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

USGS REPORT CERC-8335-FY03-31-04
DATED JULY 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. DEPARTMET OF THE INTERIOR

## FINAL

AUGUST 1, 2011

Available from:
U.S. Department of Commerce
National Oceanic and Atmospheric Administration
Hudson River NRDA, Lead Administrative Trustee
Damage Assessment Center, N/ORR31
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Silver Spring, MD 20910-3281

## 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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**U.S. Geological Survey- Biological Resources Division**
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**July 2003**

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

USGS Report # CERC-8335-FY03-31-04
FWS No.: 50181-1-H014
DNC No.: 50181-1-H014A

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**FWS Project Title**

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

Submitted to

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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

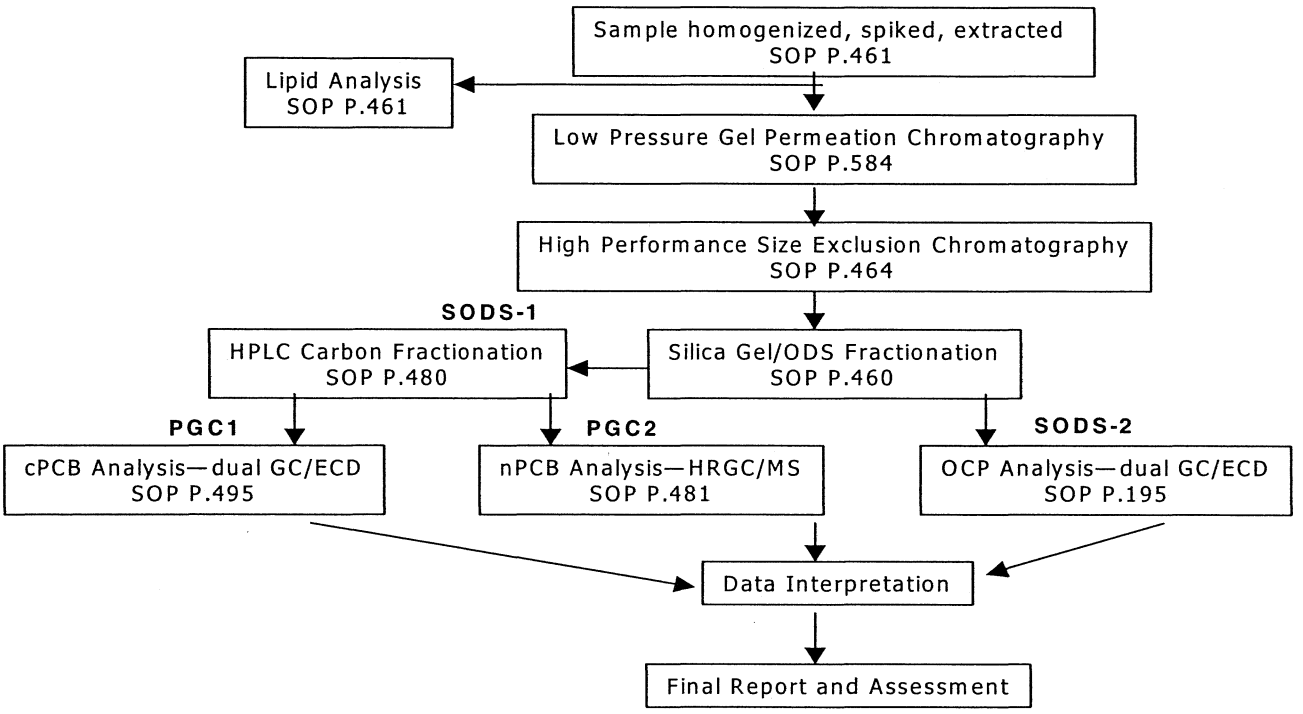



Figure 2. Analytical Scheme for PCB congeners, and Non-*ortho* PCBs in Eagle Eggs

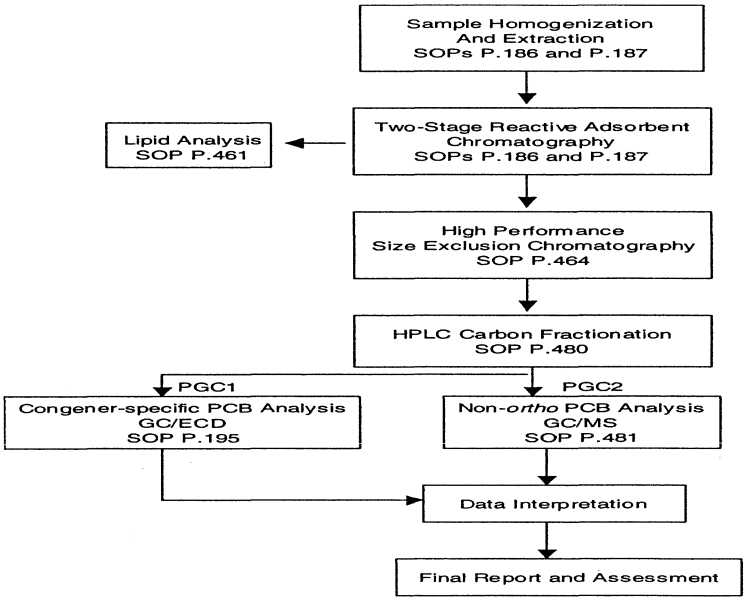
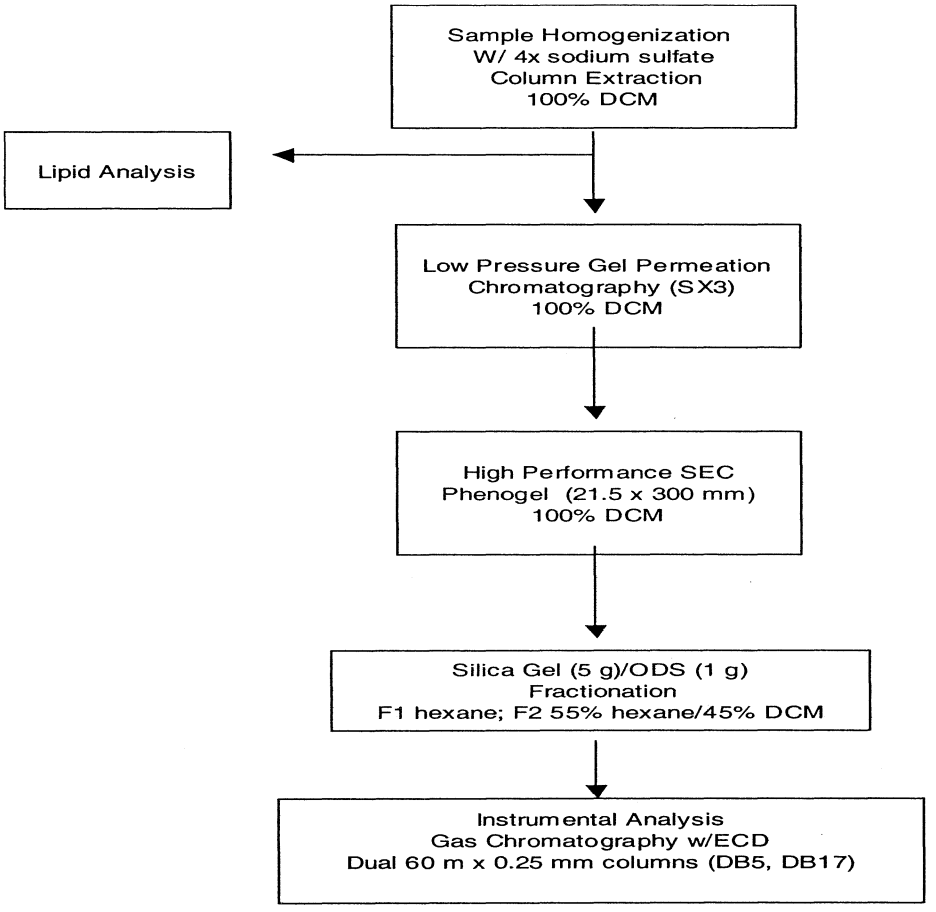


Figure 3. Analytical Scheme for OCPs in Eagle Eggs




## 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 $\mu$L, 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<br>Tetra:<br>3,4,4',5-TCB (81) | Tetra:<br>3,3',4,4'-TCB (77) | Penta:<br>3,3',4,4',5-PeCB (126) | Hexa:<br>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 $\mu$g 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<br>Tetra:<br>3,4,4',5-TCB (81) | | 3,3',4,4'-TCB (77) | | Penta:<br>3,3',4,4',5-PeCB (126) | | Hexa:<br>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<br>(Spiked 20 $\mu$g total PCBs) | 53-13 | 160 | | 2,800 | | 60 | | 1.4 LQ | |
| | | *Report spike results as parts per million in Aroclors:*<br>*(pg congener/$\mu$g total PCBs)* | | 84 | | 1,460 | | 31 | | 0.7 LQ | |
| | | *Historical Mean of each congener/(pg/ug Aroclor):*<br>*(or in parts per million in Aroclors)*<br>*(n=40, last 40 PCB-spiked QC samples-all matrices)* | *Mean:*<br><br>*SD, %RSD* | *73*<br><br>*18* | *25* | *1,253*<br><br>*229* | *18* | *48*<br><br>*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 $\mu$g 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

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MARCH 3, 1849

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NEW YORK STATE