# Poster #8

## Shell Thickness of Alligator Eggs From Contaminated and Reference Lakes

Teresa Bryan, Matthew R. Milnes, and Louis J. Guillette, Jr.

Department of Zoology, University of Florida, Gainesville, FL 32611

kuba@ufl.edu, (352) 392-1098, fax (352) 392-3704

We compared eggshell thickness among American Alligator (*Alligator mississippiensis*) eggs from four lakes in north central Florida (Apopka, Woodruff, Griffin, and Orange). Lakes Apopka and Griffin have recently experienced a decline in egg viability when compared to Lakes Woodruff and Orange. Reduced egg viability, along with developmental abnormalities in alligators from Lake Apopka, may be related to relatively higher serum and egg yolk organochlorine concentrations (when compared to Lakes Orange and Woodruff). Organochlorines have been implicated in thinning the calcareous layer of avian eggshells. The cause of reduced egg viability in alligator populations from Lakes Apopka and Griffin remains undetermined. Eggshells were oven-dried and measured to the nearest 0 .01mm with a dial caliper. Analysis of variance (ANOVA) was performed to compare eggshell thickness among clutches and lakes. Mean eggshell thickness varied among clutches ($p < 0.0001$). In eggs of early to mid-incubation (embryonic stages 3-23), thickness varied among lakes ($p<0.0001$). Post-hoc comparisons show that Lake Griffin eggs have significantly ($p < 0.05$) greater shell thickness than the other three lakes. Thickness also varied among lakes in post-hatching shells ($p<0.0001$) and was greatest in lakes Griffin and Apopka. Embryonic stage 19 eggshells were compared to those of hatched eggs using an unpaired t-test. Shell thickness decreased significantly ($p<0.0001$) from stage 19 to hatching among all lakes. No difference was detected in the combined interaction of lake and stage on shell thickness ($p= 0.31$). Reduced eggshell thickness does not appear to be correlated with reduced egg viability. Future research on egg viability could examine the permeability and composition of the eggshell and the membranes within the shell.