

## GSA Connects 2023 Meeting in Pittsburgh, Pennsylvania

Paper No. 166-20

Presentation Time: 8:00 AM-5:30 PM

### WHAT MAKES THE ALAE GROW? ASSESSING MORPHOLOGICAL RESPONSE IN OSTRACODS TO INCREASED STRATIFICATION AND DECLINING BENTHIC OXYGEN CAUSED BY CLIMATE CHANGE IN LAKE TANGANYIKA, EAST AFRICA

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Lake Tanganyika is the oldest and deepest lake in Africa (~9 Ma, 1470 m). Today this lake supports more than 10 million people who rely on its large fishery, which has declined in recent decades, at least in part due to strengthened water column stratification caused by warming climate. Pelagic-benthic feedbacks in this meromictic lake may have a critical effect on ostracod crustacean physiology in soupy, oxygen-depleted lake floor environments. Ostracod *alae* (wing-like projections of their shells) may be functionally selected for larger size on the lake floor near the oxicline. Here, we report preliminary results indicating a positive relationship between alae length and water depth in *Gomphocythere downingi*. This species can be found at depths from 0-80 meters, although it is more common in deeper water. By using modern ostracod samples collected via SCUBA and Ponar over multiple seasons, we investigated the functional responses of alae growth in various oxygen and lake floor conditions. We analyzed samples by measuring ostracod alae using a Leica M205 light microscope with LasX software. Preliminary analyses show a strong positive relationship between relative alae length and water depth as well as an overall decrease in ostracod size. In the future, a three-dimensional analysis of alae shape coupled with an examination of the relationship between depth gradients and oxygen and lake floor conditions in *G. downingi* and its closely related *G. alata*, will be performed to understand functional responses to oxygen and lake floor sediment stresses in these ostracod species as represented in sediment cores from the Late Holocene.

Session No. 166--Booth# 90

[D25. Recent Developments in Paleoecology \(Posters\)](#)

Tuesday, 17 October 2023: 8:00 AM-5:30 PM

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