

BIOACCUMULATION OF ^{137}Cs IN FLORIDA GREEN WATERSNAKES (*NERODIA FLORIDANA*) FROM THREE WETLANDS ON THE SAVANNAH RIVER SITE

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The Savannah River Site (SRS) is a 780-km² United States Dept. of Energy (USDOE) owned property with a history of radiocesium (^{137}Cs) contamination in reservoirs associated with the nuclear reactor cooling process. Radiocesium is a long-lived gamma-emitting radionuclide that can bioaccumulate in biota. The Florida Green Watersnake (*Nerodia floridana*) is a primarily piscivorous species with trophic links to terrestrial and aquatic food webs. A wide range of intraspecific size variation and a preference for permanent still waters (e.g., cooling reservoirs on the SRS) make *N. floridana* an ideal model for studying bioaccumulation of ^{137}Cs in a top predator. Our study quantified ^{137}Cs concentrations in *N. floridana* captured from three SRS reservoirs (Par Pond, Pond B, & Pond 2) with unique contamination histories, and determined if snake ^{137}Cs body burdens increased with size. We used a NaI gamma detector to determine each snake's ^{137}Cs body burden. Average ^{137}Cs body burden of snakes from Pond B (0.67 Bq/g \pm 0.05) was significantly higher than the average ^{137}Cs body burden of snakes from Par Pond or Pond 2 (0.09 Bq/g \pm 0.05 & 0.03 Bq/g \pm 0.02,

respectively). Of the three locations sampled, Par Pond and Pond B showed significant correlations between increasing body size and ^{137}Cs body burdens ($r^2 = 0.56$, $p = 0.008$ & $r^2=0.29$, $p=0.008$, respectively). Our results indicated that *N. floridana* can be a useful model organism for examining the fate of radionuclides in aquatic ecosystems.



Kyle checking traps.