

## Poster #10

### Effects of Endocrine-Disrupting Contaminants on American Alligator (*Alligator mississippiensis*) Spleen and Thymus Morphology

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Several data support bi-directional, regulatory relationships between neuroendocrine and lymphoid systems in amphibians and reptiles. Neuroendocrine abnormalities are associated with exposure to a range of endocrine disrupting contaminants (EDCs). The alligators in Florida provide a well-studied wildlife example of EDC-induced abnormalities. Alligator spleens and thymus were taken from juvenile animals captured in a national wildlife refuge, Lake Woodruff and from a contaminant-associated lake, Lake Apopka. Histological preparations of these tissues were analyzed to determine if previously detected endocrine abnormalities associated with EDCs might also be reflected in morphological variations in splenic and thymic structures important for immunological response. Splenic pariaarterial lymphoid sheaths (PALS) width differed between lakes for females with Lake Woodruff having larger width than Lake Apopka animals. Sexual dimorphism was seen in PALS width of Lake Woodruff animals. Malpighian body (splenic nodules) area was significantly larger in Lake Woodruff animals than in Lake Apopka animals. Juveniles from Lake Apopka exhibited a smaller thymic medulla/cortex ratio, due to the larger cortical areas observed, compared to those in the reference site. Enlarged cortex could represent a change in T-lymphocyte maturation within the thymus of alligators in Lake Apopka, suggesting that animals from Lake Apopka had a highly active thymus to correct a reduced T-lymphocyte presence in the spleen. This study points to EDCs producing morphological change in lymphatic cell densities.