

Waterfowl mercury data

2023 Update

Summary

A total of 210 birds from sixteen species of waterfowl were collected for this study. Composite samples of breast tissue were used for methyl mercury analysis. **Table 1** provides summary statistics for the weighted mean and standard deviation. None of the waterfowl were above EPA's screening level of 0.3 milligrams mercury per kilogram fresh muscle tissue (mg/kg wet weight) for mercury (**Figure 1**). Several species (Bufflehead, Common goldeneye, ring-necked duck, and swan) had small sample sizes making it difficult to provide an accurate estimation of mean mercury levels. A comparison of mercury levels from ducks collected in 2006 to samples collected in fall 2021 is shown in **Table 2** and **Figure 2**. Mean concentrations were lower for all species collected in 2021 compared to 2006. Based on the 2021 sampling data, the Environmental Epidemiology Program recommends lifting consumption advisories for Cinnamon teal and Northern shoveler species. Although the mean mercury concentration for Common goldeneye was below the screening level, the sample size was too small to accurately estimate human health risks.

Table 1. Summary statistics for mercury concentrations (mg/kg wet weight) in breast tissue of waterfowl collected from the Great Salt Lake, Utah in fall 2021.

Species	N ^a	Mean (mg/kg) ^b	St. Dev	Above SV ^c (Y or N)
American wigeon	24	0.010	0.003	N
Bufflehead	1	0.230	—	N
Canada goose	7	0.003	0.001	N
Canvasback	10	0.007	0.004	N
Cinnamon teal	21	0.209	0.106	N
Common goldeneye	3	0.167	0.033	N
Gadwall	27	0.020	0.009	N
Green-winged teal	11	0.066	0.039	N
Lesser scaup	9	0.065	0.006	N
Mallard	15	0.014	0.005	N
Northern pintail	22	0.029	0.015	N
Northern shoveler	25	0.198	0.119	N
Redhead	18	0.005	0.001	N
Ring-necked duck	3	0.009	0.003	N

Ruddy Duck	10	0.018	0.007	N
Swan	4	0.006	0.002	N

Waterfowl samples collected by the Utah Division of Wildlife Resources.

^a N = total number of birds in composite samples

^b Weighted mean for composite samples

^c SV = screening value of 0.3 milligrams mercury per kilogram fresh muscle tissue weight (EPA)

Bolded values = Current advisory for species

Table 2. Comparison of mercury levels (wet weight mg/kg) in ducks collected from the Great Salt Lake in fall 2006 and 2021.

Species	2006 Mean (mg/kg) (N ^a)	2021 Mean ^b (mg/kg) (N ^c)
American wigeon	—	0.010 (24)
Bufflehead	—	0.230 (1)
Canada goose	—	0.003 (7)
Canvasback	—	0.007 (10)
Cinnamon teal	0.369 (34)	0.209 (21)
Common goldeneye	0.669 (29)	0.167 (3)
Gadwall	0.017 (1)	0.020 (27)
Green-winged teal	0.091 (37)	0.066 (11)
Lesser scaup	0.171 (12)	0.065 (9)
Mallard	0.064 (64)	0.014 (15)
Northern pintail	0.046 (26)	0.029 (22)
Northern shoveler	0.312 (77)	0.198 (25)
Redhead	0.017 (9)	0.005 (18)
Ring-necked duck	—	0.009 (3)
Ruddy duck	0.098 (5)	0.018 (10)
Swan	—	0.006 (4)

Waterfowl samples collected by the Utah Division of Wildlife Resources.

^a Sample size

^b Weighted mean for composite samples

^c Total number of birds in composite samples

Bold values = Current advisory for species based on 2006 data; highlighted values = lift advisory based on 2021 data.

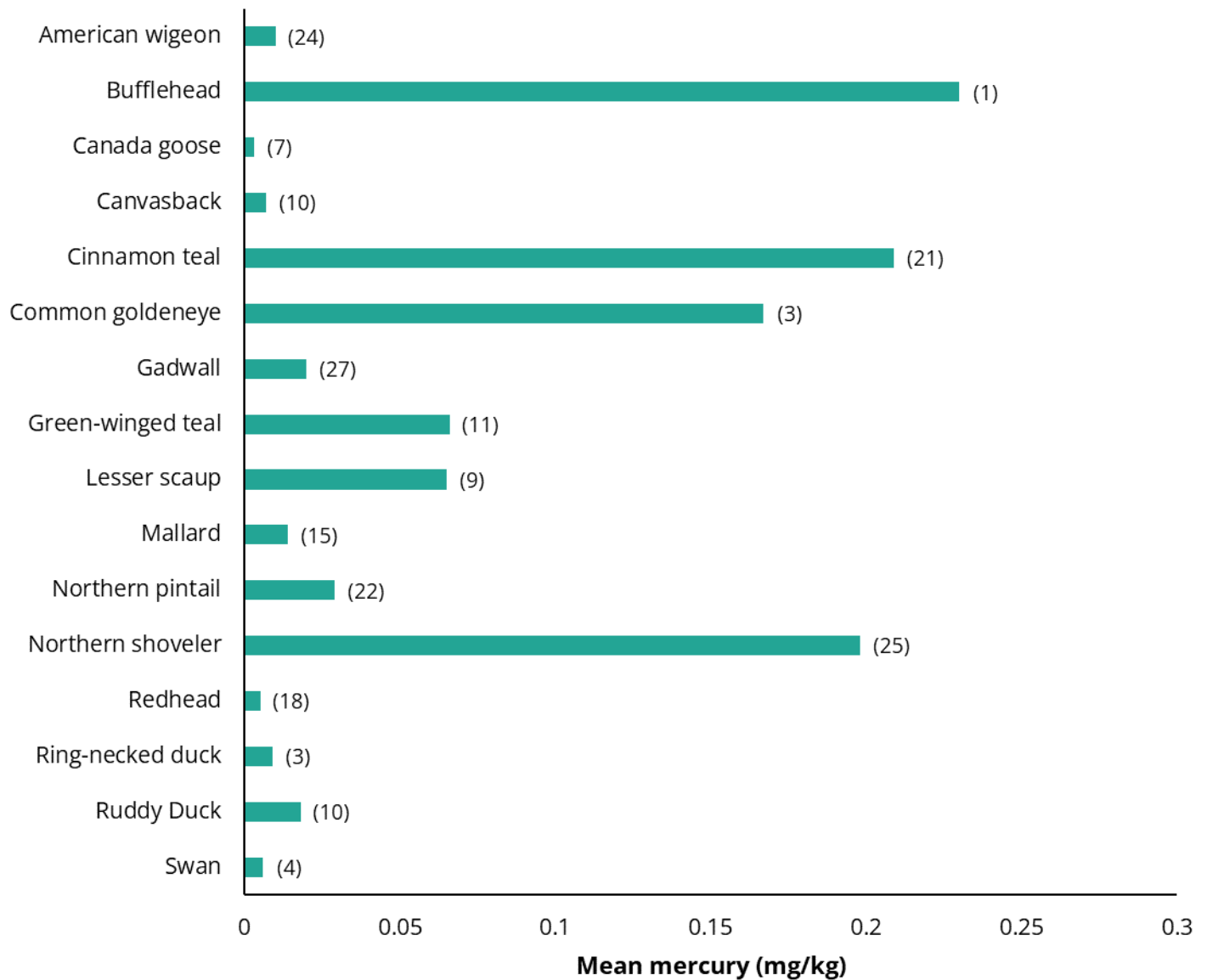


Figure 1. Mean mercury concentrations in waterfowl from the Great Salt Lake collected in fall of 2021.

*Number in paratheses is total number of birds in composite samples.

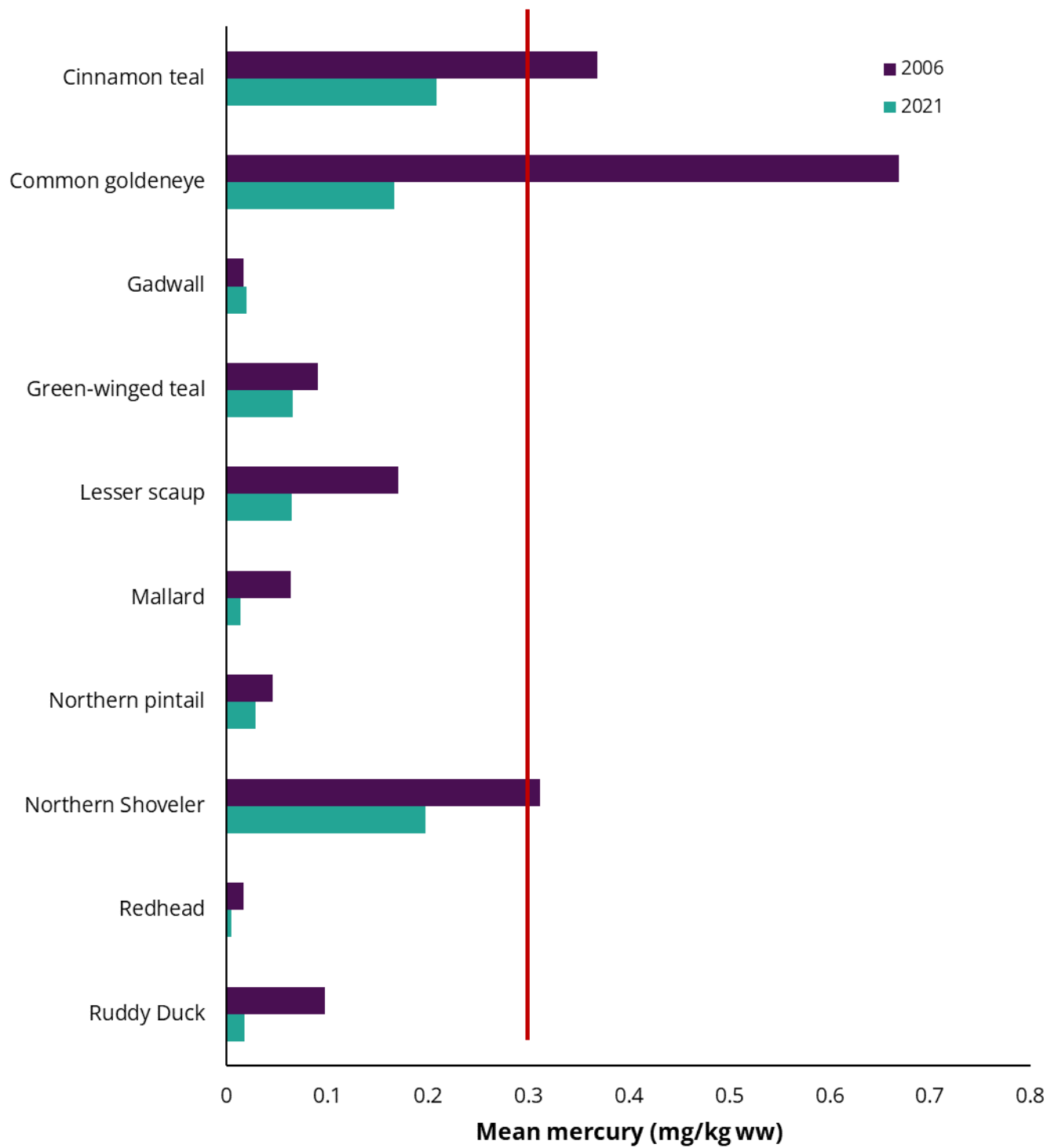


Figure 2. Comparison of mean mercury levels (mg/kg ww) in waterfowl tissue from samples collected in 2006 and 2021.

* Red line = EPA screening value