Morphometric variability among *Oreochromis* species in Beira Lake and Negombo Estuary, Sri Lanka

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Multivariate morphometry has been used to investigate the discreteness and interrelationships of stocks with a species. However, there are several biases and weaknesses inherent to traditional use of morphometric characters for the purpose. As an alternative a new system of morphometric measurement called the Truss network system has been used to differentiate fish species. In the present study, landmark-based (truss measurements) multivariate morphometric analysis of *Oreochromis mossambicus* (n=100) from Negombo Lagoon and *Oreochromis niloticus* (n = 100) from Beira lake is presented. Twenty morphometric characters of these two species were measured. Measurements were then standardized using two different methods to remove the size effects. The first was to divide each truss measurement by standard length. In the second approach, truss measurements were standardized for fish size using the following equation.

$$\text{Standard measurement of truss length } LTs_{(i)} = \log_{10} LT_{(i)} \left[\frac{\log_{10} TL_{(m)}}{\log_{10} TL_{(i)}} \right]^{b}$$

where TL is the total length, LT(i) is the truss length of i^{th} fish , TL_m is the overall mean total length and b is the slope, within areas of the geometric mean regression on the logarithms of LT and TL.

Correlation coefficients between each pair of characters were calculated. According to the analysis, low correlation coefficients were resulted.after removal of size effect. Multivariate techniques i.e., Principal Component Analysis (PCA) and Cluster Analysis were performed to analyze transformed and untransformed data of the two species. Two *Oreochromis* species separate into two groups in the PCA of transformed data. In cluster analysis, both transformed methods separated *Oreochromis* species into two clusters. Nevertheless, the second transformation method showed greater differences among groups than the first approach.