

# **POLYCHLORINATED BIPHENYLS AND ORGANOCHLORINE PESTICIDES IN BALD EAGLES AND FISH FROM THE HUDSON RIVER, NEW YORK, SAMPLED 1999-2001**

**USGS REPORT CERC-8335-FY03-31-02  
DATED FEBRUARY 11, 2003**

**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. DEPARTMENT OF THE INTERIOR

**FINAL**

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**AUGUST 1, 2011**

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1305 East-West Highway, Rm 10219  
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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.

The Trustees began monitoring Hudson River bald eagle nests in the 1990s for reproductive success. As part of those studies the Trustees collected samples from bald eagles for contaminants analysis; samples of the eagles' prey have also been collected for contaminants analysis.

This report addresses bald eagle egg and carcass samples, and bald eagle prey 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 the following ten samples which were analyzed for total PCBs and selected congeners, organochlorine pesticides, and non-ortho substituted PCB congeners:

- 2 fish tissue samples from the Hudson River;
- 8 bald eagle egg samples, including one from the Hudson River from Rogers Island (Columbia County) and from the Hudson River from Castleton Island; and
- 1 bald eagle nestling carcass sample.

Within this complete set of samples, total PCB concentration in the bald eagle egg samples ranged from 4,500 parts per billion (ppb) to 49,000 ppb. The total PCB concentration in the bald eagle nestling carcass was 128,000 ppb. Note that these units are not fresh wet weight. Total PCB concentration in the fish samples were 620 ppb and 9,433 ppb.



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**February 11, 2003**

**Polychlorinated Biphenyls and Organochlorine Pesticides in  
Bald Eagle Eggs and Fish from the Hudson River, New York,  
Sampled 1999-2001**

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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 PCBs (polychlorinated biphenyls) 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. 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. In 1993, it was discovered that one of the facilities was continuing to discharge PCBs into the river.

Contamination of water, sediments, and fish found in 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.

This report concerns the following samples:

- 8 bald eagle eggs
- 2 fish tissues
- 1 bald eagle nestling carcass

The bald eagle eggs and eagle carcass were analyzed for:

- PCB congeners (cPCBs)
- Non-*ortho* PCB congeners (nPCBs)
- Organochlorine pesticides (OCPs).

The fish samples were analyzed for:

- Organochlorine pesticides (OCPs),
- Total PCBs (as a sum of congeners from a single capillary column).

## **II. Summary of Analytical Methods**

### **1. Sample Preparation**

Samples were collected by Peter Nye, NYDEC (New York State Department of Environmental Conservation), and were received under chain of custody procedures at Columbia Environmental Research Center (CERC) on October 3, 2001. Samples were assigned a CERC database number and are cross-referenced to their associated field ID. Eagle eggs, fish tissues and one eagle carcass were analyzed for OCP and PCB residues according to the procedures outlined in Figures 1 and 2. Triplicates of an eagle egg and a fish sample were analyzed to determine method reproducibility. The following quality control samples were incorporated into the various analyses:

- 2 procedural blanks
- 1 bluegill matrix blank and 1 chicken egg matrix blank
- 2 bluegill matrix spikes (PCBs and OCPs)
- 2 chicken egg matrix spikes (PCBs and OCPs)
- 2 positive control Saginaw Bay carp

The matrix QC samples (blanks and spikes) prepared from clean bluegill or clean chicken eggs were analyzed with each set of samples. Positive control samples were prepared from CERC's standard positive control matrix (common carp tissue from Saginaw Bay, MI). At least one of each category of QC sample (procedural blank, matrix blank, matrix spike, and positive control) was analyzed with each set of samples.

Method recovery compounds were added to all samples and QC samples before extraction. The following compounds were added to samples undergoing PCB and non-*ortho* PCB congener analysis:

- 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 <sup>13</sup>C-labeled non-*ortho* PCB congeners.

The following method recovery compounds were added to samples undergoing OC analysis:

- 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)
- tetra-chloro-*meta*-xylene (TCMX).

PCB and non-*ortho* PCB matrix spikes:

- PCBs (mixed Aroclors 1242, 1248, 1254, 1260)
- Native (<sup>12</sup>C) non-*ortho* PCB congeners.

OC pesticide matrix spikes:

Organochlorine pesticides (29 compounds)  
PCBs (mixed Aroclors 1242, 1248, 1254, 1260).

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 (1). 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 (2). All extracts were further purified by high performance size exclusion chromatography (HPSEC) (3) and then fractioned on high performance porous graphitic carbon (PGC) (4) 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 (5) followed by HPSEC (3). 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). In the SODS-1 fraction total PCBs were analyzed in fish samples using a single capillary column method sum of the individual congeners analyzed.

**Figure 1. Analysis for Congener-specific PCB and non-o-PCB congeners**

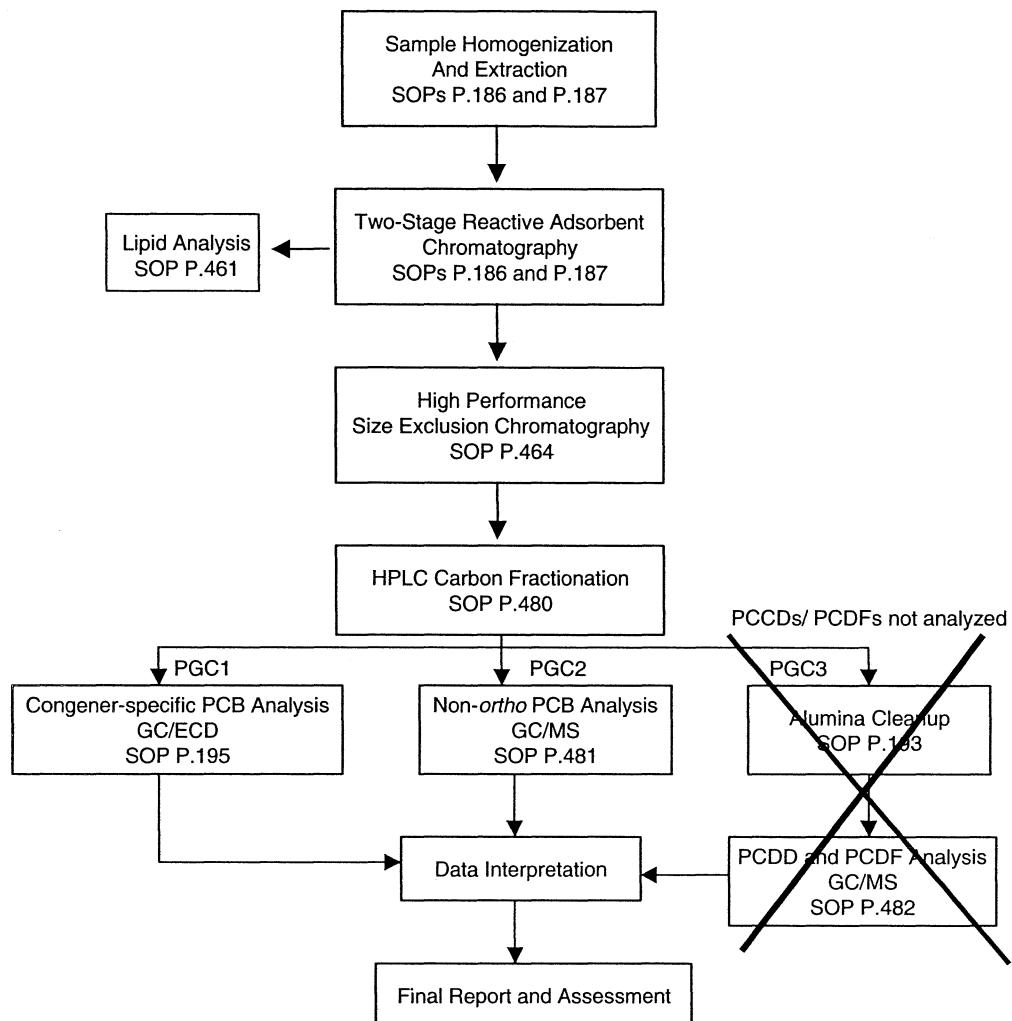
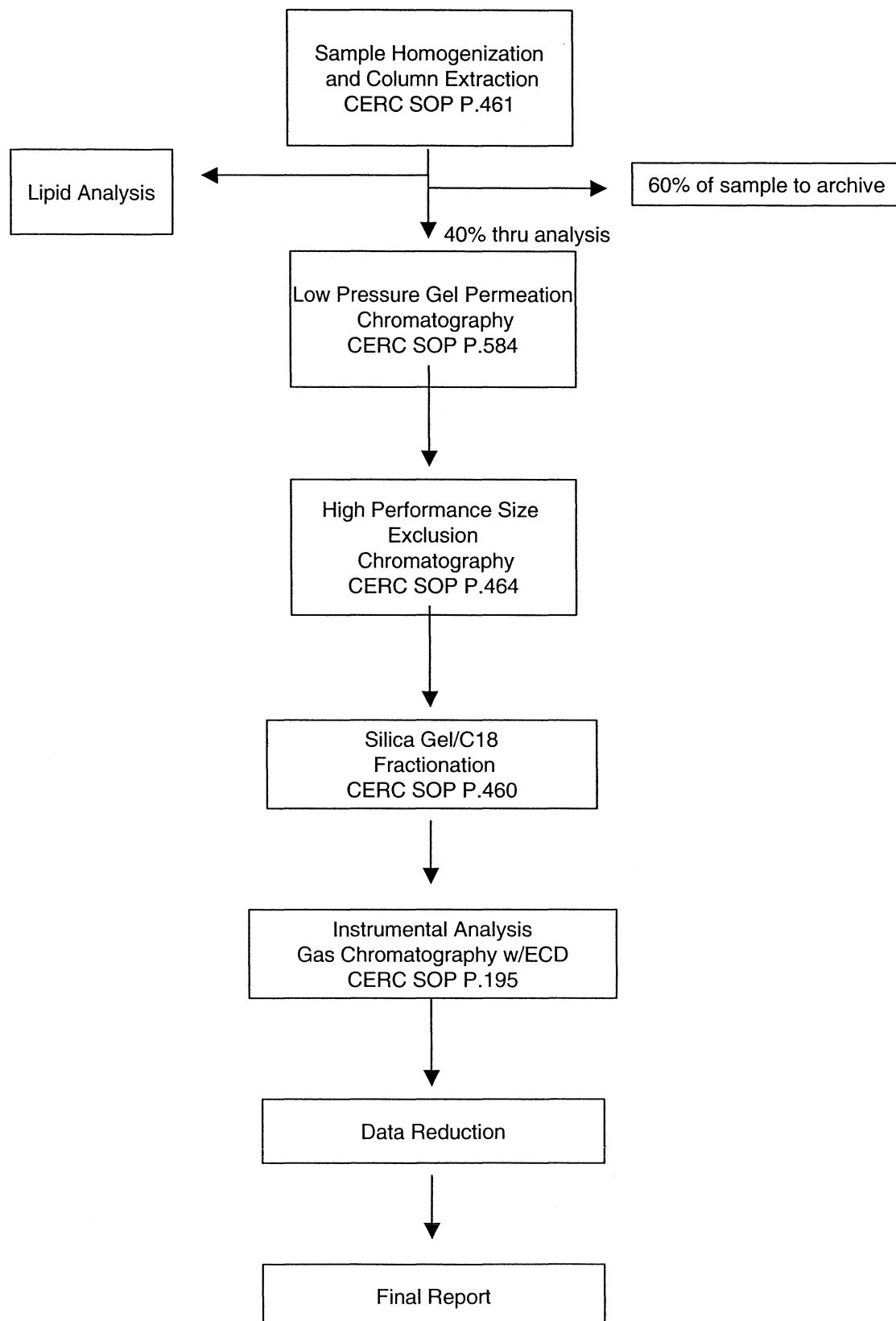


Figure 2. Analytical Scheme for Determination of Organochlorine Pesticides and Total PCBs



## **2. Summary of gas chromatographic method for congener-specific PCBs**

The sample extracts were adjusted to a final volume of 10 mL. Two instrumental internal standards were used: PCB congeners 030 and 207 (400 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 (7). 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 columns were a 60-m x 0.25-mm DB-5 (0.25 $\mu$ m 5% phenyl-, 95% methylsilicone, Agilent, Palo Alto, CA) and a 60-m x 0.25-mm DB-17 (0.25 $\mu$ m 50% phenyl-, 50% methylsilicone, Agilent, Palo Alto, CA). The H<sub>2</sub>-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 method is a non-confirmatory one where the best match from one column or the other is taken for the identification of a PCB. However, several peaks were confirmed by analysis on both columns. 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). 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 50 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.* (9,10). Briefly, a mean ( $\bar{x}_{PB}$ ) and standard deviation (SD) are determined using PB results from the past year or more for a better statistical sample (n>10) (11). This produces a long-term MDL (ng) calculated using the following formula:

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

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  $\bar{x}_{PB}$ .

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

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

PCB 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) Procedural recovery standards spiked into each sample,
- (2) PCB-spiked control egg or bluegill tissue analyzed with each set.

Three procedural standard standards are used to account for analytical recoveries of the PCBs: PCB 029, a trichlorobiphenyl, is representative of more volatile early eluting PCBs ( $\text{Cl}_1$  -  $\text{Cl}_3$ ); PCB 155, a hexachlorobiphenyl, is representative of mid-range eluting congeners ( $\text{Cl}_4$  -  $\text{Cl}_6$ ); and PCB 204, an octachlorobiphenyl, is less volatile and representative of later eluting PCBs ( $\text{Cl}_7$  -  $\text{Cl}_{10}$ ).

### **3. Summary of gas chromatographic method for OC pesticides**

Organochlorine pesticide fractions (PGC 1 and SODS-2) were adjusted to a final volume of 4 mL and the instrumental internal standards (IIS) were added (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 (12). 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 columns by a "Press-Tight" (Restek Corp., Inc.) union. The analytical columns were a 60-m x 0.25-mm DB-5 (0.25 $\mu\text{m}$  5% phenyl-, 95% methylsilicone, Agilent, Palo Alto, CA) and a 60-m x 0.25-mm DB-17 (0.25 $\mu\text{m}$  50% phenyl-, 50% methylsilicone, Agilent, Palo Alto, CA). The H<sub>2</sub>-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.

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). Six levels of OC pesticide standards were used for calibration, with each pesticide at concentrations ranging from 0.5 to 80 ng/mL. Organochlorine pesticide results are presented in tables and are 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). Detection limits and quantitation limits were calculated as discussed above for each of the PCB congeners.

Total PCBs in OC only samples (fish) were determined as a sum of congeners from one of the two capillary columns (DB-17) using the standards discussed in the PCB method section.

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

The non-*ortho*-PCB fraction (PGC-2) contained 5 ng of instrumental internal standard ( $^{13}\text{C}$ -labeled 2,2',4,5,5'-PeCB (PCB #101). At a final volume of 50  $\mu\text{L}$ , the non-*ortho*-PCBs were determined by GC/HRMS, monitoring two sequential mass windows during the chromatographic separation (13,14). 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  $\mu\text{L}$  of the extract onto a 2.5 m x 320  $\mu\text{m}$  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  $\mu\text{m}$  x 0.11  $\mu\text{m}$  Ultra-1 (100% methyl silicone) 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<sub>4</sub>-biphenyls #77 and 81 and Cl<sub>5</sub>-biphenyl #126; Group 2 from 47-64 min included ions for Cl<sub>6</sub>-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, potentially interfering PCB congeners, Cl<sub>4-8</sub> naphthalenes (PCNs), Cl<sub>3-5</sub> terphenyls (PCTs), Br<sub>5</sub>- and Cl<sub>6</sub>-diphenyl ethers (residual carryover from PGC-1), and Cl<sub>4</sub>-PCDF (to ensure no breakthrough of PCDFs).

A calibration curve describing the response of each native congener (0.25 to 2,500 pg/ $\mu\text{L}$ ) to that of its  $^{13}\text{C}$ -labeled surrogate was used. Quantification is inherently corrected by the  $^{13}\text{C}$ -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<sub>5</sub>-PCB 126 is only minimally resolved from Cl<sub>6</sub>-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<sub>4-8</sub> PCNs.

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 <sup>13</sup>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 (generally  $\pm 15\%$ ).

### **III. Results and Discussion**

#### **1. Congener-specific PCBs in Eagle Eggs**

The PCB congener data for eagle eggs and the associated QC are presented in Table 1. Concentration results of 139 PCB congeners (ng/g) plus the sum (Total PCBs) are presented in Table 1 and recovery data are presented in Table 2. PCB totals ranged from 4,500 ng/g for the East Salamanca egg to 49,000 ng/g for the Roger's Island site egg. The eagle carcass analyzed with these eggs had a concentration of 128,000 ng/g total PCBs. However, this sample was of extremely poor quality and was essentially completely devoid of moisture, so is not comparable with the wet weight concentrations.

The QC consisted of a procedure blank, a matrix blank, a matrix spike and method triplicates of one eagle egg from each site. The method replicates averaged 11% RSD.

The matrix blank's low background of PCBs was insignificant when compared with samples. Matrix spike recoveries for a majority of the congeners and total PCBs were in the acceptable QC range (50-120%). Detection limits for total PCBs were 22 ng/g and congeners at the detection limit may have high or low recoveries. Quantitation limits for congeners and total PCBs (54 ng/g) are also presented in Table 1.

#### **2. Organochlorine Pesticides in Eagle Eggs and Fish**

##### **Eagle Eggs:**

The results for analysis of the eagle 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 procedural recovery standards (PRS). Matrix blank, procedural blank and MDL/MQL calculations were within acceptable QC limits except as noted below (Table 3). Recoveries in the matrix spike were below 50% for d-HCH (26%), dacthal (0%), and endrin (39%), however concentrations of d-HCH were below detection for all samples. Dacthal values in samples are not reported in Table 3 due to the very poor matrix spike recovery. Endrin values are considered suspect and labeled as such in Table 3.

In the eagle eggs, concentrations of p,p'-DDE were the highest of the pesticides, ranging from 510 ng/g – 9,300 ng/g. Levels of p,p'-DDD (84 – 1,100 ng/g) were the next highest, followed by the chlordanes and dieldrin.

##### **Fish:**

The organochlorine pesticides results for fish from Hudson River, NY are presented in Table 5, with the recovery data presented in Table 6. Matrix blank, procedural blank and MDL calculations were within acceptable QC limits except as noted below (Table 5). Recoveries of dacthal (<1%) and endrin (49%) were below 50% affecting the endrin results. Dacthal is not reported, as it was lost in the matrix spike.

Concentrations of p,p'-DDE were the highest of any of the pesticides targeted for analysis, ranging from 79 ng/g to 280 ng/g in the fish samples and were 16,000 ng/g for

the eagle carcass (as mentioned before the eagle was dehydrated when sampled). Concentrations of p,p'-DDD were the next highest ranging from 15 ng/g to 200 ng/g. Most of the other pesticides were less than detection limit or under 10 ng/g. Other prevalent OC pesticides in fish were dieldrin, the chlordanes, pentachloroanisole (PCA) and hexachlorobenzene (HCB).

### **3. Non-*ortho*-PCB Congeners in Eagle Eggs**

The concentrations (pg/g) of non-*ortho*-PCBs (81, 77, 126, and 169) found in the eagle eggs are presented in Table 7. Note that the units are picograms of analyte per gram of sample (pg/g wet weight). In the majority of these samples, PCB 77 was present at the highest concentration, followed by PCB 126 and PCB 169. Quality control was within guidelines, such as ion ratios for analytes, which were within the expected QC tolerance ( $\pm 15\%$ ). Surrogate recoveries, listed in Table 8, were from 52 to 110%. Concentrations of PCBs 77 and 126 in the matrix spike and of PCBs 81 and 77 in the positive control carp were comparable to the historic averages. Concentrations of each non-*ortho*-PCB in the procedural blank were all low (less than 6 pg/g, on a 10-g sample basis) and all are less than 10 pg/g in the chicken egg matrix blank. Quality control was within our guidelines, except where noted below. The triplicates showed percent coefficients of variation ranging from 11 to 34%.

Dioxin toxic equivalency factors (TEFs) for birds were used to evaluate the toxic equivalents (TEQs) of the mono-*o*- and non-*o*-PCBs in the eagle eggs (15). These PCB TEQs are tabulated in Table 9. Ninety percent of the PCB related TEQs are from the non-*o*-PCBs with PCB 126 contributing 40-60% of the PCB TEQs.

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# Polychlorinated Biphenyls and Organochlorine Pesticides in Bald Eagle Eggs and Fish from the Hudson River

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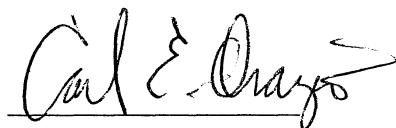
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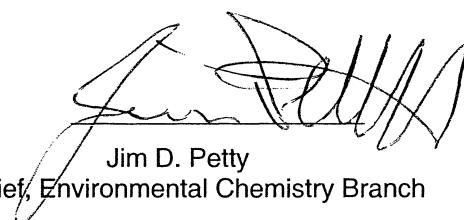
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**Table 1. PCB Congeners (ng/g wet wt.) in Eagle Eggs Collected Along the Hudson River, NY**

Sample	Field	Site	Sample	Grams	%	001	003	004	005	006	007	008
ID	ID		Type	Analyzed (g)	Lipid							
24129	BE-EG-1077-00	Rondout Nest, NY	Bald Eagle Egg	10	6.0	< 0.77	< 1.2	< 1.7	< 0.05	< 0.04	< 0.07	0.11
24130	BE-EG-1146-01	Portlandville Nest, NY	Bald Eagle Egg	10	7.3	7.0	< 1.2	29	< 0.05	2.2	0.12	7.3
24131	BE-EG-1144-01	Cato Nest, NY	Bald Eagle Egg	10	7.4	< 0.77	< 1.2	4.0	< 0.05	0.70	< 0.07	0.96
24132	BE-EG-1153-01	Roger's Island, NY	Bald Eagle Egg	10	6.7	35	< 1.2	170	0.08	9.2	0.32	31
24133 Average	BE-EG-1142-01	Rio, NY	Bald Eagle Egg	10	3.8	< 0.77	< 1.2	< 1.7	< 0.05	< 0.04	< 0.07	0.68
24134	BE-EG-1076A-00	Rondout Dam, NY	Bald Eagle Egg	10	5.9	< 0.77	< 1.2	< 1.7	< 0.05	< 0.04	< 0.07	0.08
24135	BE-EG-1134-01	East Salamanca, NY	Bald Eagle Egg	10	4.4	< 0.77	< 1.2	< 1.7	< 0.05	0.06	< 0.07	0.10
24084	BE-NE-1143-01	Castleton Island, NY	Eagle Carcass	9.1	7.4	7.5	< 1.2	63	< 0.05	8.1	0.38	39
24133A	BE-EG-1142-01	Rio, NY	Bald Eagle Egg	10	3.9	< 0.77	< 1.2	< 1.7	< 0.05	< 0.04	< 0.07	0.70
24133B	BE-EG-1142-01	Rio, NY	Bald Eagle Egg	10	3.5	< 0.77	< 1.2	< 1.7	< 0.05	< 0.04	< 0.07	0.61
24133C	BE-EG-1142-01	Rio, NY	Bald Eagle Egg	10	4.0	< 0.77	< 1.2	< 1.7	< 0.05	< 0.04	< 0.07	0.73
Average					3.8	< 0.77	< 1.2	< 1.7	< 0.05	< 0.04	< 0.07	0.68
Standard Deviation (n=1)					0.3							0.06
%RSD					6.9							9.2
PC 050202	Positive Control	---	Saginaw Carp	5.16	15	< 0.77	< 1.2	3.1	0.07	4.6	0.14	5.5
Postive Control Baseline	(n = 13)				13	1.1	1.2	4.9	0.06	4.4	0.14	4.2
MS 050202	Matrix Spike PCBs	---	Chicken Egg	10.12	10	29	9.6	120	6.0	63	8.9	280
Percent Recovery <sup>b</sup>						58	64	67	67	68	64	70
MB 05202	Matrix Blank	---	Chicken Egg	10.08	10	0.02	0.00	0.10	0.00	0.00	0.00	0.04
PB 050202	Procedure Blank	---	Na <sub>2</sub> SO <sub>4</sub>	---	---	3.2	0.04	1.2	0.13	0.03	0.02	0.11
Long Term MDL (mass normalized) <sup>a</sup>						0.77	1.2	1.7	0.05	0.04	0.07	0.07
Long Term MQL (mass normalized) <sup>a</sup>						2.3	3.7	4.5	0.16	0.11	0.18	0.19
(units are noted in last column on last page)												
values rounded to 2 significant figures.												
<sup>a</sup> Long Term MDL/MQL from 14 sample sets.												
<sup>b</sup> Note MS recoveries that are starred are due to interference.												

**Table 1. PCB Congeners (ng/g wet wt.) in Eagle Eggs Collected Along the Hudson River, NY**

Sample	Field	009	010	015	016	017	018	019	020	022	024	025	026	
ID	ID													
24129	BE-EG-1077-00	0.15	< 0.01	< 0.03	0.30	< 0.05	0.38	< 0.17	< 0.01	0.50	0.04	0.25	0.44	
24130	BE-EG-1146-01	0.40	7.4	0.06	27	38	18	12	1.5	11	0.52	13	33	
24131	BE-EG-1144-01	0.55	< 0.01	< 0.03	4.1	5.8	6.4	0.44	1.2	6.3	0.31	6.4	11	
24132	BE-EG-1153-01	1.8	37	0.23	91	140	78	72	5.4	55	5.8	46	140	
24133 Average	BE-EG-1142-01	0.34	0.04	0.07	3.7	9.3	1.8	0.20	0.93	2.9	0.09	3.4	9.0	
24134	BE-EG-1076A-00	0.14	< 0.01	< 0.03	0.31	< 0.05	0.31	< 0.17	0.48	0.51	< 0.01	0.33	0.40	
24135	BE-EG-1134-01	0.06	< 0.01	< 0.03	< 0.02	< 0.05	0.28	< 0.17	0.04	0.55	< 0.01	0.18	0.30	
24084	BE-NE-1143-01	2.2	19	0.50	170	200	160	48	7.9	110	8.8	56	210	
24133A	BE-EG-1142-01	0.34	0.04	0.03	4.3	9.6	1.8	< 0.17	2.1	3.1	0.10	3.9	9.3	
24133B	BE-EG-1142-01	0.30	0.04	0.06	3.1	8.5	1.7	0.20	0.31	2.6	0.08	3.0	8.3	
24133C	BE-EG-1142-01	0.37	0.04	0.12	3.8	9.8	1.9	< 0.17	0.39	3.1	0.09	3.4	9.5	
Average		0.34	0.04	0.07	3.7	9.3	1.8	0.20	0.93	2.9	0.09	3.4	9.0	
Standard Deviation (n-1)		0.04	0.00	0.05	0.60	0.70	0.10			1.0	0.29	0.01	0.45	0.64
%RSD		10	0.0	65	16	8	5.6	0.0	108	9.8	11	13	7.1	
PC 050202	Positive Control	1.4	0.14	0.60	21	30	92	4.5	4.8	14	0.78	21	65	
Postive Control Baseline	(n = 13)	0.77	0.15	0.91	17	30	82	4.0	4.7	15	0.55	21	72	
MS 050202	Matrix Spike PCBs	18	4.8	74	210	180	520	42	20	140	5.0	26	71	
Percent Recovery <sup>b</sup>		64	63	62	70	60	74	67	74	70	68	68	72	
MB 05202	Matrix Blank	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.03	0.00	0.13	0.01	
PB 050202	Procedure Blank	0.00	0.01	0.03	0.00	0.00	0.95	0.02	0.00	0.04	0.00	0.13	0.02	
Long Term MDL (mass normalized) <sup>a</sup>		0.03	0.01	0.03	0.02	0.05	0.20	0.17	0.01	0.05	0.01	0.02	0.04	
Long Term MQL (mass normalized) <sup>a</sup>		0.08	0.03	0.08	0.05	0.13	0.54	0.47	0.04	0.14	0.01	0.06	0.10	
(units are noted in last column on last page)														
values rounded to 2 significant figures.														
<sup>a</sup> Long Term MDL/MQL from 14 sample sets.														
<sup>b</sup> Note MS recoveries that are starred are due to interf														

**Table 1. PCB Congeners (ng/g wet wt.) in Eagle Eggs Collected Along the Hudson River, NY**

Sample	Field	027	028	031	032	033	034	035	037,059	040	041	042	043
ID	ID												
24129	BE-EG-1077-00	0.13	9.0	< 0.17	< 0.87	2.0	< 0.17	1.5	0.25	< 0.02	0.15	6.7	0.78
24130	BE-EG-1146-01	4.5	89	100	35	15	1.1	10	11	32	3.9	53	1.9
24131	BE-EG-1144-01	0.77	54	30	5.2	7.3	0.69	8.8	8.3	10	1.7	31	1.6
24132	BE-EG-1153-01	42	670	580	230	23	7.2	12	33	54	13	340	18
24133 Average	BE-EG-1142-01	0.25	34	31	8.7	8.5	0.30	3.4	6.2	5.5	1.2	20	0.75
24134	BE-EG-1076A-00	0.08	7.8	3.4	< 0.87	2.2	< 0.17	1.8	0.26	6.7	0.18	6.1	0.85
24135	BE-EG-1134-01	0.01	4.2	1.9	< 0.87	1.0	< 0.17	1.2	1.4	1.4	0.15	2.6	0.58
24084	BE-NE-1143-01	52	1,500	1,200	400	38	21	17	67	120	22	790	190
24133A	BE-EG-1142-01	0.28	35	33	9.0	8.7	0.31	3.9	6.4	5.7	1.3	20	0.62
24133B	BE-EG-1142-01	0.21	30	28	8.1	7.7	0.27	2.7	5.3	4.6	1.1	19	0.68
24133C	BE-EG-1142-01	0.26	36	33	9.1	9.2	0.32	3.5	6.8	6.2	1.3	20	0.94
Average		0.25	34	31	8.7	8.5	0.30	3.4	6.2	5.5	1.2	20	0.75
Standard Deviation (n-1)		0.04	3.2	2.9	0.55	0.76	0.03	0.61	0.78	0.82	0.12	0.58	0.17
%RSD		14	9.5	9.2	6.3	9.0	8.8	18	13	15	9.4	2.9	23
PC 050202	Positive Control	7.4	89	72	31	13	1.6	5.1	13	39	6.1	94	12
Positive Control Baseline	(n = 13)	7.3	90	68	31	9.8	1.8	3.8	18	38	5.8	99	10
MS 050202	Matrix Spike PCBs	22	370	420	120	290	1.4	3.2	25	84	58	120	13
Percent Recovery <sup>b</sup>		73	71	78	71	74	74	84	58	76	76	75	36
MB 05202	Matrix Blank	0.00	0.11	0.11	0.21	0.10	0.00	0.01	0.00	0.02	0.01	0.04	0.01
PB 050202	Procedure Blank	0.00	0.21	0.29	1.3	0.23	0.00	0.00	0.00	0.05	0.00	0.08	0.00
Long Term MDL (mass normalized) <sup>a</sup>		0.01	0.39	0.17	0.87	0.07	0.17	0.01	0.04	0.02	0.01	0.08	0.04
Long Term MQL (mass normalized) <sup>a</sup>		0.01	1.1	0.49	2.5	0.18	0.52	0.04	0.12	0.05	0.04	0.22	0.12
(units are noted in last column on last page)													
values rounded to 2 significant figures.													
<sup>a</sup> Long Term MDL/MQL from 14 sample sets.													
<sup>b</sup> Note MS recoveries that are starred are due to interf													

**Table 1. PCB Congeners (ng/g wet wt.) in Eagle Eggs Collected Along the Hudson River, NY**

Sample	Field	044	045	046	047	048	049	051	052	053	054	055	056,060
ID	ID												
24129	BE-EG-1077-00	2.8	1.0	0.08	21	< 2.2	19	1.3	10	0.08	< 0.04	< 0.01	9.3
24130	BE-EG-1146-01	53	15	2.4	230	8.1	340	13	130	5.9	0.17	0.50	51
24131	BE-EG-1144-01	33	7.8	1.1	54	4.0	98	3.8	79	0.74	0.06	0.38	38
24132	BE-EG-1153-01	410	73	8.8	1,600	53	2,100	44	1,200	37	0.80	0.77	240
24133 Average	BE-EG-1142-01	24	5.8	0.25	46	2.3	73	4.6	48	0.53	0.10	0.12	14
24134	BE-EG-1076A-00	2.5	0.81	0.08	20	< 2.2	19	1.0	9.9	0.11	< 0.04	< 0.01	10
24135	BE-EG-1134-01	2.4	0.55	0.08	4.9	< 2.2	10	0.48	7.0	0.07	< 0.04	0.03	4.9
24084	BE-NE-1143-01	970	110	6.4	3,900	150	4,900	75	3,000	98	0.48	0.90	750
24133A	BE-EG-1142-01	25	5.8	0.28	45	< 2.2	76	4.3	49	0.53	0.15	0.12	15
24133B	BE-EG-1142-01	22	5.7	0.22	43	2.3	67	4.5	44	0.48	0.07	0.10	13
24133C	BE-EG-1142-01	25	6.0	0.25	49	2.3	76	4.9	50	0.58	0.09	0.13	15
Average		24	5.8	0.25	46	2.3	73	4.6	48	0.53	0.10	0.12	14
Standard Deviation (n-1)		1.7	0.15	0.03	3.1	0.00	5.2	0.31	3.2	0.05	0.04	0.02	1.2
%RSD		7.2	2.6	12	6.7	0.0	7.1	6.7	6.7	9.4	40	13	8.1
PC 050202	Positive Control	240	27	8.9	130	41	330	9.5	360	30	0.09	0.17	100
Positive Control Baseline	(n = 13)	250	24	8.4	140	35	350	9.8	380	29	0.67	0.22	110
MS 050202	Matrix Spike PCBs	450	97	41	89	130	340	20	610	96	0.64	5.4	250
Percent Recovery <sup>b</sup>		78	75	73	81	81	77	74	74	74	58	76	74
MB 05202	Matrix Blank	0.15	0.02	0.00	0.03	0.75	0.12	0.01	0.27	0.02	0.01	0.00	0.12
PB 050202	Procedure Blank	0.45	0.01	0.01	0.21	0.14	0.37	0.00	0.78	0.00	0.01	0.02	1.5
Long Term MDL (mass normalized) <sup>a</sup>		0.16	0.02	0.01	0.26	2.2	0.33	0.01	0.38	0.03	0.04	0.01	0.36
Long Term MQL (mass normalized) <sup>a</sup>		0.42	0.05	0.03	0.74	6.3	0.94	0.03	1.0	0.09	0.13	0.01	0.99
(units are noted in last column on last page)													
values rounded to 2 significant figures.													
<sup>a</sup> Long Term MDL/MQL from 14 sample sets.													
<sup>b</sup> Note MS recoveries that are starred are due to interf													

**Table 1. PCB Congeners (ng/g wet wt.) in Eagle Eggs Collected Along the Hudson River, NY**

Sample	Field	057	058	063	064	066	067	069	070	071	072	074	075
ID	ID												
24129	BE-EG-1077-00	65	0.37	8.4	8.6	58	0.30	0.33	18	3.7	1.0	32	< 0.01
24130	BE-EG-1146-01	180	1.6	37	77	200	2.3	2.7	130	29	10	120	9.3
24131	BE-EG-1144-01	120	2.7	25	50	200	1.7	1.1	100	10	6.1	81	6.4
24132	BE-EG-1153-01	99	4.2	180	750	1,100	3.9	12	440	190	79	820	89
24133 Average	BE-EG-1142-01	98	0.54	24	29	63	0.74	1.8	51	13	3.3	37	2.4
24134	BE-EG-1076A-00	74	0.42	11	8.7	53	0.39	0.24	20	4.0	1.7	35	1.3
24135	BE-EG-1134-01	25	0.29	2.5	5.1	19	0.15	0.04	15	1.1	0.50	10	0.43
24084	BE-NE-1143-01	160	7.8	530	1,900	3,200	4.6	30	920	430	200	2,500	230
24133A	BE-EG-1142-01	110	0.54	25	30	65	0.75	1.7	54	13	2.4	39	2.6
24133B	BE-EG-1142-01	86	0.52	22	27	58	0.66	1.7	46	12	4.0	34	2.2
24133C	BE-EG-1142-01	98	0.55	25	30	67	0.82	1.9	54	14	3.5	39	2.5
Average		98	0.54	24	29	63	0.74	1.8	51	13	3.3	37	2.4
Standard Deviation (n-1)		12	0.02	1.7	1.7	4.7	0.08	0.12	4.6	1.0	0.82	2.9	0.21
%RSD		12	2.8	7.2	6.0	7.5	11	6.5	9.0	7.7	25	7.7	8.6
PC 050202	Positive Control	11	6.0	22	140	300	1.9	1.3	120	77	7.7	160	12
Postive Control Baseline	(n = 13)	3.2	2.1	24	110	320	2.0	1.0	120	79	5.8	170	11
MS 050202	Matrix Spike PCBs	< 0.06	0.59	14	210	310	10	0.62	510	120	1.7	180	6.7
Percent Recovery <sup>b</sup>		---	76	78	78	74	74	87	75	80	77	72	68
MB 05202	Matrix Blank	0.00	0.00	0.00	0.06	0.11	0.02	0.02	0.19	0.05	0.00	0.07	0.00
PB 050202	Procedure Blank	0.03	0.01	0.00	0.24	0.51	0.17	0.05	0.64	0.13	0.00	0.32	0.00
Long Term MDL (mass normalized) <sup>a</sup>		0.06	0.02	0.03	0.05	0.46	0.04	0.01	0.45	0.08	0.02	0.34	0.01
Long Term MQL (mass normalized) <sup>a</sup>		0.17	0.07	0.09	0.15	1.3	0.11	0.03	1.2	0.21	0.05	0.98	0.02
(units are noted in last column on last page)													
values rounded to 2 significant figures.													
<sup>a</sup> Long Term MDL/MQL from 14 sample sets.													
<sup>b</sup> Note MS recoveries that are starred are due to interf													

**Table 1. PCB Congeners (ng/g wet wt.) in Eagle Eggs Collected Along the Hudson River, NY**

Sample	Field	082	083	084	086	087	090	091	092	095	096	097	099
ID	ID												
24129	BE-EG-1077-00	5.3	0.96	10	1.6	11	51	13	22	19	0.20	19	120
24130	BE-EG-1146-01	29	7.1	36	0.63	44	140	100	250	170	0.65	120	470
24131	BE-EG-1144-01	31	7.4	36	1.0	42	51	71	380	170	0.53	130	510
24132	BE-EG-1153-01	110	37	180	7.6	420	410	450	810	850	2.4	440	1,700
24133 Average	BE-EG-1142-01	14	3.0	16	0.45	24	120	35	50	72	0.08	47	260
24134	BE-EG-1076A-00	5.9	1.0	10	1.6	11	51	14	23	21	0.26	20	220
24135	BE-EG-1134-01	4.5	0.59	4.8	0.23	17	6.1	8.1	14	17	0.12	15	51
24084	BE-NE-1143-01	290	93	320	20	1,200	1,100	1,100	1,800	1,800	2.6	1,300	4,200
24133A	BE-EG-1142-01	15	3.1	17	0.49	24	120	36	58	74	0.10	49	270
24133B	BE-EG-1142-01	13	2.8	15	0.49	23	110	32	47	66	0.07	43	240
24133C	BE-EG-1142-01	15	3.2	17	0.36	24	120	37	45	75	0.07	49	270
Average		14	3.0	16	0.45	24	120	35	50	72	0.08	47	260
Standard Deviation (n-1)		1.2	0.21	1.2	0.08	0.58	5.8	2.6	7.0	4.9	0.017	3.5	17
%RSD		8.1	6.9	7.1	17	2.4	4.8	7.6	14	6.9	22	7.4	6.7
PC 050202	Positive Control	60	8.8	83	2.1	140	23	64	68	180	2.3	160	220
Postive Control Baseline	(n = 13)	61	16	80	2.2	150	18	67	84	170	1.5	160	250
MS 050202	Matrix Spike PCBs	67	7.8	170	2.4	230	11	74	110	510	5.6	180	190
Percent Recovery <sup>b</sup>		77	78	77	75	77	85	74	79	78	76	78	79
MB 05202	Matrix Blank	0.05	0.01	0.12	0.00	0.20	0.02	0.06	0.11	0.39	0.00	0.14	0.18
PB 050202	Procedure Blank	0.21	0.01	0.49	0.01	0.96	0.00	0.17	0.59	1.5	0.00	0.66	0.84
Long Term MDL (mass normalized) <sup>a</sup>		0.06	0.02	0.14	0.01	0.30	0.04	0.08	0.15	0.33	0.02	0.16	0.25
Long Term MQL (mass normalized) <sup>a</sup>		0.14	0.05	0.32	0.02	0.75	0.10	0.20	0.40	0.78	0.07	0.38	0.64
(units are noted in last column on last page)													
values rounded to 2 significant figures.													
<sup>a</sup> Long Term MDL/MQL from 14 sample sets.													
<sup>b</sup> Note MS recoveries that are starred are due to interf													

**Table 1. PCB Congeners (ng/g wet wt.) in Eagle Eggs Collected Along the Hudson River, NY**

Sample	Field	101	102	105	109	110	112	113	114	115	117	118	119
ID	ID												
24129	BE-EG-1077-00	84	1.8	87	39	41	0.85	20	9.2	4.9	21	430	20
24130	BE-EG-1146-01	500	4.4	160	98	260	2.0	93	27	12	43	730	47
24131	BE-EG-1144-01	640	2.8	260	98	390	1.3	82	40	16	46	1,100	37
24132	BE-EG-1153-01	1,600	61	550	300	1,200	21	83	77	50	280	2,000	190
24133 Average	BE-EG-1142-01	240	1.9	97	57	160	1.9	66	14	5.3	21	460	27
24134	BE-EG-1076A-00	90	1.5	100	45	45	0.8	24	18	5.3	25	500	21
24135	BE-EG-1134-01	70	0.6	35	12	44	0.11	16	3.1	2.6	5.6	220	4.1
24084	BE-NE-1143-01	4,100	75	1,600	690	3,200	53	150	240	140	760	6,000	280
24133A	BE-EG-1142-01	250	1.9	100	62	170	3.0	71	14	5.1	22	500	29
24133B	BE-EG-1142-01	220	1.8	91	53	140	0.81	64	12	5.0	19	420	24
24133C	BE-EG-1142-01	250	1.9	100	57	170	1.9	63	16	5.7	23	470	27
Average		240	1.9	97	57	160	1.9	66	14	5.3	21	460	27
Standard Deviation (n=1)		17	0.06	5.2	4.5	17	1.1	4.4	2.0	0.38	2.1	40	2.5
%RSD		7.2	3.1	5.4	7.9	11	58	6.6	14	7.2	9.8	8.8	9.4
PC 050202	Positive Control	290	6.6	130	45	280	3.5	22	16	15	28	350	20
Positive Control Baseline	(n = 13)	320	8.8	120	42	270	3.4	16	15	16	23	340	20
MS 050202	Matrix Spike PCBs	520	26	150	37	470	1.2	1.8	13	15	18	350	10
Percent Recovery <sup>b</sup>		80	186*	75	97	76	60	82	68	94	75	74	108
MB 05202	Matrix Blank	0.48	0.00	0.16	0.02	0.41	0.00	0.02	0.00	0.00	0.01	0.34	0.00
PB 050202	Procedure Blank	2.0	0.06	6.1	0.04	2.0	0.00	0.09	0.00	0.01	0.08	2.1	0.00
Long Term MDL (mass normalized) <sup>a</sup>		0.55	0.01	0.86	0.06	0.50	0.07	0.02	0.02	0.02	0.03	0.74	0.03
Long Term MQL (mass normalized) <sup>a</sup>		1.3	0.03	2.4	0.15	1.1	0.23	0.07	0.07	0.05	0.09	1.8	0.07
(units are noted in last column on last page)													
values rounded to 2 significant figures.													
<sup>a</sup> Long Term MDL/MQL from 14 sample sets.													
<sup>b</sup> Note MS recoveries that are starred are due to interf													

**Table 1. PCB Congeners (ng/g wet wt.) in Eagle Eggs Collected Along the Hudson River, NY**

Sample	Field	122	123	128	129	130	131	132	133	134	136	137	138	
ID	ID													
24129	BE-EG-1077-00	< 0.04	7.7	120	7.7	37	1.7	18	26	3.6	13	32	790	
24130	BE-EG-1146-01	0.40	8.0	200	24	81	12	160	54	17	32	55	1,300	
24131	BE-EG-1144-01	0.28	18	280	33	110	12	200	49	16	34	88	1,700	
24132	BE-EG-1153-01	0.53	37	440	55	180	16	360	160	52	140	140	2,300	
24133 Average	BE-EG-1142-01	0.05	6.0	130	13	50	3.5	55	37	13	24	36	840	
24134	BE-EG-1076A-00	< 0.04	9.0	140	8.4	51	1.7	17	33	4.1	13	38	940	
24135	BE-EG-1134-01	0.04	2.5	41	5.6	11	1.5	27	7.2	3.5	8.7	13	300	
24084	BE-NE-1143-01	0.82	130	1,200	170	490	40	800	390	110	200	400	5,900	
24133A	BE-EG-1142-01	0.05	5.5	140	14	51	3.4	45	39	16	25	38	870	
24133B	BE-EG-1142-01	0.05	5.0	120	12	46	3.2	57	33	10	22	33	770	
24133C	BE-EG-1142-01	0.06	7.6	140	14	53	3.8	62	40	14	26	38	870	
Average		0.05	6.0	130	13	50	3.5	55	37	13	24	36	840	
Standard Deviation (n-1)		0.01	1.4	12	1.2	3.6	0.31	8.7	3.8	3.1	2.1	2.9	58	
%RSD		12	23	8.9	8.7	7.2	8.7	16	10	23	8.6	8.0	6.9	
PC 050202	Positive Control	2.3	8.3	45	12	18	3.0	31	4.5	11	31	16	180	
Postive Control Baseline	(n = 13)	2.3	7.9	44	11	18	3.3	36	4.3	12	17	16	180	
MS 050202	Matrix Spike PCBs	4.5	5.3	85	27	29	10	210	7.6	39	120	24	440	
Percent Recovery <sup>b</sup>		75	58	77	75	76	76	75	78	76	80	77	79	
MB 05202	Matrix Blank	0.00	0.00	0.06	0.03	0.06	0.00	0.26	0.00	0.02	0.07	0.02	0.39	
PB 050202	Procedure Blank	0.01	0.02	0.31	0.11	0.36	0.01	2.4	0.01	0.11	0.28	0.04	2.1	
Long Term MDL (mass normalized) <sup>a</sup>		0.04	0.01	0.13	0.08	0.06	0.01	0.61	0.03	0.03	0.07	0.11	1.2	
Long Term MQL (mass normalized) <sup>a</sup>		0.11	0.02	0.34	0.22	0.16	0.02	1.6	0.07	0.08	0.19	0.31	3.2	
<i>(units are noted in last column on last page)</i>														
<i>values rounded to 2 significant figures.</i>														
<sup>a</sup> Long Term MDL/MQL from 14 sample sets.														
<sup>b</sup> Note MS recoveries that are starred are due to interf														

**Table 1. PCB Congeners (ng/g wet wt.) in Eagle Eggs Collected Along the Hudson River, NY**

Sample	Field	139	141	144	146	147	149	151	153	156	157	158	163
ID	ID												
24129	BE-EG-1077-00	11	71	18	230	3.9	150	54	1,600	93	9.3	83	210
24130	BE-EG-1146-01	20	220	56	420	12	880	240	2,500	110	20	140	390
24131	BE-EG-1144-01	31	250	65	440	10	750	200	3,000	170	26	200	530
24132	BE-EG-1153-01	54	360	85	790	39	1,600	390	4,000	230	41	300	900
<b>24133 Average</b>	BE-EG-1142-01	12	120	26	260	9.6	520	83	1,600	88	15	100	240
24134	BE-EG-1076A-00	13	100	19	280	4.0	290	59	1,900	100	17	100	290
24135	BE-EG-1134-01	3.5	33	8.9	71	2.1	100	33	520	24	5.1	28	55
24084	BE-NE-1143-01	140	1,000	230	2,000	140	3,900	850	9,600	630	120	810	2,000
24133A	BE-EG-1142-01	13	120	26	270	9.1	540	86	1,600	92	16	100	250
24133B	BE-EG-1142-01	11	110	24	240	8.7	480	76	1,500	79	13	91	220
24133C	BE-EG-1142-01	13	130	27	270	11	540	87	1,600	92	15	120	250
Average		12	120	26	260	10	520	83	1,600	88	15	100	240
<b>Standard Deviation (n=1)</b>		1.2	10	1.5	17	1.2	35	6.1	58	7.5	1.5	15	17
<b>%RSD</b>		9.4	8.3	5.9	6.7	13	6.7	7.3	3.6	8.6	10	15	7.2
<b>PC 050202</b>	Positive Control	7.6	36	10	48	1.4	140	43	230	13	8.8	25	56
<b>Positive Control Baseline</b>	(n = 13)	<b>5.3</b>	<b>34</b>	<b>9.5</b>	<b>44</b>	<b>2.2</b>	<b>120</b>	<b>39</b>	<b>220</b>	<b>15</b>	<b>5.7</b>	<b>24</b>	<b>57</b>
<b>MS 050202</b>	Matrix Spike PCBs	8.3	160	48	83	1.4	560	180	570	54	9.3	71	120
<b>Percent Recovery<sup>b</sup></b>		<b>75</b>	<b>80</b>	<b>77</b>	<b>75</b>	<b>25</b>	<b>79</b>	<b>75</b>	<b>79</b>	<b>77</b>	<b>72</b>	<b>75</b>	<b>71*</b>
<b>MB 05202</b>	Matrix Blank	0.00	0.09	0.02	0.09	0.00	0.46	0.11	0.76	0.02	0.01	0.06	0.12
<b>PB 050202</b>	Procedure Blank	0.01	0.36	0.07	0.62	0.00	2.2	0.40	5.5	0.23	0.11	0.33	0.58
Long Term MDL (mass normalized) <sup>a</sup>		<b>0.02</b>	<b>0.28</b>	<b>0.06</b>	<b>0.29</b>	<b>0.02</b>	<b>0.53</b>	<b>0.22</b>	<b>1.8</b>	<b>0.07</b>	<b>0.05</b>	<b>0.14</b>	<b>0.16</b>
Long Term MQL (mass normalized) <sup>a</sup>		<b>0.05</b>	<b>0.76</b>	<b>0.15</b>	<b>0.76</b>	<b>0.06</b>	<b>1.3</b>	<b>0.59</b>	<b>4.5</b>	<b>0.18</b>	<b>0.15</b>	<b>0.36</b>	<b>0.40</b>
<i>(units are noted in last column on last page)</i>													
<i>values rounded to 2 significant figures.</i>													
<sup>a</sup> Long Term MDL/MQL from 14 sample sets.													
<sup>b</sup> Note MS recoveries that are starred are due to interf													

**Table 1. PCB Congeners (ng/g wet wt.) in Eagle Eggs Collected Along the Hudson River, NY**

Sample	Field	164	166	167	170	171	172	173	174	175	176	177	178
ID	ID												
24129	BE-EG-1077-00	26	12	39	1,100	94	86	2.4	84	17	13	170	95
24130	BE-EG-1146-01	120	20	54	2,100	200	140	3.7	440	36	18	350	210
24131	BE-EG-1144-01	56	29	77	2,900	200	150	3.7	300	35	8	290	150
24132	BE-EG-1153-01	41	23	89	2,100	250	170	6.8	470	43	19	420	270
24133 Average	BE-EG-1142-01	80	18	39	1,100	110	86	2.1	230	23	9.9	193	117
24134	BE-EG-1076A-00	22	15	50	1,400	120	100	2.0	93	22	14	190	120
24135	BE-EG-1134-01	23	4.9	13	910	22	18	1.4	44	4.1	2.8	36	20
24084	BE-NE-1143-01	560	63	240	6,600	790	530	19	1,500	140	64	1,300	820
24133A	BE-EG-1142-01	78	19	40	1,200	120	89	1.4	240	23	12	200	120
24133B	BE-EG-1142-01	80	17	36	1,000	100	79	2.5	210	22	9.7	180	110
24133C	BE-EG-1142-01	82	19	41	1,200	120	89	2.3	240	25	8.1	200	120
Average		80	18	39	1,100	110	86	2.1	230	23	9.9	193	117
Standard Deviation (n=1)		2.0	1.2	2.6	115	12	5.8	0.59	17	1.5	2.0	12	5.8
%RSD		2.5	6.3	6.8	10	10	6.7	28	7.5	6.5	20	6.0	4.9
PC 050202	Positive Control	27	16	14	85	17	20	3.3	41	2.4	4.4	34	14
Positive Control Baseline	(n = 13)	25	14	14	69	15	16	6.5	35	2.2	7.3	29	13
MS 050202	Matrix Spike PCBs	59	1.9	15	290	65	33	4.3	260	11	14	110	43
Percent Recovery <sup>b</sup>		128*	76	71	78	78	75	75	79	79	33	79	78
MB 05202	Matrix Blank	0.04	0.00	0.01	0.29	0.03	0.03	0.00	0.16	0.01	0.03	0.08	0.02
PB 050202	Procedure Blank	0.27	0.00	0.04	1.2	0.06	0.27	0.00	0.46	0.01	0.00	0.39	0.07
Long Term MDL (mass normalized) <sup>a</sup>		0.07	0.01	0.06	0.51	0.10	0.09	0.10	0.35	0.02	0.04	0.19	0.06
Long Term MQL (mass normalized) <sup>a</sup>		0.19	0.02	0.18	1.4	0.29	0.27	0.31	0.99	0.05	0.13	0.53	0.17
(units are noted in last column on last page)													
values rounded to 2 significant figures.													
<sup>a</sup> Long Term MDL/MQL from 14 sample sets.													
<sup>b</sup> Note MS recoveries that are starred are due to interf													

**Table 1. PCB Congeners (ng/g wet wt.) in Eagle Eggs Collected Along the Hudson River, NY**

Sample	Field	179	180	183	185	187	189	190	191	193	194	195	196
ID	ID												
24129	BE-EG-1077-00	6.3	1,400	350	15	730	15	99	12	70	190	63	120
24130	BE-EG-1146-01	19	2,400	600	50	1,300	28	180	28	120	290	130	210
24131	BE-EG-1144-01	18	3,100	640	36	1,300	36	170	54	150	290	100	210
24132	BE-EG-1153-01	31	2,500	720	54	1,700	31	210	30	140	330	140	270
24133 Average	BE-EG-1142-01	20	1,300	370	20	770	20	110	16	80	200	70	140
24134	BE-EG-1076A-00	6.8	1,600	410	17	880	17	120	17	110	230	80	140
24135	BE-EG-1134-01	5.6	780	65	6.7	230	5.0	< 0.18	3.9	29	51	16	19
24084	BE-NE-1143-01	77	8,000	2,200	180	5,000	110	590	110	410	1,100	470	690
24133A	BE-EG-1142-01	18	1,400	390	26	800	18	110	16	80	210	77	150
24133B	BE-EG-1142-01	15	1,200	330	22	710	16	94	15	86	190	67	130
24133C	BE-EG-1142-01	18	1,400	380	26	800	19	120	17	78	210	77	150
Average		20	1,300	370	20	770	20	110	16	80	200	70	140
Standard Deviation (n-1)		1.7	115	32	2.3	52	1.5	13	1.0	4.2	12	5.8	12
%RSD		8.7	8.9	8.7	12	6.7	7.6	12	6.3	5.2	5.8	8.2	8.2
PC 050202	Positive Control	16	120	44	6.2	95	3.3	15	1.6	7.9	26	12	18
Positive Control Baseline	(n = 13)	14	120	41	5.6	87	3.2	14	1.8	7.7	25	16	14
MS 050202	Matrix Spike PCBs	95	380	140	25	230	7.4	51	8.1	22	72	44	44
Percent Recovery <sup>b</sup>		79	79	78	76	79	80	82	74	76	75	79	75
MB 05202	Matrix Blank	0.06	0.31	0.09	0.00	0.16	0.00	0.02	0.00	0.01	0.03	0.00	0.07
PB 050202	Procedure Blank	0.14	1.4	0.38	0.01	0.94	0.20	0.20	0.00	0.02	0.12	0.44	0.88
Long Term MDL (mass normalized) <sup>a</sup>		0.07	1.0	0.41	0.03	0.65	0.04	0.18	0.05	0.07	0.18	0.09	0.20
Long Term MQL (mass normalized) <sup>a</sup>		0.19	2.8	1.2	0.10	1.8	0.10	0.50	0.14	0.18	0.51	0.27	0.54
(units are noted in last column on last page)													
values rounded to 2 significant figures.													
<sup>a</sup> Long Term MDL/MQL from 14 sample sets.													
<sup>b</sup> Note MS recoveries that are starred are due to interf													

**Table 1. PCB Congeners (ng/g wet wt.) in Eagle Eggs Collected Along the Hudson River, NY**

Sample	Field	197	198	199	200	201	202	203	205	206	208	209	Total PCBs
ID	ID												
24129	BE-EG-1077-00	16	8	250	3	25	40	190	25	190	45	71	11,000 ng/g
24130	BE-EG-1146-01	46	22	500	15	79	130	320	25	430	180	190	23,000 ng/g
24131	BE-EG-1144-01	31	18	370	7	44	64	260	28	190	80	120	25,000 ng/g
24132	BE-EG-1153-01	41	21	520	16	79	110	400	27	340	130	160	49,000 ng/g
24133 Average	BE-EG-1142-01	26	10	310	5.5	42	60	190	20	270	100	130	13,000 ng/g
24134	BE-EG-1076A-00	18	11	300	3	30	51	220	18	150	51	70	13,000 ng/g
24135	BE-EG-1134-01	2.2	2.6	74	1.9	4.8	12	40	6.8	40	18	45	4,500 ng/g
24084	BE-NE-1143-01	93	68	1,600	39	200	330	1,200	87	1,000	350	360	128,000 ng/g
24133A	BE-EG-1142-01	24	12	320	5.8	42	64	200	17	280	100	130	14,000 ng/g
24133B	BE-EG-1142-01	26	11	290	5.2	39	52	170	14	240	92	120	12,000 ng/g
24133C	BE-EG-1142-01	29	13	320	5.4	44	64	200	17	280	110	130	14,000 ng/g
Average		26	10	310	5.5	42	60	190	20	270	100	130	13,000 ng/g
Standard Deviation (n-1)		2.5	1.0	17	0.31	2.5	6.9	17	1.7	23	9.0	5.8	1,200 ng/g
%RSD		9.6	10	5.6	5.6	6.0	12	9.1	8.7	8.6	9.0	4.4	9.2 ng/g
PC 050202	Positive Control	1.7	2.3	33	4.1	2.9	7.7	25	8.3	19	5.7	14	6,800 ng/g
Positive Control Baseline	(n = 13)	1.4	2.3	31	3.8	2.6	7.7	22	3.8	14	4.8	19	6,800 ng/g
MS 050202	Matrix Spike PCBs	4.1	5.1	78	13	10	16	67	4.4	21	4.5	5.6	15,000 ng
Percent Recovery <sup>b</sup>		69	77	78	76	71	80	80	73	78	87	98	75 %
MB 05202	Matrix Blank	0.00	0.00	0.06	0.00	0.01	0.03	0.06	0.00	0.02	0.10	0.52	11 ng/g
PB 050202	Procedure Blank	0.47	0.00	0.17	0.13	0.11	0.01	0.71	0.00	0.07	1.1	6.0	46 ng
Long Term MDL (mass normalized) <sup>a</sup>		0.13	0.01	0.18	0.02	0.04	0.10	0.14	0.02	0.08	0.24	1.3	20 ng/g
Long Term MQL (mass normalized) <sup>a</sup>		0.38	0.01	0.50	0.06	0.11	0.28	0.40	0.06	0.22	0.66	3.5	49 ng/g
(units are noted in last column on last page)													
values rounded to 2 significant figures.													
<sup>a</sup> Long Term MDL/MQL from 14 sample sets.													
<sup>b</sup> Note MS recoveries that are starred are due to interf													

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

Sample	Field	Sample	Grams	%	029 %	155 %	204 %
ID	ID	Type	Analyzed (g)	Lipid	Recovery	Recovery	Recovery
PB 050202	Procedure Blank	Na <sub>2</sub> SO <sub>4</sub>	---	---	69	79	82
MB 00202	Matrix Blank	Chicken Egg	10.08	9.8	77	82	81
MS 050202	Matrix Spike PCBs	Chicken Egg	10.12	10.0	74	78	79
PC 050202	Positive Control	Saginaw Carp	5.16	15.1	59	63	65
24129	BE-EG-1077-00	Bald Eagle Egg	10.06	6.0	53	60	58
24130	BE-EG-1146-01	Bald Eagle Egg	10.08	7.3	83	98	89
24131	BE-EG-1144-01	Bald Eagle Egg	10.06	7.4	75	82	76
24132	BE-EG-1153-01	Bald Eagle Egg	10.16	6.7	78	89	80
24133A	BE-EG-1142-01	Bald Eagle Egg	10.02	3.9	68	80	73
24133B	BE-EG-1142-01	Bald Eagle Egg	10.02	3.5	71	81	76
24133C	BE-EG-1142-01	Bald Eagle Egg	10.04	4.0	73	85	78
24134	BE-EG-1076A-00	Bald Eagle Egg	10.06	5.9	65	71	69
24135	BE-EG-1134-01	Bald Eagle Egg	10.04	4.4	67	72	70
24084	BE-NE-1143-01	Eagle Carcass	9.10	7.4	79	99	78
Average					71	80	75
SD (n-1)					8.2	11	7.9

2/11/2003

prepared by: GT, KRE

USDI, USGS, BRD, CERC,  
Final Eagle Eggs 2001, Table 2. Egg PIS Recovery

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

Sample	Field	Site	Sample	Grams- for Analysis (g)	% Lipid	Pentachloro- benzene	HCB	Pentachloro- anisole	alpha-BHC ( <i>a</i> -HCH)	beta-BHC ( <i>b</i> -HCH)	Lindane ( <i>g</i> -HCH)
ID	ID		Type								
24129	BE-EG-1077-00	Rondout Nest, NY	Bald Eagle Egg	2.02	6.8	4.0	12	2.1	< 0.33	2.5	< 0.31
24130	BE-EG-1146-01	Portlandville Nest, NY	Bald Eagle Egg	2.02	7.3	1.8	12	3.4	< 0.33	1.2	< 0.31
24131	BE-EG-1144-01	Cato Nest, NY	Bald Eagle Egg	2.01	8.6	7.1	45	6.9	< 0.33	5.2	0.89
24132	BE-EG-1153-01	Roger's Island, NY	Bald Eagle Egg	2.02	6.9	4.2	20	8.2	0.36	2.2	1.4
24133	BE-EG-1142-01	Rio, NY	Bald Eagle Egg	2.01	3.2	1.0	6.9	3.2	< 0.33	1.3	< 0.31
24135	BE-EG-1134-01	East Salamanca, NY	Bald Eagle Egg	2.01	4.5	0.82	3.7	2.2	< 0.33	0.82	< 0.31
24134A	BE-EG-1076A-00	Rondout Dam, NY	Bald Eagle Egg	2.01	6.3	4.7	12	2.3	0.38	2.8	< 0.31
24134B	BE-EG-1076A-00	Rondout Dam, NY	Bald Eagle Egg	2.03	6.4	4.6	13	2.4	< 0.33	3.7	< 0.31
24134C	BE-EG-1076A-00	Rondout Dam, NY	Bald Eagle Egg	2.02	6.1	4.8	13	2.3	< 0.33	3.1	< 0.31
Average					6.3	4.7	13	2.4	0.4	3.2	< 0.31
SD(n-1)					0.2	0.06	0.23	0.04		0.45	
%RSD					2.7	1.4	1.9	1.8		14	
PB 050602	Procedure Blank		Na <sub>2</sub> SO <sub>4</sub>	---	---	0.04	0.00	0.38	0.00	0.33	0.00
MB 050602	Matrix Blank		Chicken Egg	2.02	10.6	0.04	0.08	0.31	0.47	1.01	0.00
PC 050602	Saginaw Bay		Carp	2.02	14.7	5.1	11	3.4	4.2	1.2	< 0.31
Longterm Positive Control	(1999-2002)				14.7	5.4	12	3.0	6.1	1.6	2.5
	Matrix Spike OCPs		Chicken Egg	2.01	10.0	0.1	67	91	62	69	63
% Recovery						n/a	86	95	80	86	83
MS 050602-PCB	Matrix Spike PCBs		Chicken Egg	2.01	9.9	0.1	0.1	0.5	< 0.33	0.6	< 0.31
Method Detection Limit						0.01	0.09	0.32	0.33	0.19	0.31
Method Quantitation Limit						0.04	0.65	0.76	0.76	0.58	0.73
NR- Not reported due to poor MS recovery											

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

Sample	Field	delta-BHC ( <i>d</i> -HCH) <sup>a</sup>	Heptachlor	Heptachlor	Aldrin	Dacthal <sup>a</sup>	Dieldrin	Endrin	Oxychlordane	cis-Chlordanne	trans-Chlordanne
ID	ID			Epoxide							
24129	BE-EG-1077-00	< 0.17	< 0.09	23	< 0.01	NR	91	< 0.12	170	25	3.1
24130	BE-EG-1146-01	< 0.17	< 0.09	24	< 0.01	NR	220	2.6	110	64	9.1
24131	BE-EG-1144-01	< 0.17	< 0.09	32	0.29	NR	290	3.2	110	58	11
24132	BE-EG-1153-01	< 0.17	< 0.09	19	< 0.01	NR	190	1.0	110	30	6.6
24133	BE-EG-1142-01	< 0.17	< 0.09	12	< 0.01	NR	120	0.31	31	40	5.1
24135	BE-EG-1134-01	< 0.17	< 0.09	5.1	< 0.01	NR	22	0.60	19	6.4	2.4
24134A	BE-EG-1076A-00	< 0.17	< 0.09	24	< 0.01	NR	99	2.1	180	16	2.7
24134B	BE-EG-1076A-00	< 0.17	< 0.09	25	< 0.01	NR	95	2.1	170	17	2.8
24134C	BE-EG-1076A-00	< 0.17	< 0.09	25	< 0.01	NR	98	2.2	180	18	2.9
Average		< 0.17	< 0.09	24	< 0.01	NR	97	2.1	180	17	2.8
SD(n-1)				0.43			1.7	0.1	5.8	0.86	0.13
%RSD				1.8			1.8	3.0	3.2	5.2	4.7
PB 050602	Procedure Blank	0.00	0.00	0.00	0.00	0.00	0.11	0.04	0.01	0.09	0.21
MB 050602	Matrix Blank	0.00	0.00	0.05	0.00	0.00	0.24	0.00	0.00	0.06	0.07
PC 050602	Saginaw Bay	< 0.17	< 0.09	4.1	< 0.01	6.3	32	13	6.8	20	9.9
Longterm Positive Control	(1999-2002)	0.35	0.14	4.2	< 0.01	5.0	19	4.4	4.6	25	12
	Matrix Spike OCPs	20	63	75	< 0.01	< 0.45	71	31	67	83	76
% Recovery		26	77	94	n/a	0	93	39	85	92	88
MS 050602-PCB	Matrix Spike PCBs	< 0.17	< 0.09	< 0.31	< 0.01	< 0.45	0.42	0.17	< 0.14	< 0.33	< 0.44
Method Detection Limit			0.17	0.09	0.31	0.01	0.45	0.24	0.12	0.14	0.33
Method Quantitation Limit			0.39	0.49	0.73	0.02	1.1	0.54	0.36	0.32	0.76
NR- Not reported due to poor MS recovery											

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

Sample	Field	cis-Nonachlor	trans-Nonachlor	o,p'-DDE	o,p'-DDD	o,p'-DDT	p,p'-DDE	p,p'-DDD	p,p'-DDT	Endosulfan I	Endosulfan II
ID	ID										
24129	BE-EG-1077-00	96	400	2.2	5.1	1.1	4,400	180	17	47	9.0
24130	BE-EG-1146-01	230	630	3.6	5.5	2.4	4,200	450	12	140	2.4
24131	BE-EG-1144-01	170	540	< 0.24	18	1.4	9,300	1,100	5.1	200	2.8
24132	BE-EG-1153-01	130	420	10	< 0.95	1.1	4,800	410	< 0.60	110	< 0.23
24133	BE-EG-1142-01	150	450	< 0.24	< 0.95	< 0.15	4,000	330	< 0.60	86	< 0.23
24135	BE-EG-1134-01	22	68	< 0.24	< 0.95	0.3	510	84	1.2	18	1.4
24134A	BE-EG-1076A-00	99	410	3.3	2.2	1.4	4,500	170	16	61	7.8
24134B	BE-EG-1076A-00	94	400	2.3	1.9	1.1	3,800	160	17	63	7.6
24134C	BE-EG-1076A-00	97	410	2.1	2.6	1.3	4,300	170	18	64	7.7
Average		97	410	2.5	2.2	1.3	4,200	170	17	63	7.7
SD(n-1)		2.5	5.8	0.64	0.35	0.15	360	5.8	1.2	1.0	0.13
%RSD		2.6	1.4	25	16	12	8.6	3.4	7.3	1.7	1.7
PB 050602	Procedure Blank	0.01	0.09	0.00	0.00	0.03	0.76	0.13	0.01	0.04	0.00
MB 050602	Matrix Blank	0.02	0.13	0.00	0.00	0.09	3.0	0.00	0.00	0.01	0.00
PC 050602	Saginaw Bay	10	24	7.1	< 0.95	2.8	430	260	< 0.60	20	< 0.23
Longterm Positive Control	(1999-2002)	12	25	7.9	48	2.0	440	260	3.3	10	3.1
	Matrix Spike OCPs	81	67	65	69	82	69	74	69	73	39
% Recovery		94	84	83	85	100	92	94	88	95	49
MS 050602-PCB	Matrix Spike PCBs	0.13	0.49	< 0.24	< 0.95	< 0.15	2.0	< 0.67	< 0.60	< 0.63	< 0.23
Method Detection Limit		0.13	0.37	0.24	0.95	0.15	0.46	0.67	0.60	0.63	0.23
Method Quantitation Limit		0.29	0.85	0.57	2.2	0.47	1.1	1.5	1.4	1.5	0.53
NR- Not reported due to poor MS recovery											

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

Sample ID	Field ID	Endosulfate	Methoxychlor	Mirex
24129	BE-EG-1077-00	< 1.5	< 2.7	64
24130	BE-EG-1146-01	< 1.5	< 2.7	27
24131	BE-EG-1144-01	< 1.5	< 2.7	180
24132	BE-EG-1153-01	< 1.5	< 2.7	43
24133	BE-EG-1142-01	< 1.5	< 2.7	14
24135	BE-EG-1134-01	< 1.5	< 2.7	12
24134A	BE-EG-1076A-00	< 1.5	< 2.7	63
24134B	BE-EG-1076A-00	< 1.5	< 2.7	62
24134C	BE-EG-1076A-00	< 1.5	< 2.7	64
Average		< 1.5	< 2.7	63
SD(n-1)				1.2
%RSD				1.9
PB 050602	Procedure Blank	0.00	0.00	0.00
MB 050602	Matrix Blank	0.00	0.00	0.11
PC 050602	Saginaw Bay	< 1.5	9.7	5.4
Longterm Positive Control	(1999-2002)	6.3	9.7	3.3
	Matrix Spike OCPs	71	80	78
% Recovery		87	110	97
MS 050602-PCB	Matrix Spike PCBs	< 1.5	< 2.7	0.16
Method Detection Limit		1.5	2.7	0.01
Method Quantitation Limit		3.4	6.5	0.03
NR- Not reported due to poor MS recovery				

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

Sample	Field	Sample	Grams	%	TCM-Xylene	029	155	204
ID	ID	Type	for Analysis (g)	Lipid	Recovery	Recovery	Recovery	Recovery
PB 050602	Procedure Blank	Na <sub>2</sub> SO <sub>4</sub>	---	---	63	78	82	75
MB 050602	Matrix Blank	Chicken Egg	2.02	10.6	88	96	95	78
MS 050602-OC	Matrix Spike OCPs	Chicken Egg	2.01	10.0	83	97	94	105
MS 050602-PCB	Matrix Spike PCBs	Chicken Egg	2.01	9.9	75	90	85	75
PC 050602	Positive Control	Saginaw Bay Carp	2.02	14.7	80	92	84	74
24129	BE-EG-1077-00	Bald Eagle Egg	2.02	6.8	82	95	97	85
24130	BE-EG-1146-01	Bald Eagle Egg	2.02	7.3	83	90	95	79
24131	BE-EG-1144-01	Bald Eagle Egg	2.01	8.6	81	86	91	81
24132	BE-EG-1153-01	Bald Eagle Egg	2.02	6.9	86	85	90	83
24133	BE-EG-1142-01	Bald Eagle Egg	2.01	3.2	77	81	93	80
24134A	BE-EG-1076A-00	Bald Eagle Egg	2.01	6.3	81	88	91	78
24134B	BE-EG-1076A-00	Bald Eagle Egg	2.03	6.4	82	92	94	81
24134C	BE-EG-1076A-00	Bald Eagle Egg	2.02	6.1	82	92	93	80
24135	BE-EG-1134-01	Bald Eagle Egg	2.01	4.5	86	91	97	79
Average					81	89	92	81
SD(n-1)					6	5	5	8

**Table 5. Organochlorine Pesticides and total PCBs (ng/g wet wt.) in Fish from the Hudson River, NY**

Sample	Field	Sample	Grams-for Analysis (g)	% Lipid	Pentachloro-benzene	HCB	Pentachloro-anisole	alpha-BHC (a-HCH)	beta-BHC (b-HCH)	Lindane (g-HCH)	delta-BHC (d-HCH)
ID	ID	Type									
24084	BE-NE-1143-01	Bald Eagle Carcass	2.03	7.9	3.7	28	4.8	< 0.33	2.6	< 0.31	< 0.17
24136	FI-GS-841-97 FISH	Fish	2.07	5.7	0.78	2.2	3.7	< 0.33	< 0.19	0.64	< 0.17
24137	FI-GS-1182-96 FISH	Fish	2.05	25.7	1.5	7.3	28	1.6	< 0.19	1.9	< 0.17
24137A	FI-GS-1182-96 FISH REP1	Fish	2.09	25.5	1.6	7.4	27	1.6	< 0.19	1.6	< 0.17
24137B	FI-GS-1182-96 FISH REP2	Fish	2.08	25.6	1.5	7.2	28	1.6	< 0.19	1.8	< 0.17
24137C	FI-GS-1182-96 FISH REP3	Fish	2.08	25.9	1.5	7.2	28	1.6	< 0.19	2.2	< 0.17
Average			2.08	25.7	1.5	7.3	28	1.6	< 0.19	1.9	< 0.17
SD(n-1)				0.16	0.02	0.04	0.32	0.03	---	0.20	---
%RSD				0.6	1.1	0.6	1.2	1.9	---	11	---
PB 042202	Procedure Blank	Na <sub>2</sub> SO <sub>4</sub>	---	---	0.03	0.27	0.18	0.00	0.00	0.43	0.00
MB 042202	Matrix Blank	Bluegill	2.1	3.7	0.08	0.35	0.30	0.28	0.00	0.43	0.00
PC 042202	Saginaw Bay	Carp	2.01	14.4	5.7	14	2.0	3.2	< 0.19	1.6	< 0.17
Longterm Positive Control	(1999-2002)			14.7	5.4	12	3.0	6.1	1.6	2.5	0.35
MS 042202 OCP	Matrix Spike OCPs	Bluegill	2.07	4.1	0.22	73	81	76	89	78	77
% Recovery					n/a	86	86	93	98	97	97
MS 042202 PCB	Matrix Spike PCBs	Bluegill	2.1	3.7							
% Recovery											
Method Detection Limit					0.01	0.09	0.32	0.33	0.19	0.31	0.17
Method Quantitation Limit					0.04	0.65	0.76	0.76	0.58	0.73	0.39

<sup>a</sup>Value not reported because of low MS recoveries.

<sup>b</sup>Total PCBs were determined as a sum of congeners from a single capillary column analysis.

**Table 5. Organochlorine Pesticides and total PCBs (ng/g wet wt.) in Fish from the Hudson River, NY**

Sample	Field	Sample	Heptachlor	Heptachlor	Aldrin	Dacthal <sup>a</sup>	Dieldrin	Endrin	Oxychlordane	cis-Chlordane
ID	ID	Type		Epoxide						
24084	BE-NE-1143-01	Bald Eagle Carcass	< 0.09	62	< 0.01	160	340	< 0.12	280	570
24136	FI-GS-841-97 FISH	Fish	0.31	2.4	< 0.01	0.54	2.9	< 0.12	6.9	86
24137	FI-GS-1182-96 FISH	Fish	0.15	5.0	< 0.01	11	34	0.33	9.4	57
24137A	FI-GS-1182-96 FISH REP1	Fish	0.15	5.0	< 0.01	11	33	0.26	8.7	56
24137B	FI-GS-1182-96 FISH REP2	Fish	0.13	5.0	< 0.01	11	34	0.28	9.7	58
24137C	FI-GS-1182-96 FISH REP3	Fish	0.16	4.9	< 0.01	12	34	0.45	9.7	57
Average			0.15	5.0	< 0.01	11	34	0.33	9.4	57
SD(n-1)			0.02	0.03	--	0.10	0.34	0.09	0.20	0.50
%RSD			11	0.6	--	0.9	1.0	27	2.1	0.9
PB 042202	Procedure Blank	Na <sub>2</sub> SO <sub>4</sub>	0.00	0.00	0.00	0.00	0.14	0.27	0.00	0.08
MB 042202	Matrix Blank	Bluegill	0.00	0.40	0.00	0.18	3.7	0.30	1.8	0.30
PC 042202	Saginaw Bay	Carp	< 0.09	5.3	< 0.01	5.7	21	< 0.12	13	49
Longterm Positive Control	(1999-2002)		0.14	4.2	< 0.01	5.0	19	4.4	4.6	25
MS 042202 OCP	Matrix Spike OCPs	Bluegill	67	83	< 0.01	0.49	83	43	87	88
% Recovery			78	99	n/a	0.6	104	49	100	95
MS 042202 PCB	Matrix Spike PCBs	Bluegill								
% Recovery										
Method Detection Limit			0.09	0.31	0.01	0.45	0.24	0.12	0.14	0.33
Method Quantitation Limit			0.49	0.73	0.02	1.1	0.54	0.36	0.32	0.76

<sup>a</sup>Value not reported because of low MS recoveries.

<sup>b</sup>Total PCBs were determined as a sum of congeners from a single capillary column ana

**Table 5. Organochlorine Pesticides and total PCBs (ng/g wet wt.) in Fish from the Hudson River, NY**

Sample	Field	Sample	trans-Chlordane	cis-Nonachlor	trans-Nonachlor	o,p'-DDE	o,p'-DDD	o,p'-DDT	p,p'-DDE	p,p'-DDD
ID	ID	Type								
24084	BE-NE-1143-01	Bald Eagle Carcass	69	360	1,100	< 0.24	< 0.95	< 0.15	16,000	1,200
24136	FI-GS-841-97 FISH	Fish	28	43	47	< 0.24	0.97	< 0.15	79	21
24137	FI-GS-1182-96 FISH	Fish	29	28	44	< 0.24	4.9	< 0.15	277	117
24137A	FI-GS-1182-96 FISH REP1	Fish	28	27	41	< 0.24	4.4	< 0.15	270	110
24137B	FI-GS-1182-96 FISH REP2	Fish	29	28	45	< 0.24	4.6	< 0.15	280	120
24137C	FI-GS-1182-96 FISH REP3	Fish	30	29	45	< 0.24	5.7	< 0.15	280	120
Average			29	28	44	< 0.24	4.9	< 0.15	277	117
SD(n-1)			0.44	0.29	0.78	---	0.56	---	1.9	1.9
%RSD			1.5	1.0	1.8	---	11	---	0.7	1.6
PB 042202	Procedure Blank	Na <sub>2</sub> SO <sub>4</sub>	0.17	0.06	0.07	0.00	0.00	0.00	0.34	0.00
MB 042202	Matrix Blank	Bluegill	0.35	1.6	5.1	0.00	0.00	0.00	4.2	0.05
PC 042202	Saginaw Bay	Carp	30	22	28	< 0.24	< 0.95	< 0.15	590	370
Longterm Positive Control	(1999-2002)		12	12	25	7.9	48	2.0	440	260
MS 042202 OCP	Matrix Spike OCPs	Bluegill	85	91	91	77	72	92	86	82
% Recovery			98	101	104	91	79	101	106	100
MS 042202 PCB	Matrix Spike PCBs	Bluegill								
% Recovery										
Method Detection Limit			0.44	0.13	0.37	0.24	0.95	0.15	0.46	0.67
Method Quantitation Limit			1.1	0.29	0.85	0.57	2.2	0.47	1.1	1.5

<sup>a</sup>Value not reported because of low MS recoveries.

<sup>b</sup>Total PCBs were determined as a sum of congeners from a single capillary column ana

**Table 5. Organochlorine Pesticides and total PCBs (ng/g wet wt.) in Fish from the Hudson River, NY**

Sample	Field	Sample	p,p'-DDT	Endosulfan I	Endosulfan II	Endosulfate	Methoxychlor	Mirex	total PCBs <sup>b</sup>	
ID	ID	Type								
24084	BE-NE-1143-01	Bald Eagle Carcass	18	28	1,500	< 1.5	< 2.7	260	128,000	ng/g
24136	FI-GS-841-97 FISH	Fish	1.0	< 0.63	< 0.23	< 1.5	< 2.7	0.26	620	ng/g
24137	FI-GS-1182-96 FISH	Fish	18	2.5	< 0.23	7.6	< 2.7	1.7	9,433	ng/g
24137A	FI-GS-1182-96 FISH REP1	Fish	17	< 0.63	< 0.23	7.3	< 2.7	1.8	9,400	ng/g
24137B	FI-GS-1182-96 FISH REP2	Fish	17	2.3	< 0.23	7.8	< 2.7	1.6	9,400	ng/g
24137C	FI-GS-1182-96 FISH REP3	Fish	18	2.7	< 0.23	7.8	< 2.7	1.6	9,500	ng/g
Average			18	2.5	< 0.23	7.6	< 2.7	1.7	9,433	ng/g
SD(n-1)			0.50	0.24	---	0.10	---	0.04	58	
%RSD			2.9	9.8	---	1.3	---	2.4	0.6	
PB 042202	Procedure Blank	Na <sub>2</sub> SO <sub>4</sub>	0.00	0.00	0.00	0.00	0.00	0.00	180	ng
MB 042202	Matrix Blank	Bluegill	0.23	0.05	0.03	0.00	0.00	0.08	167	ng/g
PC 042202	Saginaw Bay	Carp	1.8	2.4	< 0.23	< 1.5	< 2.7	4.9	8,800	ng/g
Longterm Positive Control	(1999-2002)		3.3	10	3.1	6.3	9.7	3.3	---	
MS 042202 OCP	Matrix Spike OCPs	Bluegill	87	82	68	86	93	79	---	ng
% Recovery			102	99	77	101	109	85	n/a	
MS 042202 PCB	Matrix Spike PCBs	Bluegill							4,700	ng
% Recovery									98	
Method Detection Limit			0.60	0.63	0.23	1.5	2.7	0.01	20	ng/g
Method Quantitation Limit			1.4	1.5	0.53	3.4	6.5	0.03	54	ng/g

<sup>a</sup>Value not reported because of low MS recoveries.

<sup>b</sup>Total PCBs were determined as a sum of congeners from a single capillary column ana

**Table 6. Percent Recoveries of OPC Procedural Recovery Standards in Fish**

Sample	Field	Sample	Grams	%	TCM-Xylene	029	155	204	
ID	ID	Type	used for	Lipid	%	%	%	%	
			Analysis (g)		Recovery	Recovery	Recovery	Recovery	
PB 042202	Proc Blank	Na <sub>2</sub> SO <sub>4</sub>	---	---	58	76	78	70	
MB 042202	Matrix Blank	Bluegill	2.05	3.74	80	97	86	70	
MS 042202 PCB	Matrix Spike OCPs	Bluegill	2.12	3.65	81	101	87	75	
MS 042202 OC	Matrix Spike PCBs	Bluegill	2.07	4.13	81	95	88	97	
PC 042202	Saginaw Bay	Carp	2.01	14.4	82	91	81	77	
24084	BE-NE-1143-01	Bald Eagle Carcass	2.03	7.93	72	88	84	68	
24136	FI-GS-841-97 FISH	Fish	2.07	5.68	76	89	87	69	
24137A	FI-GS-1182-96 FISH REP1	Fish	2.09	25.5	75	84	76	66	
24137B	FI-GS-1182-96 FISH REP2	Fish	2.08	25.6	82	95	81	73	
24137C	FI-GS-1182-96 FISH REP3	Fish	2.08	25.9	79	91	77	70	
Average					77	91	83	74	
SD					7.4	7.1	4.6	8.8	

Table 7. Non-o-Chloro-Substituted PCBs (pg/g) in Eagle Eggs Collected Along the Hudson River, NY

6-Aug-02 N50pcb-secord-eggs.xls		GC/MS Set: N50PCB Date: Aug 2-4, 2002	<u>Non-o-Polychlorinated Biphenyls (pg/g)</u>				
NFCR Number:	Field Number:	Sample Description:	GC/MS Run No.	3,4,4',5-TCB (81)	3,3',4,4'-TCB (77)	3,3',4,4',5-PeCB (126)	3,3',4,4',5,5'-HxCB (169)
	24129 BE-EG-1077-00	Eagle Egg, Rondout Nest, NY, 10.06 g	50-12	240	1,100	1,500	300
	24130 BE-EG-1146-01	Eagle Egg, Portlandville Nest, NY, 10.08 g	50-13	560	4,500	2,100	370
	24131 BE-EG-1144-01	Eagle Egg, Cato Nest, NY, 10.06 g	50-14	660	5,100	2,900	350
	24132 BE-EG-1153-01	Eagle Egg, Roger's Island, NY, 10.16 g	50-16	3,000	11,000	4,500	340
	24133A BE-EG-1142-01	Eagle Egg, Replicate A, Rio, NY, 10.02 g	50-17	320	2,100	1,500	230
	24133B BE-EG-1142-01	Eagle Egg, Replicate B, Rio, NY, 10.02 g	50-18	260	1,700	1,200	190
	24133C BE-EG-1142-01	Eagle Egg, Replicate C, Rio, NY, 10.04 g	50-19	310	2,000	1,500	230
	24134 BE-EG-1076A-00	Eagle Egg, Rondout Dam, NY, 10.06 g	50-21	280	1,400	1,800	360
	24135 BE-EG-1134-01	Eagle Egg, East Salamanca, NY, 10.06 g	50-22	92	730	420	71
	24084 BE-NE-1143-01	Eagle Nestling Carcass, Castleton Is., NY, 9.1 g	50-23	8,000	26,000	16,000	910
<b>Quality Control Samples:</b>							
Proc. Blk, 5/02/2002	Procedure Blank, 5/02/2002 (10 g Equiv. Basis)		50-6	0.4	5.3	1.2	0.4 LQ
Chicken Egg Blk, 5/02/2002	Chicken Egg Blank, 5/02/2002, 10.08 g		50-7	0.8 LQ	9.4	1.3	0.4 LQ
Chicken Egg Spk, 5/02/2002	Chicken Egg Spike w/20 µg Aroclors, 5/02/2002 10.12 g		50-10	160	2,700	78	0.8 LQ
Pos. Ctrl Sag Carp 5/02/2002	Positive Control Saginaw Carp, 5/02/2002, 5.16 g		50-11	390	2,650	980	73
<i>Historic Pos. Ctrl Sag. Carp 6806</i>	<i>Averages of Pos. Ctrl. Saginaw Carp (1993-2001)</i>		<i>Mean:</i>	<i>406 N=61</i>	<i>2,843 N=66</i>	<i>1,062 N=65</i>	<i>68.2 N=66</i>

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 <sup>13</sup>C-Non-*o*-Chloro-Substituted PCBs in Eagle Eggs Collected Along the Hudson River, NY

6-Aug-02 N50pcb-secord-eggs.xls		GC/MS Set: N50PCB Date: Aug 2-4, 2002		<u><sup>13</sup>C-Non-<i>o</i>-Polychlorinated Biphenyls (% Recovery)</u>				
NFCR Number:	Submitter Number:	Sample Description:	GC/MS Run No.	Tetra: ( <sup>13</sup> C-PCB #81)	Penta: ( <sup>13</sup> C-PCB #77)	Tetra: ( <sup>13</sup> C-PCB #126)	Penta: ( <sup>13</sup> C-PCB #169)	
24129	BE-EG-1077-00	Eagle Egg, Rondout Nest, NY, 10.06 g	50-12	63	68	52	62	
24130	BE-EG-1146-01	Eagle Egg, Portlandville Nest, NY, 10.08 g	50-13	102	108	83	91	
24131	BE-EG-1144-01	Eagle Egg, Cato Nest, NY, 10.06 g	50-14	87	93	76	83	
24132	BE-EG-1153-01	Eagle Egg, Roger's Island, NY, 10.16 g	50-16	89	103	87	89	
24133A	BE-EG-1142-01	Eagle Egg, Replicate A, Rio, NY, 10.02 g	50-17	67	72	64	70	
24133B	BE-EG-1142-01	Eagle Egg, Replicate B, Rio, NY, 10.02 g	50-18	80	83	64	68	
24133C	BE-EG-1142-01	Eagle Egg, Replicate C, Rio, NY, 10.04 g	50-19	73	76	63	67	
24134	BE-EG-1076A-00	Eagle Egg, Rondout Dam, NY, 10.06 g	50-21	69	77	74	84	
24135	BE-EG-1134-01	Eagle Egg, East Salamanca, NY, 10.06 g	50-22	82	85	75	80	
24084	BE-NE-1143-01	Eagle Nestling Carcass, Castleton Is., NY, 9.1 g	50-23	82	93	73	66	
<b>Quality Control Samples:</b>								
Proc. Blk, 5/02/2002	Procedure Blank, 5/02/2002		50-6	84	87	76	110	
Chicken Egg Blk, 5/02/2002	Chicken Egg Blank, 5/02/2002, 10.08 g		50-7	97	95	75	98	
Chicken Egg Spk, 5/02/2002	Chicken Egg Spike w/20 µg Aroclors, 5/02/2002 10.12 g		50-10	89	90	68	87	
Pos. Ctrl Sag Carp 5/02/2002	Positive Control Saginaw Carp, 5/02/2002, 5.16 g		50-11	75	73	61	76	

**Table 9. PCB contributions to Total TEQs (pg/g wet wt.) based on Avian TEFs**

Sample ID	Sum mPCB	Non-ortho congeners				Sum nPCB	Total PCB Avian TEQs*
		77	81	126	169		
24129	25	55	24	150	0.30	230	250
24130	40	230	56	210	0.37	500	540
24131	62	260	66	290	0.35	620	680
24132	110	550	300	450	0.34	1,300	1,400
24133	27	95	30	140	0.22	270	300
24134	29	70	28	180	0.36	280	310
24135	9.1	37	9.2	42	0.07	88	97
24084	320	1,300	800	1,600	0.91	3,700	4,000

\*based on TEFs from reference 15.

