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Title: Organochlorine compounds in bald eagle eggs from Maine, 2000 - 2006

Steven E. Mierzykowski, U.S. Fish and Wildlife Service, 17 Godfrey Drive, Suite 2, Orono, Maine 04473
(207) 866-3344 x 112, steve_mierzykowski@fws.gov

Charles S. Todd, Maine Department of Inland Fisheries and Wildlife, Bangor, ME
Michael Johnson, STANTEC, Topsham, ME
Christopher R. DeSorbo, BioDiversity Research Institute, Gorham, ME
William Hanson, FPL Energy Maine Hydro, Lewiston, ME

Abstract: Between 2000 and 2006, forty-three non-viable bald eagle eggs were recovered from thirty nest territories in Maine and analyzed for organochlorine compounds. Mean 2,3,7,8 - TCDD concentration was 4.9 pg/g (fresh wet weight) at 10 territories, but was below detection at 20 territories. Dioxin toxic equivalents (TCDD-TEQ) ranged widely from 28 to 1145 pg/g. PCB #77, PCB #81, and PCB #126 were the dominant dioxin-like congeners in eggs contributing over 80% to the TCDD-TEQ. Mean Total PCB concentration in eggs was 4.91 µg/g (SD ± 3.60 µg/g, range: 0.84 – 13.42 µg/g), while DDE ranged from 0.32 to 4.38 µg/g (mean/SD 1.24 ± 0.99 µg/g). PBDE was measured in 15 eggs (mean/SD 464 ± 409 ng/g, range: 91 – 1599 ng/g). Chlordanes, HCHs, DDD, mirex, and other organochlorine compounds were below analytical detection limits or were found at concentrations < 100 ng/g. Mean concentrations of TCDD-TEQ, Total PCB, and DDE were generally below suggested biological effect thresholds, but TCDD-TEQ levels at eight nests exceeded the threshold (303 pg/g). Egg collections occurred primarily at inland lacustrine and riverine nest locations. There was no significant difference ($p > 0.05$) in TCDD-TEQ, Total PCB, and DDE egg concentrations between these two habitat types. Recent Total PCB and DDE results were compared with Maine bald eagle egg collections from four previous decades. Total PCB concentrations in eggs appear to exhibit a 7-fold decline since the 1970s, while DDE levels appear to have declined 17-fold since the 1960s. Time-trend comparisons of egg contaminant levels with previous decades were limited by smaller sample sizes and a greater representation of eggs from coastal nest territories where the prey type is dominated by seabirds and marine mammals. Recent egg collections were primarily from inland nest sites where the eagle prey base is dominated by fish.