Egg PCB Contamination of Various Avian Feeding Guilds from the Upper Hudson River

Joseph C. Steinbacher¹, Christopher J. Balk², Kathryn A. Jahn³ and Thomas M. Brosnan¹

¹ National Oceanic & Atmospheric Administration
    Silver Spring, Maryland
² New York State Department of Environmental Conservation
    Gloversville, NY
³ U.S. Fish & Wildlife Service
    Cortland, New York
Study Objectives:

- Screening level survey of PCB contamination
- Preliminary measure for basing future investigations
Species of Interest:
Sample Collection:

- April 16, 2002 to June 20, 2002
- 220 eggs collected; 168 egg samples
- 48 PCB congeners
Sampling Sites:
Feeding Guilds:

- Barn Swallow
- Eastern Phoebe
- Rough Winged Swallow
- Belted Kingfisher
- Spotted Sandpiper
- American Robin
- Common Grackle
- Red Winged Blackbird
Total PCBs
Hudson River Sediment PCBs:

[Map showing regions along the Hudson River and a graph plotting PCB concentrations by region.]
Egg PCB Concentrations by Region:
Kingfisher and Sandpiper
Swallows and Phoebe

![Map showing the locations of Swallows and Phoebe with regions labeled (Region 1, Region 2, Region 3, Region 4).]

![Graph showing PCB concentration (ng/g DW) with regions 1 to 4.]
Blackbird, Grackle and Robin
Feeding Guild Comparison

PCB Concentration (ng/g WW)

- Kingfisher
- Sandpiper
- Swallows
- Phoebe
- Blackbird
- Grackle, Robin

Data points showing PCB concentrations for different bird species.
PCB Homologs
Hudson River Sediment PCB Homolog Composition
Kingfisher and Sandpiper PCB Homolog Composition
Swallow and Phoebe PCB Homolog Composition
Robin, Grackle And Blackbird PCB Homolog Composition
Conclusions

- Avian eggs are contaminated with PCBs (20 to 56,000 ppb; 12% > 10,000 ppb)
- Regional egg t-PCB concentration trends are reflective of regional sediment trends
- Regional egg homolog compositions show similar pattern shift as sediments