Population abundance of *Crocodylus acutus* and zoning of risk areas in Osumacinta, Chiapas, Mexico

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Abstract: This study was funded by the CSG SRAS grant, and his goal was to identify and establish zones with any kind of human-crocodile encounter risk in the nearby areas of the Osumacinta municipality in Chiapas, Mexico, based on the estimation of the population abundance, the encounter rate (TE) and the geographic location of American crocodiles (*Crocodylus acutus*) in the east bank of the Manuel Moreno Torres Hydroelectric Dam especially in those areas which are carried out anthropogenic activities such as fishing and production of fish in a floating cage (PFFC). From April to August in 2018 were carried out three-night crocodile counts on April-June-August (one for each month). We registered an average abundance of 45.6 American crocodiles (16, 64 and 57 respectively), additionally the crocodiles were categorized in six different groups or classes according to their estimated size or total length (LT). The class I that includes hatchlings was the most representative (31 individuals), followed by II, III (juveniles-sub adults)) and V (adults) with 2.66 individuals each, while classes IV and VI recorded the lowest averages (1.66 ind. each). The average total TE obtained was 1.3 ind./ km, the highest value of average TE per class was 0.8 corresponding to class I, in the case of class V, III and II the values were 0.07 ind./km, while VI and IV obtained the lowest values 0.04 ind./km. These results were used for the elaboration of buffer areas, which allowed us to establish nine subzones with different levels of human-crocodile encounter risk. We conclude that the study area has in its entirety a medium-low human-crocodile encounter risk level. Nevertheless, it is necessary to continue with the follow-up of the present study, to detect any fluctuations in the population abundance and structure of crocodiles in the area, that can provide us more information and, in this way, establish better conservation strategies towards crocodilians and their habitat, as well as better prevention and action measures for human-crocodile encounters.

Keywords: American crocodile, Population abundance, Encounter rate, Risk areas

Type of presentation: Poster

Thematic area: Research and Knowledge (Population status)