11	<0.47	2.4	<0.22	0.30	<0.29	<0.01	1.9	1.9
	18794	TSA412-98	Tree Swallow Adult	SARA	2.0	9.6	11	1.1	2.0	0.30	1.1	0.30	<0.01	1.6	2.5
	18795	TSA413-98	Tree Swallow Adult	SARA	2.0	8.7	16	0.70	1.5	0.30	1.8	0.30	<0.01	<1.5	2.9
	18796	TSA428-98	Tree Swallow Adult	SARA	2.0	9.2	18	0.70	3.0	0.30	0.90	<0.29	<0.01	9.9	100
	18798	TSCW2-98	Tree Swallow Nestling	WISC	2.0	7.6	7.0	0.70	1.1	<0.22	0.30	<0.29	<0.01	3.2	1.1
	18799	TSCW3-98	Tree Swallow Nestling	WISC	2.0	13.0	8.8	1.3	1.0	0.40	1.0	0.40	<0.01	<1.5	3.0
	MDLs	Sets 1&2					0.03	0.64	0.80	0.09	0.09	0.10	0.01	3.5	0.03
	MDLs	Sets 3&4					0.17	0.47	0.35	0.22	0.20	0.29	0.01	1.5	0.67
	^a Average of Method Triplicate														

* Data not corrected for recovery of PIS.

Table 4. Organochlorine Pesticide Concentrations in Tree Swallow Nestlings and Adults (ng/g)

	Sample	Oxychlordane	trans-	o,p'-DDE	Endosulfan 1	cis-	trans-	Dieldrin	p,p'-DDE	o,p'-DDD	Endrin	Endosulfan 2	p,p'-DDD	cis-	o,p'-DDT
	Name		Chlordane			Chlordane	Nonachlor							Nonachlor	
Sets 1&2	18759	3.2	<0.01	<0.04	0.06	0.26	4.4	1.4	58	1.2	2.2	0.85	<0.13	1.4	<0.15
	18760	2.1	<0.01	<0.04	0.39	0.41	2.8	2.0	39	<0.19	0.71	0.33	1.7	1.1	0.31
	18761	3.3	<0.01	<0.04	<0.01	0.30	3.1	1.2	26	0.94	2.7	0.47	<0.13	1.0	<0.15
	18762	2.9	0.05	<0.04	<0.01	<0.01	1.6	0.90	52	<0.19	0.46	0.23	0.26	1.2	<0.15
	18764	2.1	<0.01	<0.04	<0.01	0.06	2.1	1.5	48	0.60	2.3	0.44	1.3	0.71	<0.15
	18765 ^a	2.2	0.29	<0.04	0.04	0.07	2.6	1.5	50	<0.19	0.18	0.35	1.4	1.1	<0.15
	18766	2.3	0.15	<0.04	<0.01	0.08	2.5	1.6	44	<0.19	4.2	0.52	1.6	0.86	<0.15
	18767	2.5	<0.01	<0.04	<0.01	<0.01	1.9	1.3	43	<0.19	0.37	0.32	1.3	1.0	0.34
	18769	1.4	<0.01	0.19	<0.01	0.03	1.3	1.0	46	<0.19	<0.14	0.42	0.75	0.72	<0.15
	18770	1.1	<0.01	<0.04	<0.01	0.03	1.5	1.1	62	<0.19	<0.14	<0.03	1.0	0.75	<0.15
	18771	2.4	<0.01	<0.04	<0.01	<0.01	1.4	1.1	82	<0.19	<0.14	0.34	0.50	0.91	<0.15
	18772	2.3	<0.01	<0.04	<0.01	0.25	5.2	2.4	67	<0.19	2.5	1.4	1.5	0.74	<0.15
	18774	3.9	<0.01	<0.04	0.40	0.16	2.2	1.8	150	0.70	0.20	0.40	3.0	0.70	0.30
	18775	6.1	<0.01	<0.04	<0.01	0.20	3.4	1.9	130	<0.19	0.30	0.40	2.2	0.90	<0.15
	18777	4.8	<0.01	<0.04	<0.01	0.92	8.5	3.6	130	<0.19	<0.14	0.41	2.2	1.8	1.8
	18778	6.3	<0.01	<0.04	<0.01	0.80	12	6.7	150	<0.19	<0.14	0.49	2.6	2.4	2.2
Sets 3 & 4	18780	4.8	<0.17	0.40	<0.55	0.30	6.2	16	300	1.0	<0.22	0.30	5.7	1.3	3.0
	18781	5.7	<0.17	0.40	<0.55	0.60	9.6	53	360	<0.35	0.50	0.40	6.6	1.7	3.9
	18783 ^a	5.1	<0.17	<0.30	<0.55	0.33	4.4	5.1	99	0.50	<0.22	0.10	1.9	0.83	1.0
	18784	15	<0.17	<0.30	<0.55	0.20	24	4.3	140	<0.35	<0.22	0.30	1.0	3.7	1.1
	18785	8.6	<0.17	<0.30	<0.55	<0.10	8.3	3.6	82	<0.35	<0.22	0.10	0.50	0.80	<0.12
	18786	7.0	<0.17	0.40	<0.55	0.20	7.4	7.7	200	<0.35	<0.22	<0.01	1.9	1.2	1.5
	18788	19	<0.17	<0.30	<0.55	0.20	17	1.9	230	0.80	<0.22	0.30	0.30	2.6	6.0
	18789	6.0	<0.17	<0.30	<0.55	<0.10	13	1.2	110	<0.35	<0.22	<0.01	<0.21	1.2	5.1
	18790	15	<0.17	0.50	<0.55	<0.10	15	2.5	330	<0.35	<0.22	<0.01	<0.21	1.4	4.5
	18791	9.8	<0.17	<0.30	<0.55	<0.10	38	1.2	270	1.0	<0.22	<0.01	<0.21	1.3	2.1
	18792	8.9	<0.17	<0.30	<0.55	0.20	26	1.1	220	1.4	0.30	0.40	<0.21	1.0	2.0
	18793	5.6	<0.17	<0.30	<0.55	<0.10	9.8	0.80	140	<0.35	<0.22	<0.01	<0.21	0.70	0.20
	18794	8.9	<0.17	<0.30	<0.55	<0.10	6.9	1.6	200	0.90	<0.22	0.20	0.50	0.60	0.60
	18795	12	<0.17	<0.30	<0.55	<0.10	17	1.5	340	1.4	<0.22	0.20	<0.21	1.5	3.2
	18796	180	3.5	<0.30	5.0	3.0	220	15	410	<0.35	13	7.9	2.1	110	90
	18798	1.8	<0.17	<0.30	<0.55	<0.10	0.80	2.0	25	<0.35	<0.22	<0.01	<0.21	0.30	<0.12
	18799	2.9	<0.17	<0.30	<0.55	<0.10	2.1	3.4	54	<0.35	<0.22	<0.01	0.50	0.80	1.0
	MDLs	0.03	0.01	0.04	0.01	0.01	0.01	0.16	0.13	0.19	0.14	0.03	0.13	0.02	0.15
	MDLs	0.45	0.17	0.30	0.55	0.10	0.12	0.58	0.47	0.35	0.22	0.01	0.21	0.05	0.12
	^a Average of Method Triplicate														

* Data not corrected for re

Table 4. Organochlorine Pesticide Concentrations in Tree Swallow Nestlings and Adults (ng/g)

	Sample Name	Endosulfate	p,p'-DDT	Methoxychlor	Mirex
Sets 1&2 ↓	18759	0.35	1.2	7.4	0.47
	18760	<0.04	2.5	3.6	0.68
	18761	<0.04	2.7	11	0.80
	18762	<0.04	1.8	3.0	1.8
	18764	<0.04	2.1	2.9	0.72
	18765 ^a	0.18	2.6	4.2	1.0
	18766	<0.04	1.3	3.1	0.62
	18767	<0.04	3.2	3.4	1.1
	18769	<0.04	<0.90	2.5	0.39
	18770	<0.04	0.9	2.2	0.36
	18771	<0.04	1.4	2.4	0.49
	18772	<0.04	<0.90	6.0	7.2
	18774	<0.04	3.0	<2.1	1.7
	18775	<0.04	<0.90	<2.1	0.94
	18777	1.0	3.8	<2.1	0.78
	18778	1.5	2.9	<2.1	0.51
Sets 3 &4 ↓	18780	<0.40	12	<4.4	0.60
	18781	2.9	10	<4.4	0.80
	18783 ^a	<0.40	4.8	<4.4	0.73
	18784	<0.40	7.6	<4.4	1.1
	18785	<0.40	5.0	<4.4	1.7
	18786	<0.40	8.4	<4.4	0.60
	18788	0.50	<4.6	<4.4	2.4
	18789	<0.40	<4.6	<4.4	11
	18790	0.50	5.3	<4.4	11
	18791	0.50	<4.6	<4.4	11
	18792	0.80	<4.6	<4.4	27
	18793	<0.40	<4.6	<4.4	9.1
	18794	<0.40	<4.6	<4.4	9.2
	18795	<0.40	<4.6	<4.4	8.4
	18796	0.90	24	5.2	12
	18798	<0.40	<4.6	<4.4	0.50
	18799	<0.40	5.8	<4.4	0.60
	MDLs	0.04	0.90	2.1	0.01
	MDLs	0.40	4.6	4.4	0.10
	^a Average of Method Triplicate				

* Data not corrected for re

305639

Table 5. Quality Control Results for Organochlorine Pesticides (ng/g)

Sample Name	Field ID	Sample Type	Total eqq for Analysis	% Lipid	A-BHC	B-BHC	HCB	PCA	Lindane	D-BHC	Heptachlor	Dacthal
18765-1 ^a	TSC305-98	TS Nestling	2.0	11.5	0.8	<0.64	2.8	0.19	0.54	0.43	<0.01	<3.5
18765-2 ^a	TSC305-98	TS Nestling	2.0	11.5	2.8	<0.64	2.5	0.75	0.97	<0.1	<0.01	<3.5
18765-3 ^a	TSC305-98	TS Nestling	2.0	11.9	1.9	<0.64	2.4	0.46	0.90	<0.1	<0.01	<3.5
Average		(ng/g)			1.8		2.6	0.46	0.80			
SD (n -1)					1.0		0.2	0.28	0.23			
% RSD					55		8	60	29			
18783-1 ^b	TSC907-98	TS Nestling	2.0	9.4	16	0.80	2.2	0.60	0.30	0.30	<0.01	<1.5
18783-2 ^b	TSC907-98	TS Nestling	2.0	9.4	12	<0.47	2.0	0.70	0.40	0.40	<0.01	<1.5
18783-3 ^b	TSC907-98	TS Nestling	2.0	9.4	12	<0.47	1.9	0.50	<0.20	<0.29	<0.01	<1.5
Average		(ng/g)			13		2.0	0.60				
SD(n-1)					2		0.2	0.1				
% RSD					14		8	17				
MB 051099	Matrix Blank	Bluegill	2.0	3.4	1.0	<0.64	<0.80	0.20	0.2	<0.10	<0.01	<3.5
MB 101499	Matrix Blank	Bluegill	2.0		1.2	0.60	1.7	0.60	<0.20	<0.29	<0.01	5.6
MS 051099 GCR1 ^{1,a}	Matrix Spike	Bluegill	2.0	3.7	63	74	68	59	79	75	18	29
MS 051099 GCR2 ^{1,a}	Matrix Spike	Bluegill	2.0	3.7	62	74	68	59	78	76	18	29
MS 051099 GCR3 ^{1,a}	Matrix Spike	Bluegill	2.0	3.7	63	73	67	56	79	74	18	28
Average		(ng)			63	74	67	58	79	75	18	29
SD (n -1)					1	1	0.3	2	1	1	0.4	0.6
% RSD					1	1	1	3	1	1	2.3	2
% Recovery					64	71	73	58	70	76	18	31
MS 101499 GCR1 ^b	Matrix Spike	Bluegill	2.0		72	79	69	69	77	81	42	64
MS 101499 GCR2 ^b	Matrix Spike	Bluegill	2.0		70	78	67	67	75	78	41	63
MS 101499 GCR3 ^b	Matrix Spike	Bluegill	2.0		72	79	65	68	76	80	40	63
Average		(ng)			72	79	67	68	76	80	41	63
SD(n-1)					1	0.9	1	1	1	1	0.7	0.3
% RSD					1	1	3	1	2	2		0
% Recovery					80	84	79	70	84	92	48	68
PB 041699 GCR1 ^a	Procedural Blank	Na ₂ SO ₄	---	---	0.04	0.56	1.55	0.04	0.11	0.10	0.01	6.79
PB 041699 GCR2 ^a	Procedural Blank	Na ₂ SO ₄	---	---	0.04	0.61	1.53	0.08	0.12	0.08	0.02	6.74
PB 041699 GCR3 ^a	Procedural Blank	Na ₂ SO ₄	---	---	0.05	0.09	1.51	0.11	0.08	0.02	0.01	6.55
Average		(ng)			0.04	0.42	1.53	0.08	0.10	0.07	0.01	6.70
SD (n -1)					0.01	0.29	0.02	0.03	0.02	0.04	0.00	0.13

Table 5. Quality Control Results for Organochlorine Pesticides (ng/g)

Sample Name	Field ID	Sample Type	Total g/g for Analysis	% Lipid	A-BHC	B-BHC	HCB	PCA	Lindane	D-BHC	Heptachlor	Dacthal
MDL=PB AVG+3(PB SD)					0.07	1.3	1.6	0.18	0.18	0.20	0.03	7.1
	Divided by 2g	Sets 1&2	ng/g		0.03	0.64	0.80	0.09	0.09	0.10	0.01	3.5
PB 102699 GCR1 ^{b,2}	Procedural Blank	Na ₂ SO ₄	---	---	0.10	0.80	0.70	0.20	0.20	0.30	0.00	3.80
PB 102699 GCR2 ^{b,2}	Procedural Blank	Na ₂ SO ₄	---	---	0.20	0.70	0.70	0.30	0.20	0.10	0.00	3.90
PB 102699 GCR3 ^{b,2}	Procedural Blank	Na ₂ SO ₄	---	---	0.20	0.80	0.70	0.30	0.30	0.30	0.00	3.00
Average		(ng)			0.17	0.77	0.70	0.27	0.23	0.23	0.00	3.57
SD(n-1)					0.06	0.06	0.00	0.06	0.06	0.12	0.00	0.49
MDL=PB AVG+3(PB STD)					0.34	0.94	0.70	0.44	0.41	0.58	0.01	5.0
MDL	Divided by 2 g	Sets 3&4	ng/g		0.17	0.47	0.35	0.22	0.20	0.29	0.01	1.5
Note: GCR = GC replicate injections; MB = matrix blank; MS = matrix spike; PC = positive control; PB = procedural blank; MDL = method detection limit.												
*MS values presented as total ng, uncorrected.												
¹ OC spike did not contain Endosulfan I and II, Endosulfate.												
² PB values presented as total ng, uncorrected.												
^a Sample sets 1 & 2; ^b Sample sets 3 & 4.												

Table 5. Quality Control Results for Organochlorine Pesticides (ng/g)

Sample Name	Field ID	Sample Type	Heptachlor Epoxide	Oxychlorodane	trans-Chlordane	o,p'-DDE	Endosulfan 1	cis-Chlordane	trans-Nonachlor	Dieldrin	p,p'-DDE	o,p'-DDD
18765-1 ^a	TSC305-98	TS Nestling	1.0	1.8	0.27	<0.04	0.11	0.07	2.4	1.6	49	<0.19
18765-2 ^a	TSC305-98	TS Nestling	1.4	2.4	0.60	<0.04	<0.01	0.08	2.7	1.5	53	<0.19
18765-3 ^a	TSC305-98	TS Nestling	1.2	2.3	<0.01	<0.04	<0.01	0.08	2.6	1.4	47	<0.19
Average		(ng/g)	1.2	2.2	<0.01	<0.04	<0.01	0.07	2.6	1.5	50	
SD (n -1)			0.2	0.3				0.006	0.1	0.1	3	
% RSD			17	16				8	6	6	6	
18783-1 ^b	TSC907-98	TS Nestling	2.0	5.6	<0.17	0.90	0.60	0.40	5.1	5.5	104	<0.35
18783-2 ^b	TSC907-98	TS Nestling	1.8	5.3	<0.17	<0.30	<0.55	0.30	4.2	4.8	101	0.90
18783-3 ^b	TSC907-98	TS Nestling	1.5	4.5	<0.17	<0.30	<0.55	0.30	4.0	4.9	92	<0.35
Average		(ng/g)	1.8	5.1				0.33	4.4	5.1	99	
SD(n-1)			0.3	0.6				0.06	0.59	0.4	6	
% RSD			14	11				17	13	7	6	
MB 051099	Matrix Blank	Bluegill	0.62	2.1	<0.01	<0.04	<0.01	0.40	7.7	4.6	6.5	<0.19
MB 101499	Matrix Blank	Bluegill	0.30	0.90	<0.17	<0.30	<0.55	0.20	3.3	3.4	4.2	0.60
MS 051099 GCR1 ^{a,b}	Matrix Spike	Bluegill	71	81	80	71	71	71	78	82	105	73
MS 051099 GCR2 ^{a,b}	Matrix Spike	Bluegill	70	81	79	70	70	70	77	81	105	73
MS 051099 GCR3 ^{a,b}	Matrix Spike	Bluegill	71	82	78	69	69	69	77	81	102	72
Average		(ng)	71	81	79	70	70	70	77	81	104	72
SD (n -1)			1	1	1	0.9		0.7	0.4	0.9	1	0.2
% RSD			1	1	1	1.3		1.0	0.6	1.1	1	0.3
% Recovery			72	74	74	76		74	77	78	99	72
MS 101499 GCR1 ^{a,b}	Matrix Spike	Bluegill	72	58	71	68	58	74	72	81	75	74
MS 101499 GCR2 ^{a,b}	Matrix Spike	Bluegill	70	57	69	66	57	72	70	79	73	72
MS 101499 GCR3 ^{a,b}	Matrix Spike	Bluegill	71	57	71	68	58	74	72	81	72	74
Average		(ng)	71	57	70	67	58	73	71	80	73	73
SD(n-1)			0.9	0.7	1	1	0.7	1	0.8	1	2	1
% RSD			1	1	1	2	1	2	1	2	2	1
% Recovery			76	61	77	76	63	80	77	90	88	80
PB 041699 GCR1 ^a	Procedural Blank	Na ₂ SO ₄	0.03	0.03	0.01	0.06	0.01	0.01	0.00	0.14	0.32	0.36
PB 041699 GCR2 ^a	Procedural Blank	Na ₂ SO ₄	0.04	0.03	0.01	0.07	0.01	0.00	0.00	0.12	0.28	0.36
PB 041699 GCR3 ^a	Procedural Blank	Na ₂ SO ₄	0.04	0.00	0.00	0.07	0.00	0.01	0.00	0.00	0.27	0.34
Average		(ng)	0.04	0.02	0.01	0.06	0.01	0.01	0.00	0.09	0.29	0.35
SD (n -1)			0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.08	0.03	0.01

Table 5. Quality Control Results for Organochlorine Pesticides (ng/g)

Sample Name	Field ID	Sample Type	Heptachlor Epoxide	Oxychlordane	trans-Chlordane	o,p-DDE	Endosulfan I	cis-Chlordane	trans-Nonachlor	Dieldrin	p,p'-DDE	o,p'-DDD
MDL=PB AVG+3(PB SD)			0.06	0.06	0.02	0.08	0.01	0.01	0.01	0.32	0.37	0.38
	Divided by 2g	Sets 1&2	0.03	0.03	0.01	0.04	0.01	0.01	0.01	0.16	0.13	0.19
PB 102699 GCR1 ^{b,2}	Procedural Blank	Na ₂ SO ₄	0.70	0.60	0.10	0.20	0.40	0.00	0.10	0.20	0.70	0.70
PB 102699 GCR2 ^{b,2}	Procedural Blank	Na ₂ SO ₄	0.10	0.40	0.20	0.30	0.00	0.00	0.10	0.60	0.80	0.70
PB 102699 GCR3 ^{b,2}	Procedural Blank	Na ₂ SO ₄	0.10	0.30	0.20	0.40	0.50	0.10	0.00	0.60	0.80	0.70
Average		(ng)	0.30	0.43	0.17	0.30	0.30	0.03	0.07	0.47	0.77	0.70
SD(n-1)			0.35	0.15	0.06	0.10	0.26	0.06	0.06	0.23	0.06	0.00
MDL=PB AVG+3(PB STD)			1.3	0.89	0.34	0.60	1.1	0.21	0.24	1.2	0.94	0.70
MDL	Divided by 2 g	Sets 3&4	0.67	0.45	0.17	0.30	0.55	0.10	0.12	0.58	0.47	0.35
Note: GCR = GC replicate injections; MB = matrix blank; MS = matrix spike; PC = positive control; PB = procedural blank; MDL = method detection limit.												
*MS values presented as total ng, uncorrected.												
¹ OC spike did not contain Endosulfan I and II, Endosulfate.												
² PB values presented as total ng, uncorrected.												
^a Sample sets 1 & 2; ^b Sample sets 3 & 4.												

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Table 5. Quality Control Results for Organochlorine Pesticides (ng/g)

Sample Name	Field ID	Sample Type	Endrin	Endosulfan 2	p,p'-DDD	cis-Nonachlor	o,p'-DDT	Endosulfate	p,p'-DDT	Methoxychlor	Mirex
18765-1 ^a	TSC305-98	TS Nestling	<0.14	0.34	1.5	1.1	<0.15	0.54	2.4	3.9	1.0
18765-2 ^a	TSC305-98	TS Nestling	0.21	0.35	1.4	1.0	<0.15	<0.04	2.7	4.4	0.92
18765-3 ^a	TSC305-98	TS Nestling	0.34	0.35	1.4	1.1	<0.15	<0.04	2.8	4.5	0.90
Average		(ng/g)		0.35	1.4	1.1			2.6	4.2	1.0
SD (n -1)				0.004	0.08	0.02			0.2	0.3	0.08
% RSD				1	6	2			8	8	8
18783-1 ^b	TSC907-98	TS Nestling	<0.22	0.10	2.2	0.90	1.0	<0.40	5.1	<4.4	0.80
18783-2 ^b	TSC907-98	TS Nestling	<0.22	0.20	1.9	0.80	1.0	<0.40	5.3	<4.4	0.70
18783-3 ^b	TSC907-98	TS Nestling	<0.22	0.10	1.6	0.80	1.0	<0.40	4.8	<4.4	0.70
Average		(ng/g)		0.13	1.9	0.83	1.0		5.1		0.73
SD(n-1)				0.06	0.30	0.06	0.00		0.3		0.06
% RSD				43	16	7	0		5		8
MB 051099	Matrix Blank	Bluegill	<0.14	<0.03	<0.13	1.8	<0.15	<0.04	1.8	4.0	<0.01
MB 101499	Matrix Blank	Bluegill	<0.22	<0.01	<0.21	0.70	0.20	<0.40	<4.6	7.9	<0.10
MS 051099 GCR1 ^{*1,a}	Matrix Spike	Bluegill	47	1	75	82	72	1	78	31	80
MS 051099 GCR2 ^{*1,a}	Matrix Spike	Bluegill	50	1	76	52	78	1	100	37	81
MS 051099 GCR3 ^{*1,a}	Matrix Spike	Bluegill	51	1	73	80	76	1	88	33	80
Average		(ng)	49	1	74	71	75	1	89	34	80
SD (n -1)			2		1.3	17	3		11	3	1
% RSD			4		1.7	23	4		12	9	1
% Recovery			67		72	66	87		104	35	89
MS 101499 GCR1 ^{*b}	Matrix Spike	Bluegill	55	76	75	79	79	78	95	109	67
MS 101499 GCR2 ^{*b}	Matrix Spike	Bluegill	53	74	72	76	73	76	93	107	66
MS 101499 GCR3 ^{*b}	Matrix Spike	Bluegill	56	75	75	79	77	77	92	105	66
Average		(ng)	54	75	74	78	76	77	93	107	67
SD(n-1)			1	1	2	2	3	1	1	2	0.5
% RSD				1	3	2	4	1	1	2	1
% Recovery			66	86	82	84	84	98	108	125	78
PB 041699 GCR1 ^a	Procedural Blank	Na ₂ SO ₄	0.14	0.02	0.03	0.02	0.12	0.02	0.97	2.05	0.01
PB 041699 GCR2 ^a	Procedural Blank	Na ₂ SO ₄	0.03	0.03	0.03	0.02	0.14	0.02	0.66	2.37	0.01
PB 041699 GCR3 ^a	Procedural Blank	Na ₂ SO ₄	0.00	0.00	0.14	0.03	0.01	0.05	0.18	0.84	0.00
Average		(ng)	0.06	0.02	0.07	0.02	0.09	0.03	0.60	1.75	0.01
SD (n -1)			0.07	0.01	0.06	0.01	0.07	0.02	0.40	0.81	0.00

Table 5. Quality Control Results for Organochlorine Pesticides (ng/g)

Sample Name	Field ID	Sample Type	Endrin	Endosulfan 2	p,p'-DDD	c/s-Nonachlor	o,p'-DDT	Endosulfate	p,p'-DDT	Methoxychlor	Mirex
MDL=PB AVG+3(PB SD)			0.28	0.05	0.26	0.05	0.29	0.08	1.8	4.2	0.02
	Divided by 2g	Sets 1&2	0.14	0.03	0.13	0.02	0.15	0.04	0.90	2.1	0.01
PB 102699 GCR1 ^{b,2}	Procedural Blank	Na ₂ SO ₄	0.30	0.01	0.00	0.10	0.10	0.80	8.90	6.00	0.10
PB 102699 GCR2 ^{b,2}	Procedural Blank	Na ₂ SO ₄	0.20	0.01	0.20	0.10	0.00	0.80	9.10	3.90	0.00
PB 102699 GCR3 ^{b,2}	Procedural Blank	Na ₂ SO ₄	0.30	0.00	0.00	0.10	0.10	0.80	9.00	5.90	0.00
Average		(ng)	0.27	0.01	0.07	0.10	0.07	0.80	9.00	5.27	0.03
SD(n-1)			0.06	0.00	0.12	0.00	0.06	0.00	0.10	1.18	0.06
MDL=PB AVG+3(PB STD)			0.44	0.01	0.41	0.10	0.24	0.80	9.3	8.8	0.21
MDL	Divided by 2 g	Sets 3&4	0.22	0.01	0.21	0.05	0.12	0.40	4.6	4.4	0.10
Note: GCR = GC replicate injections; MB = matrix blank; MS = matrix spike; PC = positive control; PB = procedural blank; MDL = method detection limit.											
*MS values presented as total ng, uncorrected.											
¹ OC spike did not contain Endosulfan I and II, Endosulfate.											
² PB values presented as total ng, uncorrected.											
^a Sample sets 1 & 2; ^b Sample sets 3 & 4.											

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