POLYCHLORINATED BIPHENYLS AND ORGANOCHLORINE PESTICIDES IN BALD EAGLE BLOOD AND EGG SAMPLES FROM THE HUDSON RIVER, NEW YORK

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FWS PROJECT TITLE: CHEMICAL CONTAMINATION OF RESIDENT/NESTING BALD EAGLES ALONG THE HUDSON RIVER, NEW YORK—SAMPLES FROM 1999-2001

HUDSON RIVER NATURAL RESOURCE DAMAGE ASSESSMENT

HUDSON RIVER NATURAL RESOURCE TRUSTEES

STATE OF NEW YORK

U.S. DEPARTMENT OF COMMERCE

U.S. DEPARTMET OF THE INTERIOR

FINAL

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EXECUTIVE SUMMARY

Past and continuing discharges of polychlorinated biphenyls (PCBs) have contaminated the natural resources of the Hudson River. The Hudson River Natural Resource Trustees – New York State, the U.S. Department of Commerce, and the U.S. Department of the Interior – are conducting a natural resource damage assessment (NRDA) to assess and restore those natural resources injured by PCBs.

The Hudson River supports a rich array of ecological resources that interact in complex ways, and provides habitat for a wide range of plants and animals. As part of the NRDA, the Trustees are documenting exposure of the natural resources of the Hudson River to PCBs.

One of the species for which the Hudson River provides habitat, and which has been exposed to PCBs, is the bald eagle (*Haliaeetus leucocephalus*). Bald eagles are at risk of accumulating PCBs because they are at the top of the food web. Eagles prey on fish and scavenge carcasses of birds, mink, otter, and other organisms that may contain PCBs. Because much of the eagles' diet may contain PCBs, they are at risk of accumulating concentrations that are associated with adverse health impacts.

In the 1990s, the Trustees began monitoring Hudson River bald eagle nests for reproductive success. As part of those studies the Trustees collected samples from bald eagles for contaminants analysis.

This report addresses bald eagle egg and blood samples collected from New York in 1999-2001 and analyzed by the U.S. Geological Survey, Biological Resources Division, Columbia Environmental Research Center in Columbia, Missouri.

Specifically this report provides the analytical results for three bald eagle blood samples (all from the Hudson River) and five bald eagle egg samples (including one from the Hudson River from Rogers Island (Columbia County)) which were analyzed for total PCBs and selected congeners, organochlorine pesticides, and non-ortho substituted PCB congeners.

Within this complete set of samples, total PCB concentration in the bald eagle blood samples ranged from 190 ppb to 680 ppb, and total PCB concentration in the bald eagle egg samples ranged from 8,900 ppb to 32,000 ppb wet weight (ww). Note that these units are not fresh wet weight.

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July 2003

Polychlorinated Biphenyls and Organochlorine Pesticides in Bald Eagle Blood and Egg Samples from the Hudson River, NY

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Chemical Contamination of Resident/Nesting Bald Eagles Along the Hudson River, New York—Samples from 1999-2001.

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I. Project Background and Summary

The Hudson River is highly contaminated with polychlorinated biphenyls (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, an estimated 209,000 to 1.3 million pounds of PCBs were discharged into the waters of the Hudson River by these two plants (1). The Ft. Edward Dam retarded downstream movement of the PCBs 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.

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 contaminant residue information provided in this report is part of a larger study concerned with assessing eagle reproductive health in PCB contaminated regions of the Hudson River valley. Reported herein are the results of the analyses of the following contaminants in the bald eagle blood samples and bald eagle eggs:

persistent organochlorine pesticides (OCPs),
polychlorinated biphenyls (PCBs), and
non-*ortho* PCBs (n-PCBs).

II. Sample Collection

Samples were collected by the NY State Department of Environmental Conservation and shipped under chain of custody from Peter Nye to CERC. Samples were logged in, assigned CERC database numbers and kept frozen (-18 to -20˚C) prior to analysis following CERC SOPs.

II. Summary of Analytical Methods

1. Sample Preparation

Eagle blood samples were analyzed for OC pesticide (OCP) and PCB (congener and non-*ortho*) residues according to the procedures outlined in Figure 1. Duplicate samples were analyzed to determine method reproducibility. Eagle eggs were analyzed for OCP and PCB residues according to the procedures outlined in Figures 2 and 3. Triplicates of an eagle egg were analyzed to determine method reproducibility. The blood samples and the eggs were analyzed in two different sets because of the

differences in the procedures for preparing the blood and egg samples. The following quality control (QC) samples were incorporated into the various analyses:

Bovine serum matrix blank
Bovine serum matrix spikes (PCB spiked and OCP spiked)
Chicken egg matrix blank
Chicken egg matrix spikes (PCB spiked and OCP spiked)

The matrix QC samples (blanks and spikes) were analyzed with each set of samples. At least one of each category (blank/spike) listed above was analyzed with each set of samples.

All samples, including QC samples had method recovery compounds added to them before extraction to monitor recoveries through the cleanup procedures. The following compounds were added to all samples:

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)
Four ^{13}C-labeled non-*ortho* PCB congeners.

To evaluate the congener PCB and non-*ortho* PCB analyses, the blank matrix was spiked with PCBs (mixed Aroclors 1242, 1248, 1254, 1260) that included three of four of the native (^{12}C) non-*ortho* PCB congeners in low levels (ppm--microgram per gram of Aroclor).

To evaluate the OCP analysis the bovine serum matrix was spiked with a mix of 29 OCPs.

Blood samples: For the analytical procedures, blood and serum samples were dehydrated by addition of anhydrous sodium sulfate and method recovery compounds were added. The exact mass of sample analyzed is reported in the attached data tables. Samples were extracted with dichloromethane, and a small portion of the extract (5%) was used to determine percent lipid (2,3). For the analytical protocol targeting congener PCBs, non-ortho PCBs and organochlorine pesticides, lipids and co-extracted biogenic materials were removed using low-pressure gel permeation chromatography (4) followed by high performance size exclusion chromatography (HPSEC) (5). The extracts were then fractionated on a two-layered octadecyl silica/activated silica gel column into two fractions: one fraction containing PCBs and five, targeted OCPs (SODS-1), and a second fraction containing the remainder of the OCPs (SODS-2) (6). The SODS-1 fraction was then fractionated on high performance porous graphitic carbon (PGC) (7) into the following fractions:

PGC1 *ortho*-chlorinated PCB congeners (and 5 pesticides) that were analyzed by GC/electron-capture detection (ECD)

PGC2 non-*ortho*-chlorinated PCBs that were analyzed by GC/high-resolution mass spectrometry (GC/HRMS).

Egg samples: Tissue samples were dehydrated by addition of anhydrous sodium sulfate and method recovery compounds were added. The exact mass of tissue analyzed is reported in the attached tables of data. Samples were extracted with dichloromethane, and a small portion of the extract (1%) was used to determine percent lipid (2). In the analytical protocol where congener-specific and non-*ortho* PCBs were targeted, extracts were subjected to acid- and base-treated silica gels and adsorbent chromatography on activated silica gel (3). All extracts were further purified by high performance size exclusion chromatography (HPSEC) (6) and then fractioned on high performance porous graphitic carbon (PGC) (7) into the following fractions:

PGC 1 PCB congeners (2-4 *ortho*-chlorinated)
- Analysis by GC/electron-capture detection (ECD)

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

In the analytical protocol targeting organochlorine pesticides, lipids and co-extracted biogenic materials were removed from the extracts by low-pressure gel permeation chromatography (4) followed by HPSEC (5). The extracts were then fractionated on a two-layered octadecyl silica/activated silica gel column into two fractions: one fraction containing PCBs and six of the targeted OCs (SODS-1), and a second fraction containing the remainder of the OCs (SODS-2) (6).

Figure 1. Analytical Scheme for Congener-specific PCBs, Non-*ortho*-PCBs, and Organochlorine Pesticides

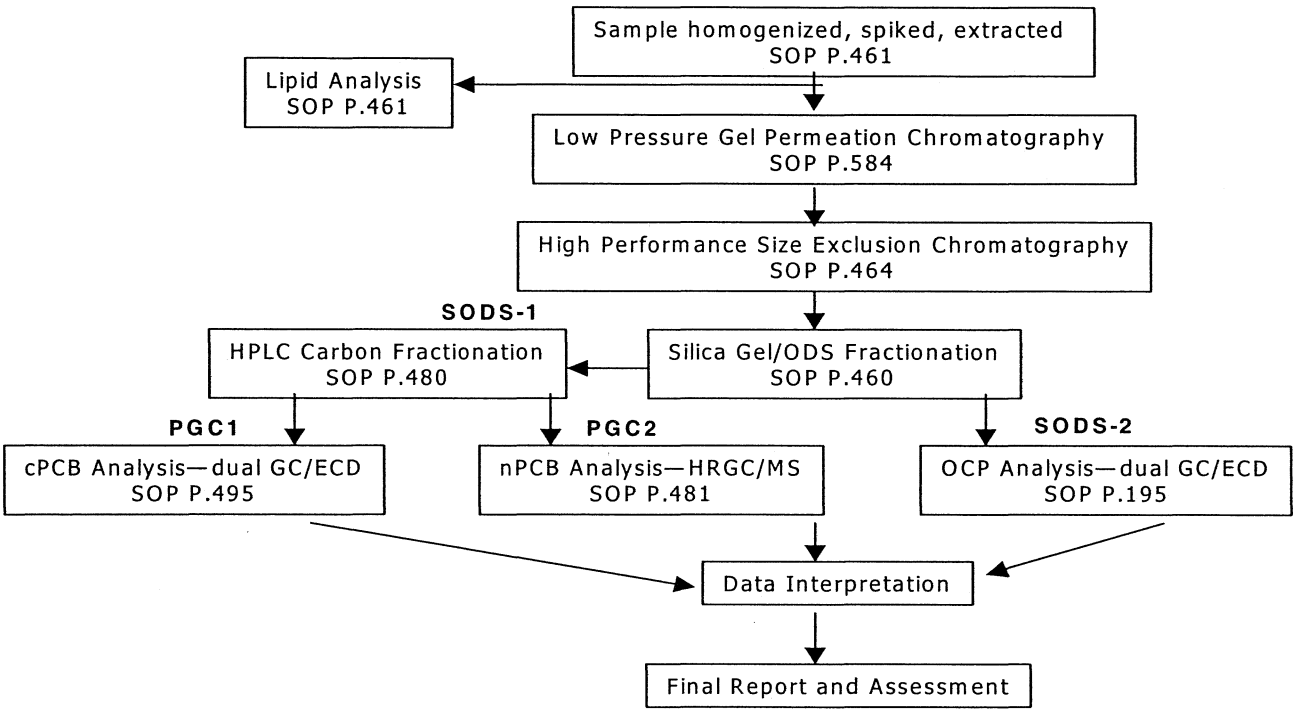


Figure 2. Analytical Scheme for PCB congeners, and Non-*ortho* PCBs in Eagle Eggs

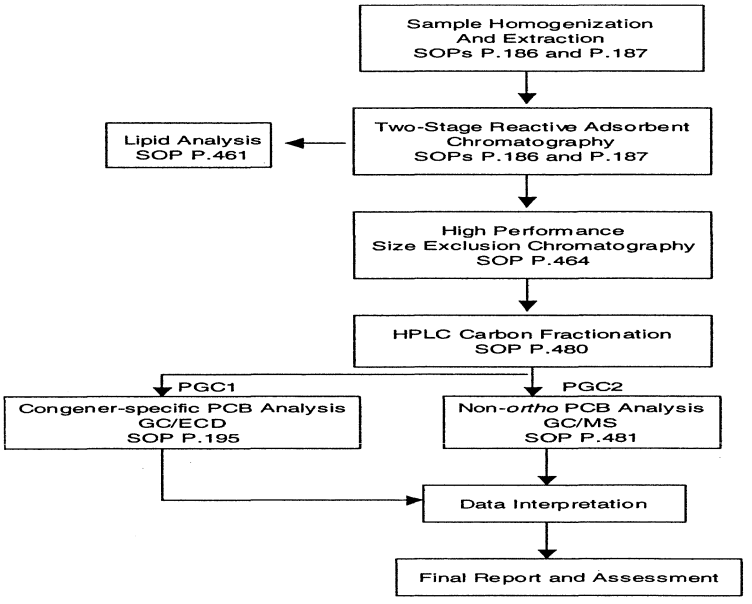
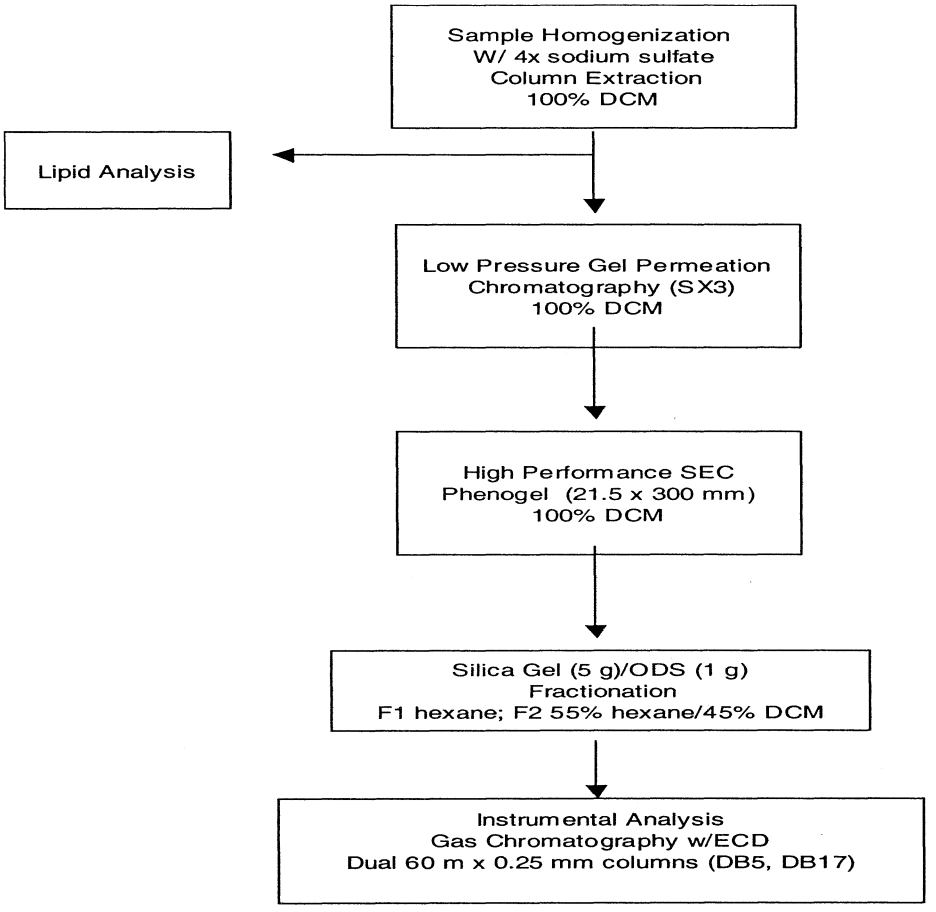


Figure 3. Analytical Scheme for OCPs in Eagle Eggs



2. Summary of gas chromatographic method for PCB congeners

The sample extracts were adjusted to a final volume of 1 mL. Two instrumental internal standards were used: PCB congeners 030 and 207 (40 ng each). Individual PCB congeners were measured in PGC1 fractions by GC/ECD. Analyses were performed using Hewlett-Packard 5890 Series II GCs with cool on-column capillary injection systems and Hewlett-Packard model 7673 autosamplers (8). For all analyses, a 3-m section of 0.53 mm i.d. uncoated and deactivated capillary retention gap (Agilent, Palo Alto, CA) was attached to each analytical column by a Press-Tight® (Restek Corp., Bellefonte, PA) union. The analytical columns were 60-m x 0.25-mm x 0.25µm DB-5 (5% phenyl-, 95% methylsilicone, Agilent, Palo Alto, CA) and DB-17 (0.25µm 50% phenyl-, 50% methylsilicone, Agilent, Palo Alto, CA). The H_2-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. Electron capture detector temperature was 330°C.

PCB congeners are matched and identified on one or both GC capillary columns with known PCB peaks from the Aroclor standards. The capillary GC/ECD data were collected, archived in digital form, and processed using a PerkinElmer chromatography data system, which included the model 970 interface and version 6.1 of Turbochrom Workstation chromatography software, on a Pentium III microcomputer (8,9). A mix of several Aroclors is used to produce the PCB congener calibration standards. These standards have been quantified based on pure primary PCB standards (Accustandard, New Haven, CT) and are used as secondary standards (10). Up to nine levels of calibration for each individual congener are used to quantify approximately 140 congeners in the samples. In terms of total-PCB concentrations, the calibration curve covers a range from 10 to 8000 ng/mL.

The method detection limits (MDLs) for individual PCB congeners and for total PCBs were based on procedural blank (PB) results following to the method outlined by Keith *et al.* (11,12). Briefly, a mean ($\overline{x}_{PB}$) and standard deviation (SD) are determined using PB results from the past several years for a better statistical sample (n>10) (13). This produces a long-term MDL (ng) calculated using the following formula:

$$MDL = \overline{x}_{PB} + 3(SD_{PB})$$

The MDL is then expressed in units of concentration, e.g. mass of analyte per mass of sample. The long-term MDL is divided by the average mass of the samples analyzed in the same period of time used to calculate the $\overline{x}_{PB}$.

The method quantitation limits (MQLs) for congeners is calculated in the same manner as above using the following formula:

$$MQL = \overline{x}_{PB} + 10(SD_{PB})$$

Recoveries of analytes are monitored by the following measures:

(1) Procedural internal standards spiked into each sample,
(2) PCB-spiked bovine serum analyzed with each set.

Three procedural standards are used to account for analytical recoveries of the PCBs: PCB 029, a trichlorobiphenyl, is representative of more volatile early eluting PCBs (Cl_1 - Cl_3); PCB 155, a hexachlorobiphenyl, is representative of mid-range eluting congeners (Cl_4 - Cl_6); and PCB 204, an octachlorobiphenyl, is less volatile and representative of later eluting PCBs (Cl_7 - Cl_{10}).

3. Summary of gas chromatographic method for OC pesticides

Organochlorine pesticide fractions (PGC1 and SODS-2) were adjusted to a final volume of 1 mL and the instrumental internal standards (IIS) were added (40 ng of PCB congeners 030 and 207). Individual organochlorine pesticides were measured in both fractions by GC/ECD. Analyses were performed using Hewlett-Packard 5890 Series II GCs with cool on-column capillary injection systems and Hewlett-Packard model 7673 autosamplers (14). For all analyses, a 3-m section of 0.53 mm i.d. uncoated and deactivated capillary retention gap (Agilent, Palo Alto, CA) was attached to each analytical column by a Press-Tight® (Restek Corp., Bellefonte, PA) union. The analytical columns were 60-m x 0.25-mm x 0.25µm DB-5 and DB-17 phase columns. The H_2-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. Electron capture detector temperature was 330°C.

The dual column method accurately identifies and quantifies OCP peaks from one column or the other based upon known standards. The GC/ECD data were collected, archived in digital form, and processed using a PerkinElmer chromatography data system, which included the model 970 interface and version 6.1 of Turbochrom Workstation chromatography software, on a Pentium III microcomputer (8,9,14). Six levels of OC pesticide standards (29 components) were used for calibration, with each pesticide at concentrations ranging from 0.1 to 80 ng/mL. Organochlorine pesticide results are presented in tables designated by their CERC database number and are cross-referenced to their field identification number. Concentrations are expressed as nanograms of analyte per gram (ng/g) of sample (wet weight). Detection limits were calculated as discussed above for PCB congeners.

Recoveries of analytes are monitored by the following measures:

(1) Procedural internal standards spiked into each sample,
(2) OCP-spiked bovine serum analyzed with each set.

Five method recovery compounds are used to account for analytical recoveries of the OCPs: PCB 029, a trichlorobiphenyl, is representative of more volatile early eluting compounds; PCB 155, a hexachlorobiphenyl, is representative of mid-range eluting compounds; and PCB 204, an octachlorobiphenyl, is less volatile and representative of later eluting compounds. The two secondary method recovery compounds, tetrachloro-*meta*-xylene (which elutes in SODS-1) and dibutylchlorendate (which elutes in SODS-2) were not used in the calculations. The matrix samples spiked with OCPs were also used to evaluate recoveries.

4. Summary of GC/HRMS method for non-*ortho*-PCBs

The non-*ortho*-PCB fraction (PGC2) contained 5 ng of instrumental internal standard (^{13}C-labeled 2,2',4,5,5'-PeCB, PCB #101). At a final volume of 50 μL, the non-*ortho*-

PCBs were determined by GC/HRMS, monitoring two sequential mass windows during the chromatographic separation (15,16). GC/HRMS analysis was performed with an HP 5890A capillary gas chromatograph interfaced to a VG 70-250AS high-resolution mass spectrometer. An HP 7673 autosampler was used to introduce 2 µL of the extract onto a 2.5 m x 320 µm deactivated fused silica retention gap via heated (285°C) direct on-column injection with a Restek spiral Uniliner. The analytical column was a 50 m x 200 µm x 0.11 µm Ultra-1 (Agilent Technologies, Palo Alto, CA) capillary column. The GC oven was held at 120°C for 1 min, programmed to 240°C at 2.2°C/min, then ramped to 310°C at 5°C/min, and a final hold of 5 min. Helium carrier gas was maintained at 45 psig with an initial linear velocity of 27 cm/s.

The VG GC/HRMS system was tuned to a resolution of 10,000 and calibrated using perfluorodecalin. Mass windows were established for two groups of non-*ortho*-PCBs. Group 1 from 23-47 min included ions for Cl_4-biphenyls #77 and 81 and Cl_5-biphenyl #126; Group 2 from 47-64 min included ions for Cl_6-biphenyl #169. Within each mass window, two most abundant ions were measured for positive identification and quantitation of each analyte. The ion responses were quantified and averaged. Within each mass window, additional ions monitored the responses of higher chlorinated, potential interfering PCB congeners, Cl_{4-8} naphthalenes (PCNs), Cl_{3-5} terphenyls (PCTs), Br_5- and Cl_6-diphenyl ethers (residual carryover from PGC-1), and Cl_4-PCDF (to ensure no breakthrough of PCDFs).

A calibration curve describing the response of each native congener (0.25 to 2,500 pg/µL) to that of its ^{13}C-labeled surrogate was used. Quantification is inherently corrected by the ^{13}C-isotopically labeled surrogates, which account for analytical losses during isolation procedures and variations in the instrumental analysis.

Molecular ion responses of certain PCB congeners are measured to ensure that their fragment ion responses do not contribute an interference >10% to the responses of the respective non-*ortho*-PCB. Column performance is verified by analyzing standards of individual congeners, labeled congeners, and congeners from Aroclor spiked mixtures. Because non-*ortho*-Cl_5-PCB 126 is only minimally resolved from Cl_6-PCB 129, PCB 129's molecular ion response is monitored to assure that its fragment ion response (3.5% abundance) does not contribute an interference of >10% to the response of PCB 126. PCB 129's molecular ion response must not exceed three times that of PCB 126. Adequate mass resolution is verified while monitoring ions Cl_{4-8} PCNs, which can interfere with ions of the ^{13}C-labeled PCBs on low resolution MS.

Criteria for Confirmation: For the positive identification and quantitation of each congener, the following criteria were established and met in this study:

1. Peak areas for the selected ion responses must be greater than three times background noise.
2. Native ion peaks must occur at retention times from -1 to +3 sec that for the corresponding ^{13}C-labeled ion peaks, that elute about 1 sec earlier.

3. The ion ratio for the two principal ion responses must be within the acceptable range (±15%).

III. Results and Discussion

1. PCB Congeners

The PCB congener concentration (ng/g) data for eagle bloods and eagle eggs and the associated QC samples are presented in Table 1. The total PCB concentrations, as a sum of all congeners, are also presented in Table 1. Recovery data are presented in Table 2. Recoveries and precision fell within quality control limits. Method blood duplicates averaged 14% percent difference. The two matrix blanks' backgrounds were 15 ng/g total PCBs for the bovine serum and 11 ng/g for the chicken egg. Matrix spike recoveries were in the acceptable QC range (50-125%) with a few exceptions for congeners near the detection limits or with a partial interference. The method detection limit for total PCBs was 22 ng/g.

2. Organochlorine Pesticides

The results for analysis of the eagle bloods and eggs for organochlorine pesticides (OCPs) are presented in Table 3; the recovery data are presented in Table 4. Concentrations (ng/g) have been corrected for analytical recovery, as monitored by the method recovery compounds. Recoveries of HCB (28%) and heptachlor (38%) were lower than expected in the in the bovine serum matrix spike; in the chicken egg matrix spike only heptachlor was low (25%). All other recoveries were within QC limits. MDLs were within acceptable QC limits (Table 3). Concentrations of p,p'-DDE were higher than the other targeted pesticides. Other OCPs that were detectable were p,p'-DDD, dieldrin, the chlordane compounds, and mirex.

3. Non-*ortho*-PCB Congeners

Concentrations (pg/g) of non-*ortho*-PCBs (81, 77, 126, and 169) in the eagle bloods and eggs are presented in Tables 5 and 7. Note that the units are picograms of analyte per gram of sample (wet weight). In these samples, PCB 77 was present at the highest concentration, followed by PCB 126 and PCB 81. Quality control results were within guidelines. Ion ratios for analytes were within the expected QC tolerance (±15%). Surrogate recoveries, listed in Tables 6 and 8, were typically above 50%. Non-*ortho*-PCBs in the matrix spike were within guidelines. Concentrations of each non-*ortho*-PCB in the matrix blanks for eagle bloods and eggs (bovine serum and chicken egg, respectively) were less than 9.0 pg/g. The duplicates showed percent variation typically < 15%. The triplicate egg samples showed between 15 and 23% RSD.

4. Toxic Equivalents

Dioxin toxic equivalency factors (TEFs) for birds were used to calculate the toxic equivalents (TEQs) of the mono- and non-*ortho*-PCBs in the eagle bloods (17), see

Table 9. A conservative approach was used in calculating TEQs: values at or below their detection limit were considered present at one-half the specified minimum detection limit (MDL), and values at the quantitation limit were used as shown in the table. (The "LQ" indicates that the compound was detected, but is less than the minimum quantification limit (MQL) due to incomplete ion cluster or ion ratio outside of ±15% tolerance.) Because no dioxin or furans were determined in these samples their TEQ contributions cannot be calculated.

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Table 1. PCB congeners (ng/g) in Bald Eagle Bloods and Eggs Collected Along the Hudson River, NY

Sample ID	Field ID	Site		Sample Type	Grams-for Analysis (g)	% Lipid	001	003	004	005	006	007	008	009	010	015
Blood Samples																
28493	ESU #1207 BAEA Whole Blood	Y28, Astor Cove, NY #76	ng/g	Bald Eagle Blood	3.05	0.4	< 0.79	< 1.3	2.5	< 0.08	0.81	0.25	0.27	0.09	0.49	0.33
28494*	ESU #1223 BAEA Whole Blood	Y10; Wappinger's Creek, NY	ng/g	Bald Eagle Blood	2.93	0.7	< 0.79	< 1.3	2.6	< 0.08	1.6	0.19	0.27	0.12	0.71	0.37
28495	ESU #1224 BAEA Whole Blood	K15; Castleton Island 52	ng/g	Bald Eagle Blood	3.02	0.6	< 0.79	< 1.3	2.5	< 0.08	1.0	0.17	0.59	0.09	0.82	0.27
28494-1	ESU#1223 BAEA-REP1 BLOOD	Y10; Wappinger's Creek, NY	ng/g	Bald Eagle Blood	2.91	0.6	< 0.79	< 1.3	2.4	< 0.08	1.6	0.17	0.28	0.13	0.72	0.23
28494-2	ESU#1223 BAEA-REP2 BLOOD	Y10; Wappinger's Creek, NY	ng/g	Bald Eagle Blood	2.95	0.7	< 0.79	< 1.3	2.7	< 0.08	1.6	0.20	0.27	0.12	0.70	0.51
Average			ng/g		2.93	0.7	< 0.79	< 1.3	2.6	< 0.08	1.6	0.19	0.27	0.12	0.71	0.37
Difference			ng/g		0.04	0.1			0.33		0.00	0.03	0.01	0.01	0.02	0.29
% Difference			%		1.4	18			13		0.03	15	4.9	4.6	2.5	77
MB 02103	Matrix Blank	QAQC Sample	ng/g	Bovine Serum	3.04	0.13	0.46	0.00	1.6	0.00	0.00	0.08	0.04	0.01	0.01	0.06
MS 012103-PCB	Matrix Spike	QAQC Sample	ng/g	Bovine Serum	3.06	0.19	< 0.79	< 1.3	2.4	0.14	1.3	0.18	6.1	0.44	0.10	1.3
Percent Recovery			%				*n/a*	*n/a*	*39*	*94*	*76*	*72*	*80*	*85*	*69*	*69*
Egg Samples																
28496	ESU #1199 BAEA EGG	Letchworth, NY #70	ng/g	Bald Eagle Egg	10.21	6.67	< 0.79	< 1.3	6.7	< 0.08	< 0.04	0.20	< 0.26	0.11	< 0.01	0.26
28497	ESU#1200 BAEA EGG	Cole Flats NY #45	ng/g	Bald Eagle Egg	10.28	8.20	< 0.79	< 1.3	6.5	< 0.08	0.69	< 0.16	0.61	0.12	< 0.01	< 0.10
28498	ESU#1201 BAEA EGG	Bashakill, NY #35	ng/g	Bald Eagle Egg	10.25	6.65	< 0.79	< 1.3	5.7	< 0.08	< 0.04	< 0.16	< 0.26	0.49	< 0.01	< 0.10
28499*	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	ng/g	Bald Eagle Egg	10.26	5.68	5.0	< 1.3	30	< 0.08	1.9	< 0.16	7.9	0.49	5.6	1.2
28500	ESU#1206 BAEA EGG	Cochecton, NY #61	ng/g	Bald Eagle Egg	10.28	6.10	< 0.79	< 1.3	6.2	< 0.08	< 0.04	< 0.16	0.38	0.23	< 0.01	< 0.10
28499-1	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	ng/g	Bald Eagle Egg	10.20	5.38	4.5	< 1.3	29	< 0.08	1.9	< 0.16	7.4	0.54	5.4	1.1
28499-2	ESU#1202 BAEA-REP2 EGG	Roger's Island, NY #56	ng/g	Bald Eagle Egg	10.29	6.71	5.4	< 1.3	34	< 0.08	2.2	0.20	9.1	0.51	6.4	1.4
28499-3	ESU#1202 BAEA-REP3 EGG	Roger's Island, NY #56	ng/g	Bald Eagle Egg	10.28	4.96	5.0	< 1.3	27	< 0.08	1.7	< 0.16	7.2	0.42	5.0	1.0
Average			ng/g		10.26	5.68	5.0	< 1.3	30	< 0.08	1.9	< 0.16	7.9	0.49	5.6	1.2
SD (n-1)			ng/g		0.05	0.91	0.44		3.2		0.25		1.0	0.06	0.72	0.21
RSD			%		0.48	16	8.8		11		13		13	13	13	18
MB 011303	Matrix Blank	QAQC Sample	ng/g	Chicken Egg	10.22	12.0	0.31	0.15	4.2	0.00	0.00	0.04	0.00	0.00	0.00	0.02
MS 011303-PCB	Matrix Spike PCBs	QAQC Sample	ng/g	Chicken Egg	10.45	11.7	2.5	< 1.3	15	0.56	6.0	0.91	27	1.7	0.48	7.6
% Recovery			%				105	n/a	n/a	n/a	72	n/a	74	78	70	81
Method Detection Limit	MDL = PB Average + 3(PB SD)	(on a ng/g basis)	ng/g				0.79	1.3	2.0	0.08	0.04	0.16	0.26	0.03	0.01	0.10
Method Quantitation Limit	MQL = PB Average + 10(PB SD)	(on a ng/g basis)	ng/g				2.3	3.8	5.2	0.24	0.11	0.44	0.79	0.09	0.03	0.31

Note values are rounded to 2 significant figures.

Values are corrected for analytical recovery of PCB surrogates.

*** Duplicate or triplicate average.**

PCBs determined by dual column high resolution capillary GC with ECD.

n/a (not applicable)-recovery not calculated, near the DL or has an interference.

Table 1. PCB congeners (ng/g) in Bald Eagle Bloods and Eggs Collected Along the Hudson River, NY

Sample ID	Field ID	Site		016	017	018	019	020	022	024	025	026	027	028	031	032
Blood Samples																
28493	ESU #1207 BAEA Whole Blood	Y28, Astor Cove, NY #76	ng/g	< 0.02	1.2	2.5	1.7	0.06	0.25	0.05	0.17	1.3	0.82	2.2	2.7	2.5
28494*	ESU #1223 BAEA Whole Blood	Y10; Wappinger's Creek, NY	ng/g	< 0.02	2.2	3.2	2.0	0.03	0.36	0.02	0.19	2.2	0.86	4.2	4.3	3.7
28495	ESU #1224 BAEA Whole Blood	K15; Castleton Island 52	ng/g	0.61	3.4	4.2	3.7	0.06	0.51	0.15	0.42	4.5	1.8	3.3	6.9	5.0
28494-1	ESU#1223 BAEA-REP1 BLOOD	Y10; Wappinger's Creek, NY	ng/g	< 0.02	2.2	3.2	2.2	0.03	0.31	0.02	0.19	2.2	0.85	4.3	4.3	3.6
28494-2	ESU#1223 BAEA-REP2 BLOOD	Y10; Wappinger's Creek, NY	ng/g	< 0.02	2.2	3.1	1.8	0.03	0.42	0.02	0.20	2.2	0.88	4.1	4.3	3.8
Average			ng/g	< 0.02	2.2	3.2	2.0	0.03	0.36	0.02	0.19	2.2	0.86	4.2	4.3	3.7
Difference			ng/g		0.02	0.05	0.41	0.00	0.11	0.00	0.01	0.06	0.03	0.23	0.03	0.19
% Difference			%		0.70	1.5	21	11	31	11	3.0	2.6	3.0	5.5	0.75	5.2
MB 02103	Matrix Blank	QAQC Sample	ng/g	0.00	0.00	0.04	0.02	0.01	0.01	0.01	0.01	0.01	0.00	0.03	0.03	0.84
MS 012103-PCB	Matrix Spike	QAQC Sample	ng/g	4.4	3.8	11	1.0	0.34	2.4	0.09	0.35	0.94	0.40	4.8	6.0	< 1.7
Percent Recovery			%	***81***	***73***	***82***	***94***	***69***	***69***	***67***	***55***	***54***	***73***	***51***	***56***	***n/a***
Egg Samples																
28496	ESU #1199 BAEA EGG	Letchworth, NY #70	ng/g	< 0.02	0.67	< 0.21	< 0.18	0.47	1.1	0.03	0.30	0.85	0.35	6.9	5.5	< 1.65
28497	ESU#1200 BAEA EGG	Cole Flats NY #45	ng/g	2.2	4.4	2.6	0.25	0.83	3.6	0.08	2.5	4.9	0.43	28	21	4.2
28498	ESU#1201 BAEA EGG	Bashakill, NY #35	ng/g	0.48	1.5	0.24	< 0.18	0.43	1.7	0.04	1.2	2.6	0.07	15	16	1.8
28499*	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	ng/g	27	53	25	12	1.5	23	1.2	7.9	33	7.8	280	200	59
28500	ESU#1206 BAEA EGG	Cochecton, NY #61	ng/g	1.2	3.2	0.86	0.20	0.38	2.4	0.06	1.8	4.0	0.12	22	22	3.2
28499-1	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	ng/g	26	51	24	11	1.6	22	1.2	7.6	32	7.5	270	190	57
28499-2	ESU#1202 BAEA-REP2 EGG	Roger's Island, NY #56	ng/g	30	59	28	13	1.6	26	1.4	9.0	38	8.9	320	210	67
28499-3	ESU#1202 BAEA-REP3 EGG	Roger's Island, NY #56	ng/g	24	48	23	10	1.3	20	1.1	7.2	29	6.9	240	190	53
Average			ng/g	27	53	25	12	1.5	23	1.2	7.9	33	7.8	280	200	59
SD (n-1)			ng/g	3.4	6.0	2.9	1.5	0.17	3.1	0.15	0.99	4.2	1.0	40	12	7.1
RSD			%	13	11	12	13	12	14	12	12	13	13	15	5.9	12
MB 011303	Matrix Blank	QAQC Sample	ng/g	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.04	0.10	0.23
MS 011303-PCB	Matrix Spike PCBs	QAQC Sample	ng/g	21	19	52	4.1	1.9	15	0.49	2.6	7.0	2.1	36	44	12
% Recovery			%	**54**	**77**	**81**	**75**	**76**	**79**	**101**	**52**	**68**	**79**	**59**	**68**	**83**
Method Detection Limit	MDL = PB Average + 3(PB SD)	(on a ng/g basis)	ng/g	**0.02**	**0.05**	**0.21**	**0.18**	**0.02**	**0.05**	**0.01**	**0.04**	**0.05**	**0.01**	**0.39**	**0.17**	**1.7**
Method Quantitation Limit	MQL = PB Average + 10(PB SD)	(on a ng/g basis)	ng/g	**0.05**	**0.14**	**0.57**	**0.50**	**0.05**	**0.14**	**0.04**	**0.11**	**0.15**	**0.02**	**1.2**	**0.50**	**4.6**

Note values are rounded to 2 significant figures.

Values are corrected for analytical recovery of PCB surrogates.

*** Duplicate or triplicate average.**

PCBs determined by dual column high resolution capillary GC with ECD.

n/a (not applicable)-recovery not calculated, near the DL or has an interference.

Table 1. PCB congeners (ng/g) in Bald Eagle Bloods and Eggs Collected Along the Hudson River, NY

Sample ID	Field ID	Site		033	034	035	037,059	040	041	042	043	044	045	046	047	048
Blood Samples																
28493	ESU #1207 BAEA Whole Blood	Y28, Astor Cove, NY #76	ng/g	0.11	< 0.17	0.14	0.59	0.70	0.09	1.3	0.15	4.9	0.67	0.25	5.9	< 2.2
28494*	ESU #1223 BAEA Whole Blood	Y10; Wappinger's Creek, NY	ng/g	0.27	< 0.17	0.35	1.6	1.2	0.15	3.2	0.32	11	1.3	0.51	18	< 2.2
28495	ESU #1224 BAEA Whole Blood	K15; Castleton Island 52	ng/g	0.37	0.22	0.25	1.7	1.7	0.31	2.8	0.29	12	1.9	1.0	9.6	< 2.2
28494-1	ESU#1223 BAEA-REP1 BLOOD	Y10; Wappinger's Creek, NY	ng/g	0.20	< 0.17	0.34	1.6	1.2	0.16	3.2	0.34	11	1.1	0.50	18	< 2.2
28494-2	ESU#1223 BAEA-REP2 BLOOD	Y10; Wappinger's Creek, NY	ng/g	0.34	< 0.17	0.35	1.7	1.3	0.14	3.2	0.31	11	1.5	0.52	18	< 2.2
Average			ng/g	0.27	< 0.17	0.35	1.6	1.2	0.15	3.2	0.32	11	1.3	0.51	18	< 2.2
Difference			ng/g	0.14	0.00	0.01	0.11	0.08	0.01	0.01	0.03	0.03	0.38	0.02	0.44	
% Difference			%	53		2.3	6.9	6.6	10	0.26	10	0.24	30	3.0	2.4	
MB 02103	Matrix Blank	QAQC Sample	ng/g	0.02	0.00	0.03	0.01	0.01	0.00	0.12	0.02	0.04	0.00	0.00	0.05	0.00
MS 012103-PCB	Matrix Spike	QAQC Sample	ng/g	4.8	< 0.17	< 0.03	0.53	1.8	1.2	1.9	0.23	7.8	2.1	0.89	1.4	< 2.2
Percent Recovery			%	***66***	***n/a***	***n/a***	***75***	***98***	***90***	***64***	***53***	***71***	***88***	***88***	***65***	**n/a**
Egg Samples																
28496	ESU #1199 BAEA EGG	Letchworth, NY #70	ng/g	1.6	< 0.17	1.1	0.79	1.4	0.40	6.2	0.17	4.6	0.51	0.30	18	< 2.19
28497	ESU#1200 BAEA EGG	Cole Flats NY #45	ng/g	7.4	< 0.17	6.6	3.7	6.7	1.4	20	0.25	23	2.7	1.4	49	< 2.19
28498	ESU#1201 BAEA EGG	Bashakill, NY #35	ng/g	3.0	< 0.17	2.1	1.2	2.6	0.60	12	0.33	4.9	0.61	0.80	47	< 2.19
28499*	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	ng/g	6.8	3.0	3.8	16	22	5.9	140	6.4	120	20	2.6	850	17
28500	ESU#1206 BAEA EGG	Cochecton, NY #61	ng/g	3.4	< 0.17	3.3	1.5	3.6	0.90	14	0.25	12	1.5	0.76	54	< 2.19
28499-1	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	ng/g	6.9	2.9	3.7	14	21	5.7	140	5.8	120	19	2.6	700	16
28499-2	ESU#1202 BAEA-REP2 EGG	Roger's Island, NY #56	ng/g	7.6	3.5	4.4	19	25	6.8	160	7.8	140	22	3.0	1,200	19
28499-3	ESU#1202 BAEA-REP3 EGG	Roger's Island, NY #56	ng/g	5.9	2.7	3.4	13	20	5.3	110	5.5	110	17	2.3	660	15
Average			ng/g	6.8	3.0	3.8	16	22	5.9	140	6.4	120	20	2.6	850	17
SD (n-1)			ng/g	0.81	0.40	0.49	2.7	2.7	0.78	25	1.2	15	2.4	0.32	300	2.1
RSD			%	12	13	13	17	12	13	18	19	12	12	12	35	12
MB 011303	Matrix Blank	QAQC Sample	ng/g	0.07	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.03	0.00	0.00	0.02	0.00
MS 011303-PCB	Matrix Spike PCBs	QAQC Sample	ng/g	29	< 0.17	0.28	2.6	8.3	5.7	12	1.9	45	10	4.1	8.9	12
% Recovery			%	**78**	**n/a**	**n/a**	**72**	**85**	**85**	**77**	**66**	**81**	**90**	**86**	**69**	**n/a**
Method Detection Limit	MDL = PB Average + 3(PB SD)	(on a ng/g basis)	ng/g	**0.07**	**0.17**	**0.03**	**0.04**	**0.02**	**0.01**	**0.09**	**0.04**	**0.17**	**0.04**	**0.01**	**0.27**	**2.2**
Method Quantitation Limit	MQL = PB Average + 10(PB SD)	(on a ng/g basis)	ng/g	**0.19**	**0.52**	**0.07**	**0.13**	**0.05**	**0.04**	**0.24**	**0.12**	**0.44**	**0.11**	**0.03**	**0.80**	**6.6**

Note values are rounded to 2 significant figures.

Values are corrected for analytical recovery of PCB surrogates.

*** Duplicate or triplicate average.**

PCBs determined by dual column high resolution capillary GC with ECD.

n/a (not applicable)-recovery not calculated, near the DL or has an interference.

Table 1. PCB congeners (ng/g) in Bald Eagle Bloods and Eggs Collected Along the Hudson River, NY

Sample ID	Field ID	Site		049	051	052	053	*054*	055	*056,060*	*057*	*058*	063	064	066	067
Blood Samples																
28493	ESU #1207 BAEA Whole Blood	Y28, Astor Cove, NY #76	ng/g	6.8	0.31	9.2	1.0	< 0.04	< 0.01	0.67	0.08	0.13	0.55	3.0	3.2	0.05
28494*	ESU #1223 BAEA Whole Blood	Y10; Wappinger's Creek, NY	ng/g	17	0.56	25	1.8	0.10	0.01	1.3	0.14	0.28	1.3	8.2	8.2	0.13
28495	ESU #1224 BAEA Whole Blood	K15; Castleton Island 52	ng/g	15	1.1	16	3.1	0.09	0.02	1.5	0.25	0.17	1.1	5.6	5.7	0.11
28494-1	ESU#1223 BAEA-REP1 BLOOD	Y10; Wappinger's Creek, NY	ng/g	17	0.51	25	1.8	0.10	0.01	1.3	0.14	0.28	1.3	8.2	8.3	0.11
28494-2	ESU#1223 BAEA-REP2 BLOOD	Y10; Wappinger's Creek, NY	ng/g	17	0.60	25	1.8	0.09	0.01	1.3	0.14	0.28	1.3	8.2	8.0	0.15
Average			ng/g	17	0.56	25	1.8	0.10	0.01	1.3	0.14	0.28	1.3	8.2	8.2	0.13
Difference			ng/g	0.04	0.09	0.05	0.06	0.02	0.00	0.02	0.00	0.01	0.02	0.04	0.38	0.04
% Difference			%	0.23	17	0.21	3.4	20	15	1.5	0.32	1.9	1.2	0.49	4.6	30
MB 02103	Matrix Blank	QAQC Sample	ng/g	0.07	0.02	0.12	0.01	0.00	0.00	0.03	0.00	0.00	0.02	0.04	0.08	0.01
MS 012103-PCB	Matrix Spike	QAQC Sample	ng/g	5.2	0.27	9.7	1.6	< 0.04	0.09	4.1	< 0.06	0.06	0.20	3.4	5.2	0.14
Percent Recovery			%	***62***	***57***	***62***	***67***	**n/a**	***78***	***72***	**n/a**	**n/a**	***63***	***67***	***70***	***64***
Egg Samples																
28496	ESU #1199 BAEA EGG	Letchworth, NY #70	ng/g	26	0.56	11	0.10	0.05	0.02	11	0.14	0.51	6.1	13	49	0.47
28497	ESU#1200 BAEA EGG	Cole Flats NY #45	ng/g	72	2.7	58	0.83	0.17	0.16	20	0.50	2.2	22	31	83	1.1
28498	ESU#1201 BAEA EGG	Bashakill, NY #35	ng/g	56	1.2	16	0.18	0.19	0.04	15	0.26	0.80	16	22	74	0.65
28499*	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	ng/g	980	11	430	13	0.12	0.16	160	0.90	2.0	110	340	570	1.1
28500	ESU#1206 BAEA EGG	Cochecton, NY #61	ng/g	69	1.9	27	0.49	0.11	0.08	17	0.45	1.7	15	27	64	0.75
28499-1	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	ng/g	950	11	410	12	0.12	0.21	150	0.85	1.9	110	330	560	1.1
28499-2	ESU#1202 BAEA-REP2 EGG	Roger's Island, NY #56	ng/g	1,100	12	490	14	0.12	0.22	180	0.95	2.3	130	390	650	1.3
28499-3	ESU#1202 BAEA-REP3 EGG	Roger's Island, NY #56	ng/g	890	10	380	11	0.11	0.05	140	0.89	1.8	100	310	510	0.98
Average			ng/g	980	11	430	13	0.12	0.16	160	0.90	2.0	110	340	570	1.1
SD (n-1)			ng/g	110	1.3	57	1.5	0.01	0.10	21	0.05	0.26	15	42	71	0.15
RSD			%	11	12	13	12	4.9	60	13	5.61	13	13	12	12	13
MB 011303	Matrix Blank	QAQC Sample	ng/g	0.04	0.00	0.06	0.03	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.05	0.03
MS 011303-PCB	Matrix Spike PCBs	QAQC Sample	ng/g	34	2.0	62	9.8	< 0.04	0.56	25	0.16	0.05	1.4	21	32	1.0
% Recovery			%	**68**	**73**	**69**	**73**	**n/a**	**79**	**77**	**n/a**	**n/a**	**80**	**75**	**73**	**72**
Method Detection Limit	MDL = PB Average + 3(PB SD)	(on a ng/g basis)	ng/g	**0.34**	**0.01**	**0.40**	**0.04**	**0.04**	**0.005**	**0.38**	**0.06**	**0.02**	**0.03**	**0.06**	**0.48**	**0.04**
Method Quantitation Limit	MQL = PB Average + 10(PB SD)	(on a ng/g basis)	ng/g	**0.96**	**0.04**	**1.1**	**0.12**	**0.13**	**0.01**	**1.1**	**0.18**	**0.07**	**0.09**	**0.16**	**1.4**	**0.11**

Note values are rounded to 2 significant figures.

Values are corrected for analytical recovery of PCB surrogates.

*** Duplicate or triplicate average.**

PCBs determined by dual column high resolution capillary GC with ECD.

n/a (not applicable)-recovery not calculated, near the DL or has an interference.

Table 1. PCB congeners (ng/g) in Bald Eagle Bloods and Eggs Collected Along the Hudson River, NY

Sample ID	Field ID	Site		*069*	070	071	*072*	074	075	082	083	084	*086*	087	090	091
Blood Samples																
28493	ESU #1207 BAEA Whole Blood	Y28, Astor Cove, NY #76	ng/g	0.17	2.0	1.8	0.38	2.1	0.37	0.32	0.15	2.0	0.19	1.9	1.9	1.5
28494*	ESU #1223 BAEA Whole Blood	Y10; Wappinger's Creek, NY	ng/g	0.18	3.5	4.2	1.1	5.1	1.3	0.79	0.53	5.1	0.52	6.2	7.3	4.7
28495	ESU #1224 BAEA Whole Blood	K15; Castleton Island 52	ng/g	0.27	4.3	3.7	0.96	4.0	0.53	0.90	0.29	4.1	0.80	4.2	3.3	2.8
28494-1	ESU#1223 BAEA-REP1 BLOOD	Y10; Wappinger's Creek, NY	ng/g	0.15	3.5	4.2	1.1	5.2	1.3	0.67	0.53	5.1	0.46	7.5	7.2	4.6
28494-2	ESU#1223 BAEA-REP2 BLOOD	Y10; Wappinger's Creek, NY	ng/g	0.22	3.4	4.3	1.2	5.0	1.3	0.91	0.52	5.0	0.57	4.8	7.3	4.8
Average			ng/g	0.18	3.5	4.2	1.1	5.1	1.3	0.79	0.53	5.1	0.52	6.2	7.3	4.7
Difference			ng/g	0.07	0.03	0.07	0.10	0.26	0.01	0.24	0.01	0.06	0.11	2.6	0.11	0.24
% Difference			%	38	0.89	1.6	8.7	5.2	0.9	31	1.8	1.2	21	43	1.6	5.1
MB 02103	Matrix Blank	QAQC Sample	ng/g	0.03	0.11	0.08	0.00	0.05	0.00	0.03	0.00	0.09	0.00	0.17	0.02	0.03
MS 012103-PCB	Matrix Spike	QAQC Sample	ng/g	< 0.03	8.7	1.9	0.05	2.9	0.09	1.3	0.13	3.4	0.08	4.2	0.17	1.3
Percent Recovery			%	n/a	*70*	*68*	*110*	*66*	*57*	*83*	*72*	*83*	*76*	*75*	*39*	*73*
Egg Samples																
28496	ESU #1199 BAEA EGG	Letchworth, NY #70	ng/g	0.17	34	3.6	1.6	26	1.3	11	2.0	19	1.6	42	26	23
28497	ESU#1200 BAEA EGG	Cole Flats NY #45	ng/g	0.76	65	14	3.8	44	3.8	24	3.7	84	5.2	60	100	63
28498	ESU#1201 BAEA EGG	Bashakill, NY #35	ng/g	0.62	47	11	4.0	42	3.9	18	2.3	95	1.9	51	120	44
28499*	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	ng/g	6.6	170	64	40	430	58	56	17	89	5.2	180	320	220
28500	ESU#1206 BAEA EGG	Cochecton, NY #61	ng/g	0.77	48	11	4.1	39	4.0	17	2.5	73	2.1	38	89	41
28499-1	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	ng/g	6.5	170	62	39	420	57	53	17	100	5.0	180	320	210
28499-2	ESU#1202 BAEA-REP2 EGG	Roger's Island, NY #56	ng/g	7.5	200	72	46	490	65	63	20	91	5.9	200	360	260
28499-3	ESU#1202 BAEA-REP3 EGG	Roger's Island, NY #56	ng/g	5.8	150	57	36	390	52	51	15	76	4.6	150	290	200
Average			ng/g	6.6	170	64	40	430	58	56	17	89	5.2	180	320	220
SD (n-1)			ng/g	0.84	25	7.4	5.1	51	6.6	6.6	2.1	12	0.67	25	35	32
RSD			%	13	15	12	13	12	12	12	12	14	13	14	11	14
MB 011303	Matrix Blank	QAQC Sample	ng/g	0.03	0.05	0.01	0.00	0.01	0.00	0.02	0.00	0.08	0.00	0.10	0.01	0.02
MS 011303-PCB	Matrix Spike PCBs	QAQC Sample	ng/g	0.07	52	11	0.21	19	0.63	6.6	0.77	17	0.44	24	1.1	7.7
% Recovery			%	n/a	75	78	n/a	72	58	43	79	86	64	80	73	74
Method Detection Limit	MDL = PB Average + 3(PB SD)	(on a ng/g basis)	ng/g	0.03	0.46	0.08	0.02	0.35	0.01	0.06	0.02	0.15	0.01	0.32	0.04	0.08
Method Quantitation Limit	MQL = PB Average + 10(PB SD)	(on a ng/g basis)	ng/g	0.09	1.3	0.21	0.05	1.0	0.04	0.14	0.05	0.34	0.02	0.81	0.10	0.21

Note values are rounded to 2 significant figures.

Values are corrected for analytical recovery of PCB surrogates.

*** Duplicate or triplicate average.**

PCBs determined by dual column high resolution capillary GC with ECD.

n/a (not applicable)-recovery not calculated, near the DL or has an interference.

Table 1. PCB congeners (ng/g) in Bald Eagle Bloods and Eggs Collected Along the Hudson River, NY

Sample ID	Field ID	Site		092	095	096	097	099	101	102	105	109	110	*112*	*113*	114
Blood Samples																
28493	ESU #1207 BAEA Whole Blood	Y28, Astor Cove, NY #76	ng/g	2.4	5.0	0.09	1.8	5.7	5.6	0.32	1.9	0.73	7.0	0.17	0.28	0.24
28494*	ESU #1223 BAEA Whole Blood	Y10; Wappinger's Creek, NY	ng/g	8.8	12	0.31	4.9	22	17	0.39	6.5	2.2	23	0.49	1.0	0.77
28495	ESU #1224 BAEA Whole Blood	K15; Castleton Island 52	ng/g	4.6	9.9	0.40	3.7	9.4	10	0.46	3.2	1.4	12	0.39	0.74	0.50
28494-1	ESU#1223 BAEA-REP1 BLOOD	Y10; Wappinger's Creek, NY	ng/g	8.8	12	0.07	4.8	22	17	0.40	6.6	2.2	23	0.50	1.1	0.76
28494-2	ESU#1223 BAEA-REP2 BLOOD	Y10; Wappinger's Creek, NY	ng/g	8.8	12	0.56	5.0	22	17	0.38	6.4	2.2	24	0.48	0.96	0.77
Average			ng/g	8.8	12	0.31	4.9	22	17	0.39	6.5	2.2	23	0.49	1.0	0.77
Difference			ng/g	0.03	0.08	0.49	0.12	0.09	0.02	0.02	0.22	0.02	0.59	0.02	0.13	0.01
% Difference			%	0.38	0.65	156	2.4	0.43	0.14	4.9	3.5	0.78	2.5	3.7	13	0.85
MB 02103	Matrix Blank	QAQC Sample	ng/g	0.06	0.23	0.00	0.11	0.16	0.36	0.01	0.16	0.02	0.59	0.00	0.01	0.03
MS 012103-PCB	Matrix Spike	QAQC Sample	ng/g	1.8	9.0	0.09	3.2	3.4	9.4	0.27	2.7	0.62	8.3	0.04	0.05	0.22
Percent Recovery			%	*71*	*70*	*67*	*76*	*73*	*74*	*64*	*78*	*79*	*72*	*80*	*81*	*67*
Egg Samples																
28496	ESU #1199 BAEA EGG	Letchworth, NY #70	ng/g	40	44	0.05	35	130	190	0.53	80	42	87	0.93	38	6.7
28497	ESU#1200 BAEA EGG	Cole Flats NY #45	ng/g	65	100	0.10	60	210	200	0.71	120	67	160	1.4	160	10
28498	ESU#1201 BAEA EGG	Bashakill, NY #35	ng/g	54	49	< 0.03	37	210	180	0.46	110	65	90	2.3	64	9.9
28499*	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	ng/g	380	270	0.80	230	1,200	1,200	3.1	360	20	630	15	63	44
28500	ESU#1206 BAEA EGG	Cochecton, NY #61	ng/g	47	57	0.13	37	150	150	1.1	75	42	83	1.6	69	7.4
28499-1	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	ng/g	360	270	0.77	210	1,200	1,200	3.0	350	200	600	14	60	43
28499-2	ESU#1202 BAEA-REP2 EGG	Roger's Island, NY #56	ng/g	430	310	0.89	260	1,400	1,300	3.4	400	230	720	18	72	50
28499-3	ESU#1202 BAEA-REP3 EGG	Roger's Island, NY #56	ng/g	340	240	0.73	210	1,100	1,100	3.0	320	180	560	14	57	40
Average			ng/g	380	270	0.80	230	1,200	1,200	3.1	360	20	630	15	63	44
SD (n-1)			ng/g	47	35	0.08	29	150	100	0.20	40	25	83	2.1	8.1	5.2
RSD			%	13	13	10	13	12	8.3	6.4	11	12	13	14	13	12
MB 011303	Matrix Blank	QAQC Sample	ng/g	0.05	0.18	0.00	0.07	0.12	0.22	0.00	0.10	0.00	0.23	0.00	0.00	0.03
MS 011303-PCB	Matrix Spike PCBs	QAQC Sample	ng/g	10	51	0	18	19	52	1.3	15	3.5	48	0.20	0.24	1.5
% Recovery			%	74	75	n/a	78	79	79	63	79	80	77	n/a	n/a	87
Method Detection Limit	MDL = PB Average + 3(PB SD)	(on a ng/g basis)	ng/g	0.16	0.36	0.03	0.18	0.27	0.59	0.01	0.88	0.06	0.55	0.08	0.02	0.03
Method Quantitation Limit	MQL = PB Average + 10(PB SD)	(on a ng/g basis)	ng/g	0.41	0.82	0.08	0.40	0.67	1.4	0.04	2.5	0.16	1.2	0.23	0.07	0.09

Note values are rounded to 2 significant figures.

Values are corrected for analytical recovery of PCB surrogates.

*** Duplicate or triplicate average.**

PCBs determined by dual column high resolution capillary GC with ECD.

n/a (not applicable)-recovery not calculated, near the DL or has an interference.

Table 1. PCB congeners (ng/g) in Bald Eagle Bloods and Eggs Collected Along the Hudson River, NY

Sample ID	Field ID	Site		115	117	118	119	122	123	128	129	130	131	132	133	134
Blood Samples																
28493	ESU #1207 BAEA Whole Blood	Y28, Astor Cove, NY #76	ng/g	0.43	1.3	6.1	0.63	0.06	0.12	1.6	0.67	0.64	0.06	1.2	0.48	0.37
28494*	ESU #1223 BAEA Whole Blood	Y10; Wappinger's Creek, NY	ng/g	1.1	5.2	24	2.3	0.12	0.39	7.5	1.1	2.8	0.15	4.6	2.2	1.4
28495	ESU #1224 BAEA Whole Blood	K15; Castleton Island 52	ng/g	0.23	2.4	11	1.1	0.10	0.24	2.6	0.47	1.2	0.10	3.1	0.83	0.75
28494-1	ESU#1223 BAEA-REP1 BLOOD	Y10; Wappinger's Creek, NY	ng/g	1.7	5.2	24	2.3	0.09	0.33	7.5	1.4	2.8	0.12	4.6	2.2	1.4
28494-2	ESU#1223 BAEA-REP2 BLOOD	Y10; Wappinger's Creek, NY	ng/g	0.47	5.2	23	2.2	0.14	0.45	7.5	0.78	2.8	0.17	4.6	2.2	1.4
Average			ng/g	1.1	5.2	24	2.3	0.12	0.39	7.5	1.1	2.8	0.15	4.6	2.2	1.4
Difference			ng/g	1.2	0.01	0.95	0.06	0.05	0.12	0.04	0.65	0.05	0.05	0.02	0.00	0.01
% Difference			%	112	0.21	4.0	2.7	46	30	0.47	59	1.6	32	0.47	0.14	0.95
MB 02103	Matrix Blank	QAQC Sample	ng/g	0.00	0.02	0.31	0.02	0.07	0.01	0.07	0.66	0.08	0.00	0.35	0.04	0.06
MS 012103-PCB	Matrix Spike	QAQC Sample	ng/g	0.28	0.31	6.5	0.11	< 0.04	0.09	1.5	< 0.09	0.50	0.21	4.0	0.08	0.67
Percent Recovery			%	*101*	*79*	*74*	*62*	*n/a*	*62*	*79*	*n/a*	*73*	*93*	*77*	*43*	*77*
Egg Samples																
28496	ESU #1199 BAEA EGG	Letchworth, NY #70	ng/g	7.4	19	300	10	0.22	3.7	100	15	34	3.9	48	16	9.3
28497	ESU#1200 BAEA EGG	Cole Flats NY #45	ng/g	10	31	460	21	0.08	4.9	150	19	42	4.9	80	11	13
28498	ESU#1201 BAEA EGG	Bashakill, NY #35	ng/g	9.3	32	460	23	0.18	5.6	140	16	47	3.9	59	11	5.6
28499*	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	ng/g	44	290	1,500	100	0.21	19	340	40	120	7.6	120	32	20
28500	ESU#1206 BAEA EGG	Cochecton, NY #61	ng/g	5.6	26	280	17	0.16	3.7	95	12	30	3.1	44	7.6	6.5
28499-1	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	ng/g	43	280	1,500	98	0.22	19	330	39	120	7.4	120	34	18
28499-2	ESU#1202 BAEA-REP2 EGG	Roger's Island, NY #56	ng/g	50	340	1,700	110	0.24	19	400	46	140	8.6	120	33	25
28499-3	ESU#1202 BAEA-REP3 EGG	Roger's Island, NY #56	ng/g	39	260	1,400	94	0.17	19	300	36	110	6.9	110	28	18
Average			ng/g	44	290	1,500	100	0.21	19	340	40	120	7.6	120	32	20
SD (n-1)			ng/g	5.5	42	150	8.4	0.04	0.09	51	5.2	15	0.89	5.8	3.4	3.8
RSD			%	13	14	10	8.4	17	0.46	15	13	12	12	4.9	11	19
MB 011303	Matrix Blank	QAQC Sample	ng/g	0.00	0.00	0.23	0.00	0.00	0.00	0.05	0.00	0.01	0.00	0.18	0.00	0.00
MS 011303-PCB	Matrix Spike PCBs	QAQC Sample	ng/g	1.3	1.9	36	0.75	0.47	0.39	8.5	2.7	2.8	0.98	21.1	0.73	3.9
% Recovery			%	**103**	**81**	**77**	**74**	**84**	**78**	**81**	**80**	**82**	**86**	**78**	**97**	**80**
Method Detection Limit	MDL = PB Average + 3(PB SD)	(on a ng/g basis)	ng/g	**0.02**	**0.04**	**0.81**	**0.03**	**0.04**	**0.01**	**0.15**	**0.09**	**0.06**	**0.01**	**0.71**	**0.03**	**0.03**
Method Quantitation Limit	MQL = PB Average + 10(PB SD)	(on a ng/g basis)	ng/g	**0.06**	**0.12**	**2.0**	**0.08**	**0.11**	**0.02**	**0.38**	**0.23**	**0.17**	**0.02**	**1.8**	**0.08**	**0.09**

Note values are rounded to 2 significant figures.

Values are corrected for analytical recovery of PCB surrogates.

*** Duplicate or triplicate average.**

PCBs determined by dual column high resolution capillary GC with ECD.

n/a (not applicable)-recovery not calculated, near the DL or has an interference.

Table 1. PCB congeners (ng/g) in Bald Eagle Bloods and Eggs Collected Along the Hudson River, NY

Sample ID	Field ID	Site		136	137	138	139	141	144	146	147	149	151	153	156	157
Blood Samples																
28493	ESU #1207 BAEA Whole Blood	Y28, Astor Cove, NY #76	ng/g	0.59	1.0	7.4	0.22	1.2	0.23	2.4	0.12	5.8	1.5	12	0.92	0.29
28494*	ESU #1223 BAEA Whole Blood	Y10; Wappinger's Creek, NY	ng/g	1.5	2.3	36	0.85	6.0	0.87	13	0.67	22	4.3	68	3.8	0.92
28495	ESU #1224 BAEA Whole Blood	K15; Castleton Island 52	ng/g	1.0	0.9	13	0.41	2.3	0.43	4.3	0.25	11	3.1	21	1.8	0.38
28494-1	ESU#1223 BAEA-REP1 BLOOD	Y10; Wappinger's Creek, NY	ng/g	1.4	2.3	36	0.87	6.0	0.89	13	0.64	22	4.3	68	3.5	0.97
28494-2	ESU#1223 BAEA-REP2 BLOOD	Y10; Wappinger's Creek, NY	ng/g	1.5	2.4	37	0.83	6.1	0.85	13	0.71	22	4.3	68	4.0	0.88
Average			ng/g	1.5	2.3	36	0.85	6.0	0.87	13	0.67	22	4.3	68	3.8	0.92
Difference			ng/g	0.03	0.14	0.49	0.04	0.12	0.04	0.07	0.07	0.15	0.03	0.08	0.54	0.10
% Difference			%	2.3	6.0	1.3	4.7	2.0	4.9	0.52	9.8	0.68	0.70	0.12	14	10
MB 02103	Matrix Blank	QAQC Sample	ng/g	0.02	0.16	0.44	0.18	0.24	0.05	0.14	0.00	0.32	0.04	0.71	0.00	0.20
MS 012103-PCB	Matrix Spike	QAQC Sample	ng/g	2.1	0.31	8.2	< 0.02	2.7	0.84	1.4	0.04	11	3.3	11	1.2	0.10
Percent Recovery			%	***76***	***60***	***77***	***n/a***	***75***	***75***	***75***	***78***	***79***	***76***	***77***	***124***	***39***
Egg Samples																
28496	ESU #1199 BAEA EGG	Letchworth, NY #70	ng/g	15	32	500	8.3	110	27	150	4.2	310	100	1,100	60	15
28497	ESU#1200 BAEA EGG	Cole Flats NY #45	ng/g	30	40	1,100	10	140	33	250	7.3	450	130	1,900	98	17
28498	ESU#1201 BAEA EGG	Bashakill, NY #35	ng/g	13	40	1,000	9.6	130	33	260	7.6	370	88	1,900	84	15
28499*	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	ng/g	25	110	2,100	28	260	56	570	22	810	190	3,400	180	33
28500	ESU#1206 BAEA EGG	Cochecton, NY #61	ng/g	14	26	480	6.9	93	23	170	5.3	280	76	1,100	53	12
28499-1	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	ng/g	25	110	2,000	27	250	54	540	22	790	180	3,300	180	37
28499-2	ESU#1202 BAEA-REP2 EGG	Roger's Island, NY #56	ng/g	29	120	2,300	32	300	64	660	25	910	220	3,800	210	34
28499-3	ESU#1202 BAEA-REP3 EGG	Roger's Island, NY #56	ng/g	20	98	1,900	25	230	50	510	20	730	170	3,100	160	27
Average			ng/g	25	110	2,100	28	260	56	570	22	810	190	3400	180	33
SD (n-1)			ng/g	4.1	11	210	3.4	36	7.0	79	2.6	92	26	360	25	5.3
RSD			%	17	10	10	12	14	13	14	12	11	14	11	14	16
MB 011303	Matrix Blank	QAQC Sample	ng/g	0.02	0.00	0.31	0.00	0.03	0.01	0.07	0.00	0.22	0.03	0.52	0.00	0.03
MS 011303-PCB	Matrix Spike PCBs	QAQC Sample	ng/g	12	2	44.0	1	15	5	8.4	0	57	18	59	5.4	1.0
% Recovery			%	78	87	83	76	82	80	79	73	81	78	82	135	78
Method Detection Limit	MDL = PB Average + 3(PB SD)	(on a ng/g basis)	ng/g	**0.08**	**0.12**	**1.3**	**0.02**	**0.30**	**0.06**	**0.31**	**0.02**	**0.58**	**0.23**	**1.9**	**0.18**	**0.06**
Method Quantitation Limit	MQL = PB Average + 10(PB SD)	(on a ng/g basis)	ng/g	**0.21**	**0.34**	**3.5**	**0.05**	**0.82**	**0.16**	**0.84**	**0.06**	**1.4**	**0.62**	**5.2**	**0.52**	**0.16**

Note values are rounded to 2 significant figures.

Values are corrected for analytical recovery of PCB surrogates.

*** Duplicate or triplicate average.**

PCBs determined by dual column high resolution capillary GC with ECD.

n/a (not applicable)-recovery not calculated, near the DL or has an interference.

Table 1. PCB congeners (ng/g) in Bald Eagle Bloods and Eggs Collected Along the Hudson River, NY

Sample ID	Field ID	Site		158	163	164	166	167	170	171	172	173	174	175	176	177
Blood Samples																
28493	ESU #1207 BAEA Whole Blood	Y28, Astor Cove, NY #76	ng/g	0.99	2.9	0.72	< 0.33	0.25	5.9	0.63	0.45	< 0.10	1.4	0.40	0.07	1.3
28494*	ESU #1223 BAEA Whole Blood	Y10; Wappinger's Creek, NY	ng/g	3.8	13	3.5	0.69	1.3	26	3.7	2.5	< 0.10	7.1	0.88	0.26	5.9
28495	ESU #1224 BAEA Whole Blood	K15; Castleton Island 52	ng/g	1.5	5.4	2.0	0.57	0.51	16	1.3	0.81	< 0.10	3.3	0.61	0.19	2.2
28494-1	ESU#1223 BAEA-REP1 BLOOD	Y10; Wappinger's Creek, NY	ng/g	3.8	13	3.5	0.61	1.3	26	3.6	2.5	< 0.10	7.2	0.85	0.25	5.9
28494-2	ESU#1223 BAEA-REP2 BLOOD	Y10; Wappinger's Creek, NY	ng/g	3.8	14	3.5	0.77	1.3	25	3.8	2.5	< 0.10	6.9	0.91	0.27	5.8
Average			ng/g	3.8	13	3.5	0.69	1.3	26	3.7	2.5	< 0.10	7.1	0.88	0.26	5.9
Difference			ng/g	0.03	0.53	0.08	0.17	0.02	0.30	0.12	0.01		0.26	0.06	0.03	0.06
% Difference			%	0.75	4.0	2.2	24	1.3	1.2	3.2	0.33		3.7	6.6	10	1.0
MB 02103	Matrix Blank	QAQC Sample	ng/g	0.04	0.09	0.02	0.10	0.02	0.50	0.02	0.07	0.00	0.08	0.16	0.09	0.60
MS 012103-PCB	Matrix Spike	QAQC Sample	ng/g	1.3	2.5	0.78	< 0.33	0.27	5.4	1.3	0.56	< 0.10	5.1	0.31	0.29	1.5
Percent Recovery			%	*79*	*76*	*114*	*n/a*	*78*	*90*	*83*	*73*	*n/a*	*82*	*121*	*47*	*60*
Egg Samples																
28496	ESU #1199 BAEA EGG	Letchworth, NY #70	ng/g	72	160	53	17	27	1,300	63	58	1.8	140	14	8.3	120
28497	ESU#1200 BAEA EGG	Cole Flats NY #45	ng/g	110	230	65	20	46	1,700	110	100	2.1	200	24	10	190
28498	ESU#1201 BAEA EGG	Bashakill, NY #35	ng/g	110	230	42	18	40	1,600	100	87	1.6	180	22	8.9	190
28499*	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	ng/g	200	660	125	24	69	1,900	180	140	2.2	290	36	10.6	330
28500	ESU#1206 BAEA EGG	Cochecton, NY #61	ng/g	65	130	43	12	25	1,000	66	58	1.2	140	16	9.6	130
28499-1	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	ng/g	190	640	85	23	66	1,800	170	130	2.2	280	35	6.8	310
28499-2	ESU#1202 BAEA-REP2 EGG	Roger's Island, NY #56	ng/g	230	750	150	27	79	2,100	200	160	2.5	330	41	13	380
28499-3	ESU#1202 BAEA-REP3 EGG	Roger's Island, NY #56	ng/g	180	580	140	21	61	1,700	160	120	1.9	270	32	12	290
Average			ng/g	200	660	125	24	69	1,900	180	140	2.2	290	36	11	330
SD (n-1)			ng/g	26	86	35	3.1	9.6	210	21	21	0.30	32	4.7	3.3	47
RSD			%	13	13	28	13	14	11	12	15	14	11	13	31	14
MB 011303	Matrix Blank	QAQC Sample	ng/g	0.02	0.05	0.00	0.08	0.00	0.20	0.02	0.00	0.00	0.08	0.00	0.00	0.02
MS 011303-PCB	Matrix Spike PCBs	QAQC Sample	ng/g	6.8	12	5.1	0.32	1.6	26	6.4	3.3	0.41	25	1.1	2.3	11
% Recovery			%	72	81	88	n/a	86	80	84	78	n/a	84	58	74	80
Method Detection Limit	MDL = PB Average + 3(PB SD)	(on a ng/g basis)	ng/g	0.15	0.18	0.08	0.33	0.07	0.60	0.10	0.10	0.10	0.37	0.06	0.05	0.20
Method Quantitation Limit	MQL = PB Average + 10(PB SD)	(on a ng/g basis)	ng/g	0.41	0.45	0.21	0.96	0.19	1.6	0.30	0.29	0.31	1.1	0.17	0.13	0.55

Note values are rounded to 2 significant figures.

Values are corrected for analytical recovery of PCB surrogates.

*** Duplicate or triplicate average.**

PCBs determined by dual column high resolution capillary GC with ECD.

n/a (not applicable)-recovery not calculated, near the DL or has an interference.

Table 1. PCB congeners (ng/g) in Bald Eagle Bloods and Eggs Collected Along the Hudson River, NY

Sample ID	Field ID	Site		178	179	180	183	185	187	189	190	191	193	194	195	196
Blood Samples																
28493	ESU #1207 BAEA Whole Blood	Y28, Astor Cove, NY #76	ng/g	0.75	0.47	6.8	1.9	0.14	4.1	0.09	0.48	0.16	0.41	0.92	0.44	1.2
28494*	ESU #1223 BAEA Whole Blood	Y10; Wappinger's Creek, NY	ng/g	4.3	0.85	35	10	0.59	23	0.47	2.5	0.46	2.0	5.3	2.4	6.1
28495	ESU #1224 BAEA Whole Blood	K15; Castleton Island 52	ng/g	1.6	0.92	16	3.4	0.28	8.6	0.19	1.3	0.18	0.77	1.9	1.0	2.1
28494-1	ESU#1223 BAEA-REP1 BLOOD	Y10; Wappinger's Creek, NY	ng/g	4.2	0.74	34	10	0.59	23	0.47	2.3	0.45	1.9	5.2	2.4	5.7
28494-2	ESU#1223 BAEA-REP2 BLOOD	Y10; Wappinger's Creek, NY	ng/g	4.3	0.97	36	11	0.60	23	0.47	2.7	0.47	2.0	5.4	2.5	6.5
Average			ng/g	4.3	0.85	35	10	0.59	23	0.47	2.5	0.46	2.0	5.3	2.4	6.1
Difference			ng/g	0.09	0.23	2.7	0.46	0.01	0.46	0.00	0.45	0.01	0.06	0.15	0.13	0.83
% Difference			%	2.2	26	7.8	4.3	2.0	2.0	0.68	18	3.2	3.1	2.9	5.4	14
MB 02103	Matrix Blank	QAQC Sample	ng/g	0.02	0.08	0.73	0.54	0.05	0.17	0.03	0.05	0.11	0.02	0.03	0.03	0.05
MS 012103-PCB	Matrix Spike	QAQC Sample	ng/g	0.79	1.8	6.7	2.2	0.44	4.3	0.13	1.0	< 0.05	0.37	1.4	0.86	0.84
Percent Recovery			%	*80*	*76*	*74*	*68*	*73*	*79*	*84*	*84*	*n/a*	*72*	*81*	*84*	*77*
Egg Samples																
28496	ESU #1199 BAEA EGG	Letchworth, NY #70	ng/g	60	10	1,300	190	20	480	9.7	40	10	38	98	44	100
28497	ESU#1200 BAEA EGG	Cole Flats NY #45	ng/g	110	10	2,000	330	23	760	18	59	18	66	200	71	190
28498	ESU#1201 BAEA EGG	Bashakill, NY #35	ng/g	110	7.1	1,900	300	23	740	14	43	15	60	170	61	160
28499*	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	ng/g	190	13	2,400	460	37	1,500	25	79	24	91	280	110	280
28500	ESU#1206 BAEA EGG	Cochecton, NY #61	ng/g	73	5.2	1,100	200	17	490	10	33	10	40	120	47	120
28499-1	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	ng/g	190	12	2,300	440	36	1,500	24	82	23	80	260	110	300
28499-2	ESU#1202 BAEA-REP2 EGG	Roger's Island, NY #56	ng/g	220	16	2,700	520	42	1,600	28	84	28	110	320	130	300
28499-3	ESU#1202 BAEA-REP3 EGG	Roger's Island, NY #56	ng/g	170	11	2,100	420	34	1,400	22	72	22	82	250	100	240
Average			ng/g	190	13	2,400	460	37	1,500	25	79	24	91	280	110	280
SD (n-1)			ng/g	25	2.7	310	53	4.3	100	3.2	6.3	3.3	17	38	15	35
RSD			%	13	21	13	12	12	6.7	13	8.0	14	19	14	13	12
MB 011303	Matrix Blank	QAQC Sample	ng/g	0.01	0.00	0.20	0.02	0.07	0.10	0.00	0.10	0.00	0.00	0.02	0.01	0.07
MS 011303-PCB	Matrix Spike PCBs	QAQC Sample	ng/g	4.3	9.2	39	13	2.5	22.9	0.80	5.2	0.71	1.9	7.2	4.4	7.0
% Recovery			%	80	77	81	83	83	80	85	88	83	73	81	83	104
Method Detection Limit	MDL = PB Average + 3(PB SD)	(on a ng/g basis)	ng/g	0.06	0.07	1.1	0.43	0.03	0.69	0.04	0.19	0.05	0.07	0.18	0.10	0.21
Method Quantitation Limit	MQL = PB Average + 10(PB SD)	(on a ng/g basis)	ng/g	0.17	0.20	3.0	1.2	0.10	2.0	0.11	0.54	0.15	0.21	0.54	0.28	0.59

Note values are rounded to 2 significant figures.

Values are corrected for analytical recovery of PCB surrogates.

*** Duplicate or triplicate average.**

PCBs determined by dual column high resolution capillary GC with ECD.

n/a (not applicable)-recovery not calculated, near the DL or has an interference.

Table 1. PCB congeners (ng/g) in Bald Eagle Bloods and Eggs Collected Along the Hudson River, NY

Sample ID	Field ID	Site		197	198	199	200	201	202	203	205	206	208	209	Total PCBs
Blood Samples															
28493	ESU #1207 BAEA Whole Blood	Y28, Astor Cove, NY #76	ng/g	< 0.14	0.06	1.6	0.05	0.16	0.49	1.4	0.07	1.5	0.55	< 1.4	190
28494*	ESU #1223 BAEA Whole Blood	Y10; Wappinger's Creek, NY	ng/g	0.41	0.46	8.4	0.20	0.97	3.1	7.6	0.40	7.4	2.4	2.6	680
28495	ESU #1224 BAEA Whole Blood	K15; Castleton Island 52	ng/g	< 0.14	0.14	3.3	0.13	0.30	1.0	2.9	0.16	3.1	1.2	1.5	380
28494-1	ESU#1223 BAEA-REP1 BLOOD	Y10; Wappinger's Creek, NY	ng/g	0.41	0.52	8.4	0.21	0.95	3.5	7.5	0.40	7.1	2.3	2.6	680
28494-2	ESU#1223 BAEA-REP2 BLOOD	Y10; Wappinger's Creek, NY	ng/g	0.42	0.40	8.4	0.19	0.99	2.8	7.6	0.40	7.7	2.5	2.7	680
Average			ng/g	0.41	0.46	8.4	0.20	0.97	3.1	7.6	0.40	7.4	2.4	2.6	680
Difference			ng/g	0.01	0.12	0.01	0.02	0.04	0.74	0.13	0.0	0.65	0.13	0.06	0.0
% Difference			%	2.8	25	0.07	8.4	3.7	24	1.7	0.45	8.7	5.4	2.2	0.00
MB 02103	Matrix Blank	QAQC Sample	ng/g	0.01	0.00	0.07	0.00	0.01	0.05	0.05	0.00	0.04	0.08	0.30	15
MS 012103-PCB	Matrix Spike	QAQC Sample	ng/g	< 0.14	0.09	1.5	0.24	0.20	0.25	1.3	0.08	0.39	< 0.25	< 1.4	270
Percent Recovery			%	*n/a*	*80*	*80*	*83*	*76*	*71*	*83*	*85*	*80*	*n/a*	*n/a*	*72*
Egg Samples															
28496	ESU #1199 BAEA EGG	Letchworth, NY #70	ng/g	6.0	7.0	140	6.1	12	27	92	12	45	14	14	8,900
28497	ESU#1200 BAEA EGG	Cole Flats NY #45	ng/g	15	12	270	8.1	26	49	160	19	200	78	99	14,800
28498	ESU#1201 BAEA EGG	Bashakill, NY #35	ng/g	14	11	240	6.1	24	40	140	14	150	55	62	13,400
28499*	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	ng/g	18	17	410	11	34	61	280	22	220	68	68	32,000
28500	ESU#1206 BAEA EGG	Cochecton, NY #61	ng/g	13	8.6	200	5.0	21	36	110	12	160	60	75	9,000
28499-1	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	ng/g	18	17	390	10	33	59	270	22	210	66	63	31,000
28499-2	ESU#1202 BAEA-REP2 EGG	Roger's Island, NY #56	ng/g	21	20	470	13	39	69	320	26	250	78	79	36,000
28499-3	ESU#1202 BAEA-REP3 EGG	Roger's Island, NY #56	ng/g	16	15	360	10	30	55	250	20	200	61	61	29,000
Average			ng/g	18	17	410	11	34	61	280	22	220	68	68	32,000
SD (n-1)			ng/g	2.4	2.3	57	1.7	4.3	6.8	36	2.9	26	8.6	9.7	3,900
RSD			%	13	13	14	15	13	11	13	13	12	13	14	12
MB 011303	Matrix Blank	QAQC Sample	ng/g	0.01	0.06	0.05	0.00	0.00	0.04	0.03	0.03	0.02	0.09	0.51	11
MS 011303-PCB	Matrix Spike PCBs	QAQC Sample	ng/g	0.4	0.54	7.8	1.3	1.0	1.6	6.7	0.51	2.2	0.46	0.57	1,500
% Recovery			%	n/a	82	81	81	75	85	85	85	85	n/a	n/a	76
Method Detection Limit	MDL = PB Average + 3(PB SD)	(on a ng/g basis)	ng/g	**0.14**	**0.004**	**0.19**	**0.02**	**0.04**	**0.10**	**0.15**	**0.02**	**0.08**	**0.25**	**1.4**	**22**
Method Quantitation Limit	MQL = PB Average + 10(PB SD)	(on a ng/g basis)	ng/g	**0.40**	**0.01**	**0.54**	**0.07**	**0.12**	**0.29**	**0.43**	**0.06**	**0.23**	**0.68**	**3.8**	**53**

Note values are rounded to 2 significant figures.

Values are corrected for analytical recovery of PCB surrogates.

*** Duplicate or triplicate average.**

PCBs determined by dual column high resolution capillary GC with ECD.

n/a (not applicable)-recovery not calculated, near the DL or has an interference.

Table 2. Percent Recoveries of PCB Procedural Recovery Standards in Eagle Bloods and Eggs

Sample ID	Field ID	Sample Type	029 % Recovery	155 % Recovery	204 % Recovery
28493	ESU #1207 BAEA Whole Blood	Bald Eagle Blood	*65*	*69*	*72*
28494-1	ESU #1223 BAEA Whole Blood	Bald Eagle Blood	*75*	*78*	*78*
28494-2	ESU #1223 BAEA Whole Blood	Bald Eagle Blood	*74*	*79*	*78*
28495	ESU #1224 BAEA Whole Blood	Bald Eagle Blood	*69*	*74*	*74*
MB 02103	Matrix Blank	Bovine Serum	*68*	*69*	*72*
MS 012103-PCB	Matrix Spike PCBs	Bovine Serum	*72*	*75*	*82*
28496	ESU #1199 BAEA EGG	Bald Eagle Egg	*71*	*80*	*77*
28497	ESU#1200 BAEA EGG	Bald Eagle Egg	*74*	*79*	*78*
28498	ESU#1201 BAEA EGG	Bald Eagle Egg	*74*	*81*	*77*
28499-1	ESU#1202 BAEA-REP1 EGG	Bald Eagle Egg	*72*	*83*	*74*
28499-2	ESU#1202 BAEA-REP2 EGG	Bald Eagle Egg	*72*	*85*	*78*
28499-3	ESU#1202 BAEA-REP3 EGG	Bald Eagle Egg	*74*	*82*	*77*
28500	ESU#1206 BAEA EGG	Bald Eagle Egg	*75*	*82*	*76*
MB 011303	Matrix Blank	Chicken Egg	*75*	*82*	*77*
MS 011303-PCB	Matrix Spike PCBs	Chicken Egg	*73*	*83*	*77*
Average			72	79	77
SD(n-1)			3	5	3

Table 3. Organochlorine Pesticides (ng/g) in Eagle Bloods and Eggs Collected Along the Hudson River, NY

Sample ID	Field ID	Site	(units)	Sample Type	Grams- for Analysis (g)	% Lipid	Pentachloro- benzene	Hexachloro- benzene	Pentachloro- anisole
28493	ESU #1207 BAEA Whole Blood	Y28, Astor Cove, NY #76	ng/g	Bald Eagle Blood	3.05	0.44	< 0.07	< 2.6	< 0.26
28494*	ESU #1223 BAEA Whole Blood	Y10; Wappinger's Creek, NY	ng/g	Bald Eagle Blood	2.93	0.65	0.11	< 2.6	< 0.26
28495	ESU #1224 BAEA Whole Blood	K15; Castleton Island 52	ng/g	Bald Eagle Blood	3.02	0.57	< 0.07	< 2.6	< 0.26
28494-1	ESU#1223 BAEA-REP1 BLOOD	Y10; Wappinger's Creek, NY	ng/g	Bald Eagle Blood	2.91	0.59	0.11	< 2.6	< 0.26
28494-2	ESU#1223 BAEA-REP2 BLOOD	Y10; Wappinger's Creek, NY	ng/g	Bald Eagle Blood	2.95	0.71	0.11	< 2.6	< 0.26
average			ng/g		2.93	0.65	0.11	< 2.6	< 0.26
difference			ng/g		0.04	0.12	0.01		
% difference			%		1.4	18	7.1		
MB 012103	Matrix Blank		ng/g	Bovine Serum	3.04	0.13	0.01	0.03	0.02
MS 012103-OC	Matrix Spike OCPs		ng	Bovine Serum	3.03	0.19	< 0.07	12	36
% Recovery			%				---#	*28*	*72*
28496	ESU #1199 BAEA EGG	Letchworth, NY #70	ng/g	Bald Eagle Egg	2.08	6.7	0.88	9.7	1.4
28497	ESU#1200 BAEA EGG	Cole Flats NY #45	ng/g	Bald Eagle Egg	2.10	8.2	1.8	18	4.4
28498	ESU#1201 BAEA EGG	Bashakill, NY #35	ng/g	Bald Eagle Egg	2.09	6.7	0.85	6.7	1.1
28499*	ESU#1202 BAEA EGG	Roger's Island, NY #56	ng/g	Bald Eagle Egg	2.09	5.7	2.1	9.3	1.7
28500	ESU#1206 BAEA EGG	Cochecton, NY #61	ng/g	Bald Eagle Egg	2.10	6.1	0.87	6.6	1.8
28499-1	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	ng/g	Bald Eagle Egg	2.08	5.4	2.0	9.1	1.8
28499-2	ESU#1202 BAEA-REP2 EGG	Roger's Island, NY #56	ng/g	Bald Eagle Egg	2.10	6.7	2.5	11	1.9
28499-3	ESU#1202 BAEA-REP3 EGG	Roger's Island, NY #56	ng/g	Bald Eagle Egg	2.10	5.0	1.8	7.9	1.5
Average			ng/g		2.09	5.7	2.1	9.3	1.7
SD(n-1)							0.36	1.5	0.21
RSD							17	17	12
MB 011303	Matrix Blank		ng/g	Chicken Egg	2.09	12	0.03	0.10	0.13
MS 080702-OC	Matrix Spike OCPs		ng	Chicken Egg	2.13	12	0.08	70	72
% Recovery			%				---#	*84*	*75*
Method Detection Limit	MDL = PB Average + 3*(PB SD)	(on a ng/g basis)	ng/g				**0.07**	**2.6**	**0.26**
Method Quantitation Limit	MQL = PB Average + 10*(PB SD)	(on a ng/g basis)	ng/g				**0.19**	**8.0**	**0.70**

Note values are rounded to 2 significant figures.
Values are corrected for analytical recovery.
***Average of triplicate or duplicate sample**
 # --- = no value for pentachlorobenzene not in spike mix.
OCPs determined by dual column high resolution capillary GC with ECD.

Table 3. Organochlorine Pesticides (ng/g) in Eagle Bloods and Eggs Collected Along the Hudson River, NY

Sample ID	Field ID	alpha-BHC (a-HCH)	beta-BHC (b-HCH)	Lindane (g-HCH)	delta-BHC (d-HCH)	Heptachlor	Heptachlor Epoxide	Aldrin	Dacthal	Dieldrin	Endrin
28493	ESU #1207 BAEA Whole Blood	< 0.22	< 0.20	< 0.46	< 0.12	< 0.22	< 0.22	< 0.15	< 0.34	0.34	< 0.12
28494*	ESU #1223 BAEA Whole Blood	< 0.22	< 0.20	< 0.46	< 0.12	< 0.22	0.24	< 0.15	< 0.34	1.2	< 0.12
28495	ESU #1224 BAEA Whole Blood	< 0.22	< 0.20	< 0.46	< 0.12	< 0.22	< 0.22	< 0.15	< 0.34	0.53	< 0.12
28494-1	ESU#1223 BAEA-REP1 BLOOD	< 0.22	< 0.20	< 0.46	< 0.12	< 0.22	0.25	< 0.15	< 0.34	1.4	< 0.12
28494-2	ESU#1223 BAEA-REP2 BLOOD	< 0.22	< 0.20	< 0.46	< 0.12	< 0.22	< 0.22	< 0.15	< 0.34	1.1	< 0.12
average		< 0.22	< 0.20	< 0.46	< 0.12	< 0.22	0.24	< 0.15	< 0.34	1.2	< 0.12
difference							0.02		0.01	0.25	
% difference							10		5.2	20	
MB 012103	Matrix Blank	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.02	0.00	0.00
MS 012103-OC	Matrix Spike OCPs	31	35	31	32	17	37	< 0.15	37	36	23
% Recovery		*70*	*76*	*73*	*78*	*38*	*81*	---#	*84*	*84*	*54*
28496	ESU #1199 BAEA EGG	< 0.22	< 0.20	< 0.46	< 0.12	2.9	9.0	< 0.15	0.91	39	10
28497	ESU#1200 BAEA EGG	< 0.22	0.21	< 0.46	< 0.12	< 0.22	25	< 0.15	6.9	120	9.4
28498	ESU#1201 BAEA EGG	< 0.22	0.42	< 0.46	< 0.12	< 0.22	15	< 0.15	3.2	91	8.5
28499*	ESU#1202 BAEA EGG	< 0.22	0.72	< 0.46	< 0.12	0.87	13	< 0.15	31	64	11
28500	ESU#1206 BAEA EGG	< 0.22	0.20	< 0.46	< 0.12	0.47	10	< 0.15	2.6	75	5.7
28499-1	ESU#1202 BAEA-REP1 EGG	< 0.22	0.84	< 0.46	< 0.12	1.2	14	< 0.15	31	59	10
28499-2	ESU#1202 BAEA-REP2 EGG	< 0.22	0.71	< 0.46	< 0.12	1.4	15	< 0.15	36	75	14
28499-3	ESU#1202 BAEA-REP3 EGG	< 0.22	0.62	< 0.46	< 0.12	< 0.22	11	< 0.15	28	56	9.0
Average		< 0.22	0.72	< 0.46	< 0.12	0.87	13	< 0.15	31	64	11
SD(n-1)			0.11			0.76	2.2		4.0	9.9	2.6
RSD			15				16		13	16	24
MB 011303	Matrix Blank	0.00	0.13	0.07	0.00	0.00	0.07	0.00	0.03	0.22	0.06
MS 080702-OC	Matrix Spike OCPs	59	72	58	15	22	78	0.13	67	71	55
% Recovery		*72*	*84*	*75*	*20*	*25*	*92*	---#	*77*	*89*	*68*
Method Detection Limit	MDL = PB Average + 3*(PB SD)	**0.22**	**0.20**	**0.46**	**0.12**	**0.22**	**0.22**	**0.15**	**0.34**	**0.17**	**0.12**
Method Quantitation Limit	MQL = PB Average + 10*(PB SD)	**0.67**	**0.56**	**1.3**	**0.35**	**0.65**	**0.66**	**0.42**	**0.96**	**0.49**	**0.34**

Note values are rounded to 2 significant figures.

Values are corrected for analytical recovery.

***Average of triplicate or duplicate sample**

 # --- = no value for pentachlorobenzene not in spike mix.

OCPs determined by dual column high resolution capillary GC with ECD.

Table 3. Organochlorine Pesticides (ng/g) in Eagle Bloods and Eggs Collected Along the Hudson River, NY

Sample ID	Field ID	Oxychlordane	cis-Chlordane	trans-Chlordane	cis-Nonachlor	trans-Nonachlor	o,p'-DDE	o,p'-DDD	o,p'-DDT
28493	ESU #1207 BAEA Whole Blood	0.18	0.71	< 0.36	0.38	0.54	< 0.17	< 0.68	0.18
28494*	ESU #1223 BAEA Whole Blood	0.74	2.3	0.61	1.5	2.6	< 0.17	< 0.68	0.55
28495	ESU #1224 BAEA Whole Blood	0.27	1.1	0.66	0.56	1.1	< 0.17	< 0.68	0.28
28494-1	ESU#1223 BAEA-REP1 BLOOD	0.59	2.2	0.49	1.6	2.6	< 0.17	< 0.68	0.51
28494-2	ESU#1223 BAEA-REP2 BLOOD	0.89	2.5	0.73	1.5	2.6	< 0.17	< 0.68	0.60
average		0.74	2.3	0.61	1.5	2.6	< 0.17	< 0.68	0.55
difference		0.30	0.30	0.24	0.09	0.01			0.09
% difference		40	13	39	5.5	0.21			16
MB 012103	Matrix Blank	0.00	0.02	0.04	0.00	0.02	0.00	0.00	0.18
MS 012103-OC	Matrix Spike OCPs	34	40	38	40	35	38	37	41
% Recovery		***76***	***81***	***82***	***84***	***78***	***82***	***78***	***91***
28496	ESU #1199 BAEA EGG	23	47	0.76	41	130	1.3	< 0.68	< 0.14
28497	ESU#1200 BAEA EGG	48	160	1.6	140	340	11	< 0.68	18
28498	ESU#1201 BAEA EGG	42	120	5.7	100	260	< 0.17	< 0.68	< 0.14
28499*	ESU#1202 BAEA EGG	34	100	11	49	150	1.5	< 0.68	< 0.14
28500	ESU#1206 BAEA EGG	26	110	11	82	190	< 0.17	< 0.68	< 0.14
28499-1	ESU#1202 BAEA-REP1 EGG	32	81	14	46	140	< 0.17	< 0.68	< 0.14
28499-2	ESU#1202 BAEA-REP2 EGG	40	120	15	56	180	< 0.17	< 0.68	< 0.14
28499-3	ESU#1202 BAEA-REP3 EGG	31	100	3.8	44	140	4.5	< 0.68	< 0.14
Average		34	100	11	49	150	1.5	< 0.68	< 0.14
SD(n-1)		4.6	19	6.2	6.4	21	2.6		
RSD		13	19	57	13	14			
MB 011303	Matrix Blank	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00
MS 080702-OC	Matrix Spike OCPs	69	79	77	81	66	74	75	86
% Recovery		**84**	**84**	**91**	**89**	**80**	**88**	**86**	**94**
Method Detection Limit	MDL = PB Average + 3*(PB SD)	**0.09**	**0.23**	**0.36**	**0.10**	**0.25**	**0.17**	**0.68**	**0.14**
Method Quantitation Limit	MQL = PB Average + 10*(PB SD)	**0.28**	**0.68**	**1.0**	**0.26**	**0.76**	**0.51**	**2.0**	**0.42**

Note values are rounded to 2 significant figures.
Values are corrected for analytical recovery.
***Average of triplicate or duplicate sample**
 # — = no value for pentachlorobenzene not in spike mix.
OCPs determined by dual column high resolution capillary GC with ECD.

Table 3. Organochlorine Pesticides (ng/g) in Eagle Bloods and Eggs Collected Along the Hudson River, NY

Sample ID	Field ID	p,p'-DDE	p,p'-DDD	p,p'-DDT	Endosulfan I	Endosulfan II	Endosulfate	Methoxychlor	Mirex
28493	ESU #1207 BAEA Whole Blood	6.2	1.9	< 0.43	< 0.41	< 0.15	< 0.95	< 2.0	0.05
28494*	ESU #1223 BAEA Whole Blood	41	6.25	0.67	< 0.41	< 0.15	< 0.95	< 2.0	1.1
28495	ESU #1224 BAEA Whole Blood	12	2.5	< 0.43	< 0.41	< 0.15	< 0.95	< 2.0	0.10
28494-1	ESU#1223 BAEA-REP1 BLOOD	40	5.7	< 0.43	< 0.41	< 0.15	< 0.95	< 2.0	1.1
28494-2	ESU#1223 BAEA-REP2 BLOOD	43	6.8	1.3	< 0.41	< 0.15	< 0.95	< 2.0	1.1
average		41	6.3	0.67	< 0.41	< 0.15	< 0.95	< 2.0	1.1
difference		2.2	1.2	1.3					0.01
% difference		5.4	18						0.68
MB 012103	Matrix Blank	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.04
MS 012103-OC	Matrix Spike OCPs	33	39	38	37	39	43	44	30
% Recovery		*75*	*89*	*93*	*82*	*84*	*95*	*109*	*63*
28496	ESU #1199 BAEA EGG	1,300	170	< 0.43	< 0.41	1.1	< 0.95	< 2.0	33
28497	ESU#1200 BAEA EGG	2,400	330	< 0.43	< 0.41	< 0.15	< 0.95	< 2.0	29
28498	ESU#1201 BAEA EGG	2,900	240	< 0.43	< 0.41	< 0.15	< 0.95	< 2.0	20
28499*	ESU#1202 BAEA EGG	2,600	240	< 0.43	< 0.41	< 0.15	< 0.95	< 2.0	37
28500	ESU#1206 BAEA EGG	2,100	180	< 0.43	< 0.41	< 0.15	< 0.95	< 2.0	18
28499-1	ESU#1202 BAEA-REP1 EGG	2,500	230	< 0.43	< 0.41	< 0.15	< 0.95	< 2.0	36
28499-2	ESU#1202 BAEA-REP2 EGG	3,000	270	< 0.43	< 0.41	< 0.15	< 0.95	< 2.0	42
28499-3	ESU#1202 BAEA-REP3 EGG	2,400	220	< 0.43	< 0.41	< 0.15	< 0.95	< 2.0	34
Average		2,600	240	< 0.43	< 0.41	< 0.15	< 0.95	< 2.0	37
SD(n-1)		300	28						4.0
RSD		12	12						11
MB 011303	Matrix Blank	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MS 080702-OC	Matrix Spike OCPs	79	78	69	74	75	75	95	76
% Recovery		**100**	**96**	**89**	**88**	**88**	**87**	**115**	**87**
Method Detection Limit	MDL = PB Average + 3*(PB SD)	**0.44**	**0.45**	**0.43**	**0.41**	**0.15**	**0.95**	**2.0**	**0.01**
Method Quantitation Limit	MQL = PB Average + 10*(PB SD)	**1.1**	**1.4**	**1.3**	**1.3**	**0.47**	**3.0**	**6.0**	**0.03**

Note values are rounded to 2 significant figures.
Values are corrected for analytical recovery.
***Average of triplicate or duplicate sample**
 # --- = no value for pentachlorobenzene not in spike mix.
OCPs determined by dual column high resolution capillary GC with ECD.

Table 4. Percent Recoveries of OCP Procedural Recovery Standards in Eagle Bloods and Eggs

Sample ID	Field ID	Site	Sample Type	Grams for Analysis (g)	% Lipid	029 % Recovery	155 % Recovery	204 % Recovery
28493	ESU #1207 BAEA Whole Blood	Y28, Astor Cove, NY #76	Bald Eagle Blood	3.05	0.44	***68***	***68***	***55***
28494-1	ESU#1223 BAEA-REP1 BLOOD	Y10; Wappinger's Creek, NY	Bald Eagle Blood	2.91	0.59	***80***	***77***	***61***
28494-2	ESU#1223 BAEA-REP2 BLOOD	Y10; Wappinger's Creek, NY	Bald Eagle Blood	2.95	0.71	***80***	***77***	***62***
28495	ESU #1224 BAEA Whole Blood	K15; Castleton Island 52	Bald Eagle Blood	3.02	0.57	***74***	***73***	***58***
MB 012103	Matrix Blank		Bovine Serum	3.04	0.13	***70***	***67***	***57***
MS 012103-OC	Matrix Spike OCPs		Bovine Serum	3.03	0.19	***68***	***68***	***89***
28496	ESU #1199 BAEA EGG	Letchworth, NY #70	Bald Eagle Egg	2.08	6.67	***64***	***95***	***78***
28497	ESU#1200 BAEA EGG	Cole Flats NY #45	Bald Eagle Egg	2.10	8.20	***73***	***93***	***70***
28498	ESU#1201 BAEA EGG	Bashakill, NY #35	Bald Eagle Egg	2.09	6.65	***93***	***97***	***74***
28499-1	ESU#1202 BAEA-REP1 EGG	Roger's Island, NY #56	Bald Eagle Egg	2.08	5.38	***73***	***89***	***71***
28499-2	ESU#1202 BAEA-REP2 EGG	Roger's Island, NY #56	Bald Eagle Egg	2.10	6.71	***78***	***96***	***78***
28499-3	ESU#1202 BAEA-REP3 EGG	Roger's Island, NY #56	Bald Eagle Egg	2.10	4.96	***80***	***91***	***76***
28500	ESU#1206 BAEA EGG	Cochecton, NY #61	Bald Eagle Egg	2.10	6.10	***88***	***97***	***75***
MB 011303	Matrix Blank		Chicken Egg	2.09	12.0	***92***	***91***	***74***
MS 080702-OC	Matrix Spike OCPs		Chicken Egg	2.13	11.7	***91***	***92***	***99***
Average						***78***	***85***	***72***
SD (n-1)						***9***	***12***	***12***

Table 5. Non-*o*-PCBs (pg/g) in Bald Eagle Blood Collected Along the Hudson River, NY

19-Mar-03
N53-Addons-w-all quant..xls

GC/MS Sets: N53PCB
Dates: March 14-16, 2003

NFCR Number:	Field Number:	Sample Description:	GC/MS Run No.	Non-o-Polychlorinated Biphenyls Tetra: 3,4,4',5-TCB (81)	Tetra: 3,3',4,4'-TCB (77)	Penta: 3,3',4,4',5-PeCB (126)	Hexa: 3,3',4,4',5,5'-HxCB (169)
28493	ESU 1207 BAEA	Eagle Blood, 3.21g	53-6	10	86	17	2.0 LQ
28494-A	ESU 1223 BAEA	Eagle Blood, 3.06g-Replicate A	53-8	14	97	34	5.7
28494-B	ESU 1223 BAEA	Eagle Blood, 3.11g-Replicate B	53-9	14	99	37	5.5
28495	ESU 1224 BAEA	Eagle Blood, 3.18g	53-10	13	130	20	2.3 LQ
	Quality Control Samples:						
MB012103		Bovine Serum Matrix Blank 1/21/03 3.2g	53-4	1.9 LQ	8.8 LQ	2.3 LQ	1.1 ND
MS012103-PCB		Bovine Serum Matrix Spike-PCB 1/21/03 3.19g (Spiked 1 μg total PCBs)	53-5	31	470	12	1.0 ND
		Report spike results as parts per million in Aroclors: (pg congener/μg total PCBs)		*98*	*1,500*	*39*	*3.2 ND*
		Historical Mean of each congener/(pg/ug Aroclor): (or in parts per million in Aroclors)	*Mean:*	*73*	*1,253*	*48*	*(< 7)*
		(n=40, last 40 PCB-spiked QC samples-all matrices)	*SD, %RSD*	*18 25*	*229 18*	*23 47*	

LQ Less than Method Quantification Limit due to Incomplete Ion Cluster or Inaccurate Ion Ratio (Outside +/- 15% Tolerances)
ND Not Detected at Specified Detection Limit

Table 6. Percent Recoveries of ^{13}C-Non-*o*-PCBs in Bald Eagle Bloods Collected along the Hudson River, NY

19-Mar-03
N53-Addons-w-all quant..xls

GC/MS Sets: N53PCB
Dates: March 14-16, 2003

NFCR Number:	Submitter Number:	Sample Description:	GC/MS Run No.	^{13}C-Non-*o*-Polychlorinated Biphenyls			
				Tetra:		Penta:	Hexa:
				3,4,4',5-TCB (^{13}C-PCB #81)	3,3',4,4'-TCB (^{13}C-PCB #77)	3,3',4,4',5-PeCB (^{13}C-PCB #126)	3,3',4,4',5,5'-HxCB (^{13}C-PCB #169)
28493	ESU 1207 BAEA	Eagle Blood, 3.21g	53-6	46	46	48	47
28494-A	ESU 1223 BAEA	Eagle Blood, 3.06g-Replicate A	53-8	50	58	73	74
28494-B	ESU 1223 BAEA	Eagle Blood, 3.11g-Replicate B	53-9	75	75	81	80
28495	ESU 1224 BAEA	Eagle Blood, 3.18g	53-10	49	58	72	82
	Quality Control Samples:						
MB012103		Bovine Serum Matrix Blank 1/21/03 3.2g	53-4	68	69	71	71
MS012103-PCB		Bovine Serum Matrix Spike-PCB 1/21/03 3.19g (Spiked 1 μg total PCBs)	53-5	77	86	94	92

Table 7. Non-*o*- PCBs (pg/g) in Bald Eagle Eggs Collected along the Hudson River, NY

19-Mar-03
N53-Addons-w-all quant..xls

GC/MS Sets: N53PCB
Dates: March 14-16, 2003

NFCR Number:	Field Number:	Sample Description:	GC/MS Run No.	Non-o-Polychlorinated Biphenyls Tetra: 3,4,4',5-TCB (81)		3,3',4,4'-TCB (77)		Penta: 3,3',4,4',5-PeCB (126)		Hexa: 3,3',4,4',5,5'-HxCB (169)	
28496	ESU 1199 BAEA Egg	Bald Eagle Egg, 10.21g	53-14	220		1,600		1,070		120	
28497	ESU 1200 BAEA Egg	Bald Eagle Egg, 10.25g	53-16	370		2,800		1,930		320	
28498	ESU 1201 BAEA Egg	Bald Eagle Egg, 10.20g	53-17	300		2,100		1,640		230	
28499-A	ESU 1202 BAEA Egg	Bald Eagle Egg, 10.29g-Replicate A	53-18	1,920		4,550		3,320		295	
		Lipid-Normalized, reported as pg/g lipid		**35,700**		**84,600**		**61,700**		**5,490**	
28499-B	ESU 1202 BAEA Egg	Bald Eagle Egg, 10.28g-Replicate B	53-20	2,350		5,650		4,070		354	
		Lipid-Normalized, reported as pg/g lipid		**35,000**		**84,200**		**60,700**		**5,280**	
28499-C	ESU 1202 BAEA Egg	Bald Eagle Egg, 10.28g-Replicate C	53-21	1,480		3,710		2,940		265	
		Lipid-Normalized, reported as pg/g lipid		**29,800**		**74,800**		**59,300**		**5,340**	
28500	ESU 1206 BAEA Egg	Bald Eagle Egg, 10.28g	53-22	240		1,700		920		160	
	Quality Control Samples:										
MB011303		Chicken Egg Matrix Blank 1/13/03 10.22g	53-12	0.6 LQ		5.2		0.9		0.5 ND	
MS011303		Chicken Egg Matrix Spike 1/13/03 10.45g (Spiked 20 μg total PCBs)	53-13	160		2,800		60		1.4 LQ	
		Report spike results as parts per million in Aroclors: *(pg congener/μg total PCBs)*		84		1,460		31		0.7 LQ	
		Historical Mean of each congener/(pg/ug Aroclor): *(or in parts per million in Aroclors)* *(n=40, last 40 PCB-spiked QC samples-all matrices)*	*Mean:* *SD, %RSD*	*73* *18*	*25*	*1,253* *229*	*18*	*48* *23*	*47*	*(< 7)*	

LQ Less than Method Quantification Limit due to Incomplete Ion Cluster or Inaccurate Ion Ratio (Outside +/- 15% Tolerances)
ND Not Detected at Specified Detection Limit

Table 8 Percent Recoveries of ^{13}C-Non-*o*-PCBs in Bald Eagle Eggs Collected along the Hudson River, NY

19-Mar-03
N53-Addons-w-all quant..xls

GC/MS Sets: N53PCB
Dates: March 14-16, 2003

NFCR Number:	Submitter Number:	Sample Description:	GC/MS Run No.	^{13}C-Non-*o*-Polychlorinated Biphenyls			
				Tetra:		Penta:	Hexa:
				3,4,4',5-TCB (^{13}C-PCB #81)	3,3',4,4'-TCB (^{13}C-PCB #77)	3,3',4,4',5-PeCB (^{13}C-PCB #126)	3,3',4,4',5,5'-HxCB (^{13}C-PCB #169)
28496	ESU 1199 BAEA Egg	Bald Eagle Egg, 10.21g	53-14	72	74	75	72
28497	ESU 1200 BAEA Egg	Bald Eagle Egg, 10.25g	53-16	71	74	74	71
28498	ESU 1201 BAEA Egg	Bald Eagle Egg, 10.20g	53-17	71	75	76	74
28499-A	ESU 1202 BAEA Egg	Bald Eagle Egg, 10.29g-Replicate A	53-18	75	78	79	74
28499-B	ESU 1202 BAEA Egg	Bald Eagle Egg, 10.28g-Replicate B	53-20	73	76	77	72
28499-C	ESU 1202 BAEA Egg	Bald Eagle Egg, 10.28g-Replicate C	53-21	87	88	83	75
28500	ESU 1206 BAEA Egg	Bald Eagle Egg, 10.28g	53-22	73	77	81	80
	Quality Control Samples:						
MB011303		Chicken Egg Matrix Blank 1/13/03 10.22g	53-12	81	83	78	81
MS011303		Chicken Egg Matrix Spike 1/13/03 10.45g (Spiked 20 μg total PCBs)	53-13	75	80	74	76

Table 9. PCB TEQs for Eagle Bloods and Eggs Collected Along the Hudson River, NY

Sample ID	Field ID	Sum mPCB	Non-*ortho* congeners 77	81	126	169	Sum nPCB	Total PCB Avian TEQs*
28493	ESU #1207 BAEA Whole Blood	0.40	4.3	1.0	1.7	0.002	7.0	7.4
28494-1	ESU #1223 BAEA Whole Blood	1.4	4.8	1.4	3.4	0.006	9.7	11
28494-2	ESU #1223 BAEA Whole Blood	1.5	5.0	1.4	3.7	0.006	10	12
28495	ESU #1224 BAEA Whole Blood	0.70	6.5	1.3	2.0	0.002	10	11
28496	ESU #1199 BAEA EGG	20	80	22	110	0.12	210	230
28497	ESU#1200 BAEA EGG	30	140	37	190	0.32	370	400
28498	ESU#1201 BAEA EGG	27	110	30	160	0.23	300	330
28499-1	ESU#1202 BAEA-REP1 EGG	77	230	190	330	0.30	750	830
28499-2	ESU#1202 BAEA-REP2 EGG	88	280	240	410	0.35	920	1,000
28499-3	ESU#1202 BAEA-REP3 EGG	70	190	150	290	0.27	630	700
28500	ESU#1206 BAEA EGG	18	85	24	92	0.16	200	220

values rouded to 2 significant figures.

*based on TEFs from reference 17.

mPCB = mono-*ortho* PCBs, nPCB= non-*ortho* PCBs

U.S. DEPARTMENT OF THE INTERIOR
MARCH 3, 1849

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