

# Variations in body shape between two sympatric haplochromine species: Implications for evolution of the fish species in Lake Kivu

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## Abstract

Patterns of intra- and interspecific variation based on environmental conditions in which populations live may reflect adaptive responses to their habitat. This is particularly relevant in a lake habitat where closely related species occur sympatrically. This study was aimed at determining consistency in morphological traits in head and body shapes in two haplochromine species (*Haplochromis insidia* and *Haplochromis kamiranzovu*) in littoral and/ pelagic zones and to estimate the extent to which the habitats affect variations between the species. Specimens of both species were taken from littoral and pelagic zones, in the northern and southern parts of Lake Kivu. Morphometrics and landmark-characteristics were recorded and compared within and between habitats. The results showed that differences were found among the two species, among the two zones and for both. The most prominent difference was in the head; including the relative size of the jaws, head length and position of the pectoral fin insertion. Variation in head morphology is normally related to feeding. Changes in body shape can be linked to differences in environment and food availability between the two habitats which could have enabled the species to co-exist. This capacity is important in lakes like Kivu which have low habitat diversity compared to other African Great lakes like Malawi, Tanganyika and Victoria and provide some explanation in the differences in the number of haplochromine species in these lakes. The genetic basis of these phenotypic changes should be examined in future research.

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