

Characterization of heavy metals found in *Crocodylus acutus* from Coiba Island and Gulf of Montijo, Panama

Betzaida Rivera-Rivera*¹, Myriam Venegas-Anaya², Llewellyn D. Densmore III¹

¹Department of Biological Sciences, Texas Tech University, Lubbock, TX 79409-3131, USA.

(biobetzaida@gmail.com; lou.densmore@ttu.edu)

²Smithsonian Tropical Research Institute, Apartado Postal 0843-03092, Balboa, Ancón, Republic of Panama. (dracocodrilo@hotmail.com)

Abstract: Heavy metals have a relatively high density compared to other components such as water. The environmental sources of metals can be from Industrial, agricultural and pharmaceutical, mining smelters among others. Metals are bioavailable and can have toxic effects on organisms when they surpass limit concentrations. Therefore, is important to establish a direct connection of these disruptive contaminants in the marine coastal environment and their impact on ecosystem functioning. This relationship can be established using an apex predator, the American Crocodile (*Crocodylus acutus*), as a bioindicator. For over 2 years in different seasons (rainy and dry) 141 American Crocodiles were captured and morphological measurements were taken such as rostrum, total body, and tail lengths, head, occipital bone, eye, and nose widths, as well as gender and habitat from which the individual was captured. Scutes were analyzed using Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES) to determine the concentrations of heavy metals in the study areas (Coiba Island and Gulf of Montijo, Panamá). We did find a significant difference between study sites, groups ages and seasons. The study sites showed a difference in a higher concentration of metals in the Gulf of Montijo and a lower concentration of metals in Coiba Island. Juveniles presented higher metal concentrations followed by sub-adult and adults. However, we did not find a significant difference between sexes. This project should generate clear conservation strategies for the population of *Crocodylus acutus* located in Coiba Island, and the Gulf of Montijo Gulf, and ultimately contribute to the development of future strategies for fisheries and other activities that affect the marine coastal environment.

Keywords: Heavy metals, Contamination, American crocodile, Coastal environment

Type of Presentation: Oral

Thematic Area: *In situ* Conservation and Sustainable Use (P13: Habitat Management)