## Data analyses

**Introduction**

Data were transferred from the field data sheets to Microsoft Excel sheet for analysis. All morphometric data were analysed using the descriptive statistics tool in Ms Excel to derive means and respective standard error of means (SEM). Taxonomic data were organized in tables, in which species were grouped into their respective families. Numbers of different life stages (i.e., glass eel and elver) of juvenile anguillids at various sampling stations summarized in tables to study spatial patterns, while respective numbers between sampling occasions over the study period provided insights on temporal trends.

**Relative abundance**

Relative abundance for each species was calculated by dividing number of individual species by total number of caught species to assess species composition as well as temporal and spatial influence of juvenile anguillid eel species at different life stages (Equation 1);

Where, RA= relative abundance and N = number of individuals of juvenile species.

**Catch Per Unit Effort (CPUE) and Discharge**

Catch per unit effort (CPUE) index was used to determine effort required to catch juvenile anguillid eels i.e., catch per net per day formular in all four sampled sampling stations.

The estuarine mean discharge was estimated according to Gordon *et al.* (2004) (Equation 2) and compared to the species of juvenile anguillid eels caught at each sampling site.

*Q* =∑ *VA*

Where, Q = Discharge (m3/s), V = Mean current velocity (m/s) and A = Cross-sectional area of the river channel (m2)

**Elongation and Ocular Indices**

Elongation index defined as the difference between the girth and Total length was calculated as:

Fin difference index (FDI) (Equation 3), according to Ege, (1939) was calculated as:

FDI =¼ 100 Z TL-1

Where, FDI= distance between the verticals from beginning of the dorsal fin to the anal fin (Z) relative to the total length (TL).

Ocular index (OI), defined as the relation between the total length of the eel using the mean size of both the right and left eyes, was calculated using the Pankhurst, (1982) formula:

Where A and B= horizontal and vertical eye diameters, TL= total body length; R= right eye diameter; L= left eye diameter.

**Statistical Analysis**

One-way Analysis of Variance (ANOVA) was used to determine the statistical significance of estuarine flow and physicochemical variables on juvenile anguillid eel’s species caught across all four sampling stations. One-way Analysis of Variance (ANOVA) was also used to test for significant differences in morphometrics (i.e., total length, elongation index, fin indices and ocular indices) among juvenile anguillid eels in relation to species and life stages in all four sampled stations.

Chi-square tests of association were used to determine association between the species and life stages of juvenile anguillids with various temporal factors, months, lunar and cycles. Significance was determined at p < 0.05 for all statistical tests.