## Supporting Information

# Patterns and Trends in Brominated Flame Retardants in Bald Eagle Nestlings from the Upper Midwestern United States

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The following three tables are provided as supporting information for this study:

Table SI1. Number and percent of samples below the limits of quantification.

Table SI2. Sample size across study areas and years.

Table SI3. Estimates of central tendency, variability, and confidence intervals for five congeners and the ΣPBDEs reported.

**Table SI1.** Number of samples and percent of 284 total samples that were below the laboratories limits of quantification (LOQ) for nine polybrominated diphenyl ether (PBDE) congeners measured in bald eagle plasma, 1995-2011.

| Analyte | # < LOQ | % < LOQ | # < LOQ in U-SACN | % of < LOQs from U-SACN |
|---|---|---|---|---|
| 28 | 86 | 30.3 | 18 | 20.9 |
| 47 | 0 | 0.0 | 0 | --- |
| 66 | 100 | 35.2 | 19 | 19.0 |
| 85 | 284 | 100.0 | 42 | 14.8 |
| 99 | 8 | 2.8 | 8 | 100.0 |
| 100 | 9 | 3.2 | 3 | 33.3 |
| 138 | 150 | 52.8 | 19 | 12.7 |
| 153 | 17 | 6.0 | 15 | 88.2 |
| 154 | 20 | 7.0 | 18 | 90.0 |

PBDE concentrations for analytes 28, 66, 85, and 138 were below the LOQ in 30% or more of the observations. We used results for these congeners for ΣPBDE analyses, but did not analyze them further. There were no observations below the LOQ for analyte 47, and there were fewer than 10% for analytes 99, 100, 153, and 154. Because of the relatively small number of observations below the LOQ for analytes 99, 100, 153, and 154, we analyzed the data with these observations replaced by ½ the value of the LOQ. For analytes 99, 153, and 154, most of the observations below the LOQ were from study area U-SACN, which had the lowest concentrations for all analytes.

**Table SI2.** Number of bald eagle nestling plasma samples analyzed for PBDEs from frozen archives and contemporary monitoring each year at six study areas in the upper Midwestern U.S.

| | study area [c, d] | | | | | | |
|---|---|---|---|---|---|---|---|
| year[a] | APIS | LSSS | U SACN | L SACN | MISS | MP3&4 | totals |
| historical samples: | | | | | | | |
| 1995 | 0 | 3 | ns | ns | ns | ns | 3 |
| 1996 | 0 | 4 | ns | ns | ns | ns | 4 |
| 1997 | 0 | 1 | ns | ns | ns | ns | 1 |
| 1998 | 1 | 1 | ns | ns | ns | ns | 2 |
| 2000[b] | 1 | 2 | ns | ns | ns | ns | 3 |
| 2001[b] | 1 | 1 | ns | ns | ns | ns | 2 |
| 2002 | 2 | 0 | ns | ns | ns | ns | 2 |
| subtotals | 5 | 12 | ns | ns | ns | ns | 17 |
| contemporary samples: | | | | | | | |
| 2006 | 8 | ns | 11 | 3* | 10 | ns | 32 |
| 2007 | 6 | 6 | 8 | 4* | 11 | ns | 35 |
| 2008 | 5 | 4 | ns | 7 | 15 | 15 | 46 |
| 2009 | ns | ns | ns | 9 | 18 | 12 | 39 |
| 2010 | 9 | ns | 11 | 13 | 23 | 4* | 60 |
| 2011 | 9 | 1* | 12 | 12 | 19 | 2* | 55 |
| subtotals | 37 | 11 | 42 | 48 | 96 | 33 | 267 |
| grand total | 42 | 23 | 42 | 48 | 96 | 33 | 284 |

a= Intensive sampling for PBDEs did not begin until 2006. Samples prior to 2006 are from archived samples.

b= All 5 samples collected in 2001 and 2002 were previously analyzed for PBDEs and reported by Dykstra et. al 1995, but are also included in this analysis.

c = * = Study area not fully sampled; sample(s) from frozen archives (1995-2002) or obtained opportunistically while sampling adjacent study areas (2006-2011).

d= ns= Not sampled; no attempt was made to sample the study area due to funding constraints and/or limited program capacity.

**Table SI3.** Sample size, measures of central tendency, variability, and 95% confidence intervals, estimated in ng/mL for each of five polybrominated diphenyl ether (PBDEs) congeners and the sum of nine congeners (ΣPBDE) measured in bald eagle nestling plasma at six study areas in the upper Midwestern United States, 1995-2011. We caution that where sample size is small (i.e. < 4) some summary statistics are not statistically meaningful. We used mixed effects models as a statistically robust way of examining differences between study areas and to model trends through time.

| | | | arithmetic | | | | geometric | | |
|---|---|---|---|---|---|---|---|---|---|
| **study area** | **year** | **n** | **mean** | **median** | **SD** | **SE** | **mean** | **upper CI** | **lower CI** |
| ***PBDE-47:*** | | | | | | | | | |
| APIS | 1998 | 1 | 1.70 | 1.70 | | | 1.70 | | |
| | 2000 | 1 | 2.40 | 2.40 | | | 2.40 | | |
| | 2001 | 1 | 2.80 | 2.80 | | | 2.80 | | |
| | 2002 | 2 | 4.95 | 4.95 | 2.33 | 1.65 | 4.67 | 9.21 | 2.37 |
| | 2006 | 8 | 5.41 | 5.00 | 2.27 | 0.80 | 4.95 | 6.88 | 3.56 |
| | 2007 | 6 | 3.20 | 2.80 | 1.16 | 0.48 | 3.05 | 3.98 | 2.33 |
| | 2008 | 5 | 2.62 | 2.50 | 0.64 | 0.29 | 2.56 | 3.15 | 2.08 |
| | 2010 | 9 | 2.84 | 2.70 | 1.17 | 0.39 | 2.67 | 3.39 | 2.10 |
| | 2011 | 9 | 2.16 | 1.70 | 1.02 | 0.34 | 1.97 | 2.63 | 1.47 |
| LSSS | 1995 | 3 | 3.73 | 3.20 | 2.25 | 1.30 | 3.29 | 6.63 | 1.63 |
| | 1996 | 5 | 4.46 | 5.00 | 2.03 | 0.91 | 4.01 | 6.51 | 2.46 |
| | 1997 | 1 | 2.30 | 2.30 | | | 2.30 | | |
| | 1998 | 1 | 2.10 | 2.10 | | | 2.10 | | |
| | 2000 | 2 | 2.90 | 2.90 | 0.57 | 0.40 | 2.87 | 3.77 | 2.19 |
| | 2001 | 1 | 2.80 | 2.80 | | | 2.80 | | |
| | 2007 | 6 | 5.65 | 5.45 | 2.46 | 1.00 | 5.24 | 7.38 | 3.72 |
| | 2008 | 4 | 3.15 | 2.70 | 1.37 | 0.68 | 2.96 | 4.37 | 2.00 |
| | 2011 | 1 | 2.10 | 2.10 | | | 2.10 | | |
| U-SACN | 2006 | 11 | 0.63 | 0.51 | 0.27 | 0.08 | 0.56 | 0.76 | 0.42 |
| | 2007 | 8 | 0.70 | 0.51 | 0.63 | 0.22 | 0.56 | 0.89 | 0.35 |
| | 2010 | 11 | 0.81 | 0.55 | 0.59 | 0.18 | 0.65 | 0.97 | 0.44 |
| | 2011 | 12 | 0.46 | 0.47 | 0.12 | 0.04 | 0.44 | 0.52 | 0.38 |
| L-SACN | 2006 | 3 | 8.57 | 7.30 | 4.92 | 2.84 | 7.66 | 14.8 | 3.97 |
| | 2007 | 4 | 3.08 | 3.30 | 0.95 | 0.48 | 2.95 | 4.16 | 2.08 |
| | 2008 | 7 | 3.76 | 3.80 | 1.42 | 0.54 | 3.49 | 4.83 | 2.52 |
| | 2009 | 9 | 6.79 | 4.90 | 3.24 | 1.08 | 6.17 | 8.31 | 4.59 |
| | 2010 | 13 | 3.52 | 3.70 | 0.94 | 0.26 | 3.39 | 3.98 | 2.89 |
| | 2011 | 12 | 3.74 | 3.50 | 1.89 | 0.55 | 3.39 | 4.38 | 2.62 |
| MISS | 2006 | 10 | 9.61 | 8.05 | 4.65 | 1.47 | 8.63 | 11.7 | 6.35 |
| | 2007 | 11 | 10.2 | 7.30 | 5.86 | 1.77 | 8.93 | 12.2 | 6.53 |
| | 2008 | 15 | 8.69 | 9.00 | 2.73 | 0.70 | 8.26 | 9.82 | 6.94 |
| | 2009 | 18 | 7.76 | 6.75 | 3.98 | 0.94 | 6.95 | 8.65 | 5.58 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2010 | 23 | 7.71 | 7.10 | 3.48 | 0.72 | 6.97 | 8.48 | 5.73 |
| | 2011 | 19 | 4.68 | 4.40 | 2.24 | 0.51 | 4.19 | 5.22 | 3.36 |
| Pools 3+4 | 2008 | 15 | 5.89 | 5.90 | 1.61 | 0.42 | 5.69 | 6.52 | 4.97 |
| | 2009 | 12 | 5.20 | 5.10 | 1.40 | 0.40 | 5.04 | 5.83 | 4.36 |
| | 2010 | 4 | 7.33 | 6.35 | 2.53 | 1.27 | 7.04 | 9.58 | 5.18 |
| | 2011 | 2 | 4.00 | 4.00 | 0.42 | 0.30 | 3.99 | 4.62 | 3.44 |

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**Table SI3 Continued.**

***PBDE-99:***

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| APIS | 1998 | 1 | 0.76 | 0.76 | | | 0.76 | | |
| | 2000 | 1 | 1.40 | 1.40 | | | 1.40 | | |
| | 2001 | 1 | 2.20 | 2.20 | | | 2.20 | | |
| | 2002 | 2 | 3.20 | 3.20 | 2.12 | 1.50 | 2.83 | 7.66 | 1.04 |
| | 2006 | 8 | 4.18 | 2.95 | 2.96 | 1.05 | 3.22 | 5.76 | 1.81 |
| | 2007 | 6 | 1.88 | 1.85 | 0.76 | 0.31 | 1.76 | 2.42 | 1.29 |
| | 2008 | 5 | 1.62 | 1.50 | 0.42 | 0.19 | 1.58 | 1.97 | 1.26 |
| | 2010 | 9 | 1.58 | 1.40 | 0.58 | 0.19 | 1.50 | 1.88 | 1.19 |
| | 2011 | 9 | 1.26 | 1.10 | 0.60 | 0.20 | 1.15 | 1.55 | 0.85 |
| LSSS | 1995 | 3 | 0.89 | 0.79 | 0.37 | 0.21 | 0.85 | 1.33 | 0.54 |
| | 1996 | 5 | 1.18 | 0.70 | 0.82 | 0.37 | 0.97 | 1.78 | 0.53 |
| | 1997 | 1 | 1.30 | 1.30 | | | 1.30 | | |
| | 1998 | 1 | 1.10 | 1.10 | | | 1.10 | | |
| | 2000 | 2 | 1.50 | 1.50 | 0.14 | 0.10 | 1.50 | 1.71 | 1.31 |
| | 2001 | 1 | 2.60 | 2.60 | | | 2.60 | | |
| | 2007 | 6 | 4.48 | 2.60 | 5.22 | 2.13 | 3.07 | 6.08 | 1.55 |
| | 2008 | 4 | 1.24 | 1.35 | 0.51 | 0.25 | 1.13 | 1.88 | 0.68 |
| | 2011 | 1 | 1.10 | 1.10 | | | 1.10 | | |
| U-SACN | 2006 | 11 | 0.12 | 0.12 | 0.06 | 0.02 | 0.10 | 0.14 | 0.08 |
| | 2007 | 8 | 0.23 | 0.15 | 0.23 | 0.08 | 0.16 | 0.30 | 0.08 |
| | 2010 | 11 | 0.32 | 0.27 | 0.09 | 0.03 | 0.30 | 0.36 | 0.26 |
| | 2011 | 12 | 0.27 | 0.26 | 0.07 | 0.02 | 0.26 | 0.30 | 0.23 |
| L-SACN | 2006 | 3 | 1.85 | 2.20 | 0.98 | 0.57 | 1.62 | 3.50 | 0.75 |
| | 2007 | 4 | 0.57 | 0.37 | 0.49 | 0.24 | 0.46 | 0.92 | 0.23 |
| | 2008 | 7 | 0.83 | 0.91 | 0.34 | 0.13 | 0.76 | 1.07 | 0.54 |
| | 2009 | 9 | 1.23 | 1.10 | 0.63 | 0.21 | 1.08 | 1.56 | 0.75 |
| | 2010 | 13 | 0.71 | 0.85 | 0.30 | 0.08 | 0.65 | 0.84 | 0.50 |
| | 2011 | 12 | 0.99 | 0.97 | 0.30 | 0.08 | 0.94 | 1.13 | 0.79 |
| MISS | 2006 | 10 | 2.33 | 2.15 | 0.71 | 0.22 | 2.24 | 2.68 | 1.87 |
| | 2007 | 11 | 2.75 | 2.10 | 1.78 | 0.54 | 2.38 | 3.26 | 1.74 |
| | 2008 | 15 | 2.29 | 2.30 | 0.82 | 0.21 | 2.14 | 2.60 | 1.77 |
| | 2009 | 18 | 1.61 | 1.45 | 0.65 | 0.15 | 1.51 | 1.78 | 1.29 |
| | 2010 | 23 | 1.41 | 1.40 | 0.65 | 0.14 | 1.27 | 1.55 | 1.05 |
| | 2011 | 19 | 1.42 | 1.30 | 0.57 | 0.13 | 1.33 | 1.57 | 1.13 |
| Pools 3+4 | 2008 | 15 | 1.48 | 1.40 | 0.79 | 0.20 | 1.28 | 1.71 | 0.96 |
| | 2009 | 12 | 1.20 | 1.05 | 0.51 | 0.15 | 1.11 | 1.39 | 0.89 |
| | 2010 | 4 | 1.98 | 1.85 | 0.93 | 0.47 | 1.81 | 2.92 | 1.12 |
| | 2011 | 2 | 0.92 | 0.92 | 0.04 | 0.03 | 0.92 | 0.97 | 0.87 |

**Table SI3 Continued.**

***PBDE-100:***

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| APIS | 1998 | 1 | 0.55 | 0.55 | | | 0.55 | | |
| | 2000 | 1 | 0.76 | 0.76 | | | 0.76 | | |
| | 2001 | 1 | 1.50 | 1.50 | | | 1.50 | | |
| | 2002 | 2 | 1.95 | 1.95 | 1.06 | 0.75 | 1.80 | 3.98 | 0.81 |
| | 2006 | 8 | 3.19 | 2.55 | 1.89 | 0.67 | 2.67 | 4.28 | 1.67 |
| | 2007 | 6 | 1.71 | 1.70 | 0.8 | 0.33 | 1.54 | 2.31 | 1.03 |
| | 2008 | 5 | 1.37 | 1.40 | 0.44 | 0.20 | 1.31 | 1.76 | 0.98 |
| | 2010 | 9 | 1.22 | 1.10 | 0.57 | 0.19 | 1.12 | 1.48 | 0.84 |
| | 2011 | 9 | 1.00 | 0.78 | 0.51 | 0.17 | 0.90 | 1.23 | 0.65 |
| LSSS | 1995 | 3 | 0.94 | 0.86 | 0.43 | 0.25 | 0.88 | 1.47 | 0.52 |
| | 1996 | 5 | 1.20 | 1.50 | 0.50 | 0.23 | 1.10 | 1.70 | 0.72 |
| | 1997 | 1 | 0.75 | 0.75 | | | 0.75 | | |
| | 1998 | 1 | 0.67 | 0.67 | | | 0.67 | | |
| | 2000 | 2 | 1.15 | 1.15 | 0.07 | 0.05 | 1.15 | 1.25 | 1.06 |
| | 2001 | 1 | 1.30 | 1.30 | | | 1.30 | | |
| | 2007 | 6 | 3.43 | 3.20 | 1.80 | 0.73 | 3.10 | 4.57 | 2.11 |
| | 2008 | 4 | 1.08 | 1.05 | 0.33 | 0.17 | 1.04 | 1.41 | 0.76 |
| | 2011 | 1 | 0.88 | 0.88 | | | 0.88 | | |
| U-SACN | 2006 | 11 | 0.18 | 0.17 | 0.05 | 0.02 | 0.17 | 0.20 | 0.14 |
| | 2007 | 8 | 0.20 | 0.17 | 0.19 | 0.07 | 0.14 | 0.26 | 0.08 |
| | 2010 | 11 | 0.33 | 0.25 | 0.14 | 0.04 | 0.31 | 0.39 | 0.24 |
| | 2011 | 12 | 0.24 | 0.24 | 0.06 | 0.02 | 0.23 | 0.27 | 0.19 |
| L-SACN | 2006 | 3 | 2.10 | 1.70 | 1.25 | 0.72 | 1.87 | 3.62 | 0.97 |
| | 2007 | 4 | 1.12 | 1.04 | 0.58 | 0.29 | 1.01 | 1.72 | 0.60 |
| | 2008 | 7 | 0.62 | 0.48 | 0.59 | 0.22 | 0.28 | 0.91 | 0.09 |
| | 2009 | 9 | 1.81 | 1.30 | 0.87 | 0.29 | 1.65 | 2.21 | 1.24 |
| | 2010 | 13 | 0.87 | 0.97 | 0.21 | 0.06 | 0.84 | 0.97 | 0.73 |
| | 2011 | 12 | 0.97 | 0.90 | 0.39 | 0.11 | 0.91 | 1.12 | 0.74 |
| MISS | 2006 | 10 | 2.17 | 1.85 | 1.05 | 0.33 | 1.96 | 2.63 | 1.45 |
| | 2007 | 11 | 2.36 | 1.90 | 1.36 | 0.41 | 2.09 | 2.80 | 1.55 |
| | 2008 | 15 | 1.98 | 2.00 | 0.60 | 0.15 | 1.89 | 2.24 | 1.59 |
| | 2009 | 18 | 1.71 | 1.50 | 0.74 | 0.17 | 1.59 | 1.90 | 1.32 |
| | 2010 | 23 | 1.56 | 1.50 | 0.57 | 0.12 | 1.46 | 1.71 | 1.24 |
| | 2011 | 19 | 1.10 | 1.20 | 0.47 | 0.11 | 1.01 | 1.23 | 0.83 |
| Pools 3+4 | 2008 | 15 | 1.14 | 1.30 | 0.67 | 0.17 | 0.72 | 1.42 | 0.36 |
| | 2009 | 12 | 1.36 | 1.30 | 0.35 | 0.10 | 1.32 | 1.51 | 1.16 |
| | 2010 | 4 | 1.65 | 1.45 | 0.51 | 0.25 | 1.60 | 2.10 | 1.22 |
| | 2011 | 2 | 0.93 | 0.93 | 0.02 | 0.02 | 0.93 | 0.96 | 0.90 |

**Table SI3 Continued.**

***PBDE-153:***

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| APIS | 1998 | 1 | 0.48 | 0.48 | | | 0.48 | | |
| | 2000 | 1 | 0.56 | 0.56 | | | 0.56 | | |
| | 2001 | 1 | 0.60 | 0.60 | | | 0.60 | | |
| | 2002 | 2 | 1.06 | 1.06 | 0.63 | 0.45 | 0.96 | 2.31 | 0.40 |
| | 2006 | 8 | 1.91 | 0.93 | 1.86 | 0.66 | 1.24 | 2.53 | 0.60 |
| | 2007 | 6 | 0.57 | 0.49 | 0.29 | 0.12 | 0.50 | 0.77 | 0.33 |
| | 2008 | 5 | 0.42 | 0.41 | 0.16 | 0.07 | 0.39 | 0.56 | 0.27 |
| | 2010 | 9 | 0.39 | 0.20 | 0.27 | 0.09 | 0.33 | 0.49 | 0.22 |
| | 2011 | 9 | 0.65 | 0.49 | 0.27 | 0.09 | 0.61 | 0.77 | 0.48 |
| LSSS | 1995 | 3 | 0.54 | 0.48 | 0.11 | 0.06 | 0.54 | 0.67 | 0.43 |
| | 1996 | 5 | 0.61 | 0.63 | 0.11 | 0.05 | 0.60 | 0.71 | 0.51 |
| | 1997 | 1 | 0.55 | 0.55 | | | 0.55 | | |
| | 1998 | 1 | 0.47 | 0.47 | | | 0.47 | | |
| | 2000 | 2 | 0.48 | 0.48 | 0.18 | 0.13 | 0.46 | 0.80 | 0.27 |
| | 2001 | 1 | 0.41 | 0.41 | | | 0.41 | | |
| | 2007 | 6 | 2.15 | 0.69 | 3.61 | 1.47 | 1.01 | 2.53 | 0.41 |
| | 2008 | 4 | 0.27 | 0.25 | 0.13 | 0.06 | 0.25 | 0.39 | 0.16 |
| | 2011 | 1 | 0.59 | 0.59 | | | 0.59 | | |
| U-SACN | 2006 | 11 | 0.084 | 0.06 | 0.10 | 0.029 | 0.07 | 0.09 | 0.05 |
| | 2007 | 8 | 0.11 | 0.06 | 0.08 | 0.03 | 0.09 | 0.14 | 0.06 |
| | 2010 | 11 | 0.32 | 0.20 | 0.17 | 0.05 | 0.28 | 0.38 | 0.21 |
| | 2011 | 12 | 0.23 | 0.20 | 0.09 | 0.03 | 0.22 | 0.25 | 0.19 |
| L-SACN | 2006 | 3 | 0.63 | 0.75 | 0.32 | 0.19 | 0.55 | 1.17 | 0.26 |
| | 2007 | 4 | 0.25 | 0.12 | 0.31 | 0.16 | 0.15 | 0.45 | 0.05 |
| | 2008 | 7 | 0.27 | 0.27 | 0.07 | 0.03 | 0.26 | 0.32 | 0.21 |
| | 2009 | 9 | 0.50 | 0.51 | 0.20 | 0.07 | 0.47 | 0.60 | 0.37 |
| | 2010 | 13 | 0.36 | 0.41 | 0.16 | 0.04 | 0.33 | 0.42 | 0.25 |
| | 2011 | 12 | 0.57 | 0.57 | 0.06 | 0.02 | 0.57 | 0.60 | 0.54 |
| MISS | 2006 | 10 | 0.85 | 0.70 | 0.49 | 0.16 | 0.75 | 1.02 | 0.56 |
| | 2007 | 11 | 0.98 | 0.75 | 0.66 | 0.20 | 0.85 | 1.16 | 0.62 |
| | 2008 | 15 | 0.55 | 0.60 | 0.19 | 0.05 | 0.52 | 0.63 | 0.42 |
| | 2009 | 18 | 0.65 | 0.60 | 0.26 | 0.06 | 0.61 | 0.73 | 0.51 |
| | 2010 | 23 | 0.72 | 0.69 | 0.24 | 0.05 | 0.69 | 0.77 | 0.62 |
| | 2011 | 19 | 0.73 | 0.63 | 0.30 | 0.07 | 0.69 | 0.80 | 0.60 |
| Pools 3+4 | 2008 | 15 | 0.43 | 0.40 | 0.23 | 0.06 | 0.37 | 0.52 | 0.26 |
| | 2009 | 12 | 0.58 | 0.50 | 0.28 | 0.08 | 0.54 | 0.66 | 0.44 |
| | 2010 | 4 | 0.83 | 0.80 | 0.21 | 0.10 | 0.81 | 1.03 | 0.63 |
| | 2011 | 2 | 0.58 | 0.58 | 0.01 | 0.01 | 0.58 | 0.60 | 0.56 |

**Table SI3 Continued.**

***PBDE-154:***

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| APIS | 1998 | 1 | 0.54 | 0.54 | | | 0.54 | | |
| | 2000 | 1 | 0.71 | 0.71 | | | 0.71 | | |
| | 2001 | 1 | 0.45 | 0.45 | | | 0.45 | | |
| | 2002 | 2 | 1.30 | 1.30 | 0.42 | 0.30 | 1.26 | 2.0 | 0.8 |
| | 2006 | 8 | 1.36 | 0.97 | 0.87 | 0.31 | 1.11 | 1.83 | 0.67 |
| | 2007 | 6 | 0.69 | 0.60 | 0.36 | 0.15 | 0.63 | 0.93 | 0.42 |
| | 2008 | 5 | 0.54 | 0.50 | 0.14 | 0.06 | 0.53 | 0.66 | 0.42 |
| | 2010 | 9 | 0.88 | 0.76 | 0.45 | 0.15 | 0.77 | 1.14 | 0.52 |
| | 2011 | 9 | 0.84 | 0.71 | 0.37 | 0.12 | 0.78 | 1.02 | 0.60 |
| LSSS | 1995 | 3 | 0.88 | 0.77 | 0.38 | 0.22 | 0.83 | 1.33 | 0.52 |
| | 1996 | 5 | 1.03 | 1.10 | 0.39 | 0.18 | 0.97 | 1.39 | 0.67 |
| | 1997 | 1 | 0.74 | 0.74 | | | 0.74 | | |
| | 1998 | 1 | 0.58 | 0.58 | | | 0.58 | | |
| | 2000 | 2 | 0.42 | 0.42 | 0.01 | 0.01 | 0.42 | 0.44 | 0.40 |
| | 2001 | 1 | 0.70 | 0.70 | | | 0.70 | | |
| | 2007 | 6 | 1.20 | 1.11 | 0.60 | 0.25 | 1.08 | 1.62 | 0.72 |
| | 2008 | 4 | 0.39 | 0.41 | 0.11 | 0.05 | 0.38 | 0.51 | 0.28 |
| | 2011 | 1 | 0.73 | 0.73 | | | 0.70 | | |
| U-SACN | 2006 | 11 | 0.09 | 0.09 | | | 0.09 | 0.09 | 0.09 |
| | 2007 | 8 | 0.11 | 0.09 | 0.05 | 0.02 | 0.10 | 0.13 | 0.08 |
| | 2010 | 11 | 0.27 | 0.20 | 0.13 | 0.04 | 0.25 | 0.32 | 0.20 |
| | 2011 | 12 | 0.22 | 0.20 | 0.06 | 0.02 | 0.21 | 0.24 | 0.19 |
| L-SACN | 2006 | 3 | 0.55 | 0.53 | 0.29 | 0.17 | 0.49 | 0.94 | 0.26 |
| | 2007 | 4 | 0.34 | 0.31 | 0.22 | 0.11 | 0.27 | 0.60 | 0.12 |
| | 2008 | 7 | 0.33 | 0.35 | 0.12 | 0.05 | 0.30 | 0.45 | 0.20 |
| | 2009 | 9 | 0.51 | 0.44 | 0.16 | 0.05 | 0.49 | 0.60 | 0.40 |
| | 2010 | 13 | 0.38 | 0.44 | 0.15 | 0.04 | 0.35 | 0.44 | 0.27 |
| | 2011 | 12 | 0.57 | 0.54 | 0.12 | 0.03 | 0.56 | 0.62 | 0.50 |
| MISS | 2006 | 10 | 0.63 | 0.57 | 0.29 | 0.09 | 0.58 | 0.76 | 0.44 |
| | 2007 | 11 | 0.91 | 0.61 | 0.64 | 0.19 | 0.77 | 1.08 | 0.55 |
| | 2008 | 15 | 0.57 | 0.57 | 0.18 | 0.05 | 0.54 | 0.64 | 0.46 |
| | 2009 | 18 | 0.66 | 0.59 | 0.28 | 0.07 | 0.61 | 0.74 | 0.50 |
| | 2010 | 23 | 0.78 | 0.73 | 0.25 | 0.05 | 0.74 | 0.84 | 0.65 |
| | 2011 | 19 | 0.65 | 0.64 | 0.18 | 0.04 | 0.63 | 0.71 | 0.55 |
| Pools 3+4 | 2008 | 15 | 0.43 | 0.40 | 0.16 | 0.04 | 0.41 | 0.48 | 0.34 |
| | 2009 | 12 | 0.51 | 0.47 | 0.18 | 0.05 | 0.49 | 0.58 | 0.41 |
| | 2010 | 4 | 0.83 | 0.75 | 0.18 | 0.09 | 0.81 | 0.99 | 0.67 |
| | 2011 | 2 | 0.56 | 0.56 | 0.021 | 0.02 | 0.56 | 0.59 | 0.53 |

**Table SI3 Continued.**

***ΣPBDE:***

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| APIS | 1998 | 1 | 4.53 | 4.53 | | | 4.53 | | |
| | 2000 | 1 | 6.33 | 6.33 | | | 6.33 | | |
| | 2001 | 1 | 8.00 | 8.00 | | | 8.00 | | |
| | 2002 | 2 | 13.0 | 13.0 | 6.60 | 4.60 | 12.1 | 25.2 | 5.80 |
| | 2006 | 8 | 16.5 | 12.5 | 9.20 | 3.30 | 14.1 | 22.0 | 9.00 |
| | 2007 | 6 | 8.94 | 8.44 | 3.52 | 1.44 | 8.39 | 11.8 | 6.14 |
| | 2008 | 5 | 6.91 | 7.54 | 1.45 | 0.65 | 6.78 | 8.24 | 5.58 |
| | 2010 | 9 | 7.43 | 6.60 | 2.90 | 0.97 | 7.01 | 8.83 | 5.56 |
| | 2011 | 9 | 6.41 | 5.33 | 2.73 | 0.91 | 5.95 | 7.72 | 4.58 |
| LSSS | 1995 | 3 | 7.49 | 6.40 | 3.47 | 2.00 | 6.99 | 11.6 | 4.21 |
| | 1996 | 5 | 8.98 | 11.1 | 3.45 | 1.54 | 8.35 | 12.4 | 5.63 |
| | 1997 | 1 | 6.14 | 6.14 | | | 6.14 | | |
| | 1998 | 1 | 5.42 | 5.42 | | | 5.42 | | |
| | 2000 | 2 | 6.90 | 6.90 | 0.44 | 0.31 | 6.89 | 7.53 | 6.31 |
| | 2001 | 1 | 8.26 | 8.26 | | | 8.26 | | |
| | 2007 | 6 | 18.0 | 14.2 | 13.6 | 5.60 | 15.1 | 24.5 | 9.40 |
| | 2008 | 4 | 6.47 | 6.18 | 2.32 | 1.16 | 6.17 | 8.78 | 4.33 |
| | 2011 | 1 | 6.09 | 6.09 | | | 6.09 | | |
| U-SACN | 2006 | 11 | 1.42 | 1.29 | 0.29 | 0.09 | 1.39 | 1.57 | 1.23 |
| | 2007 | 8 | 1.69 | 1.22 | 1.09 | 0.39 | 1.49 | 2.08 | 1.07 |
| | 2010 | 11 | 2.57 | 1.96 | 1.08 | 0.33 | 2.40 | 2.99 | 1.92 |
| | 2011 | 12 | 1.91 | 1.90 | 0.33 | 0.10 | 1.89 | 2.07 | 1.72 |
| L-SACN | 2006 | 3 | 14.1 | 12.8 | 7.70 | 4.40 | 12.6 | 24.2 | 6.60 |
| | 2007 | 4 | 6.53 | 6.29 | 2.76 | 1.38 | 6.09 | 9.40 | 3.94 |
| | 2008 | 7 | 6.13 | 6.81 | 2.16 | 0.82 | 5.76 | 7.72 | 4.30 |
| | 2009 | 9 | 12.4 | 9.68 | 5.17 | 1.72 | 11.6 | 15.0 | 8.90 |
| | 2010 | 13 | 6.43 | 6.90 | 1.62 | 0.45 | 6.23 | 7.19 | 5.40 |
| | 2011 | 12 | 7.57 | 7.31 | 2.68 | 0.77 | 7.19 | 8.66 | 5.98 |
| MISS | 2006 | 10 | 16.0 | 13.5 | 7.20 | 2.30 | 14.7 | 19.3 | 11.1 |
| | 2007 | 11 | 18.7 | 13.3 | 10.1 | 3.00 | 16.8 | 22.1 | 12.7 |
| | 2008 | 15 | 14.4 | 14.7 | 4.10 | 1.10 | 13.8 | 16.3 | 11.8 |
| | 2009 | 18 | 13.6 | 12.1 | 6.10 | 1.40 | 12.5 | 15.1 | 10.3 |
| | 2010 | 23 | 13.0 | 12.5 | 4.80 | 1.00 | 12.2 | 14.3 | 10.4 |
| | 2011 | 19 | 9.33 | 9.34 | 3.53 | 0.81 | 8.73 | 10.3 | 7.38 |
| Pools 3+4 | 2008 | 15 | 9.74 | 9.57 | 3.24 | 0.84 | 9.27 | 10.9 | 7.86 |
| | 2009 | 12 | 10.4 | 10.3 | 2.70 | 0.80 | 10.1 | 11.6 | 8.90 |
| | 2010 | 4 | 13.4 | 11.9 | 4.30 | 2.10 | 13.0 | 17.2 | 9.80 |
| | 2011 | 2 | 7.77 | 7.77 | 0.49 | 0.35 | 7.76 | 8.46 | 7.11 |