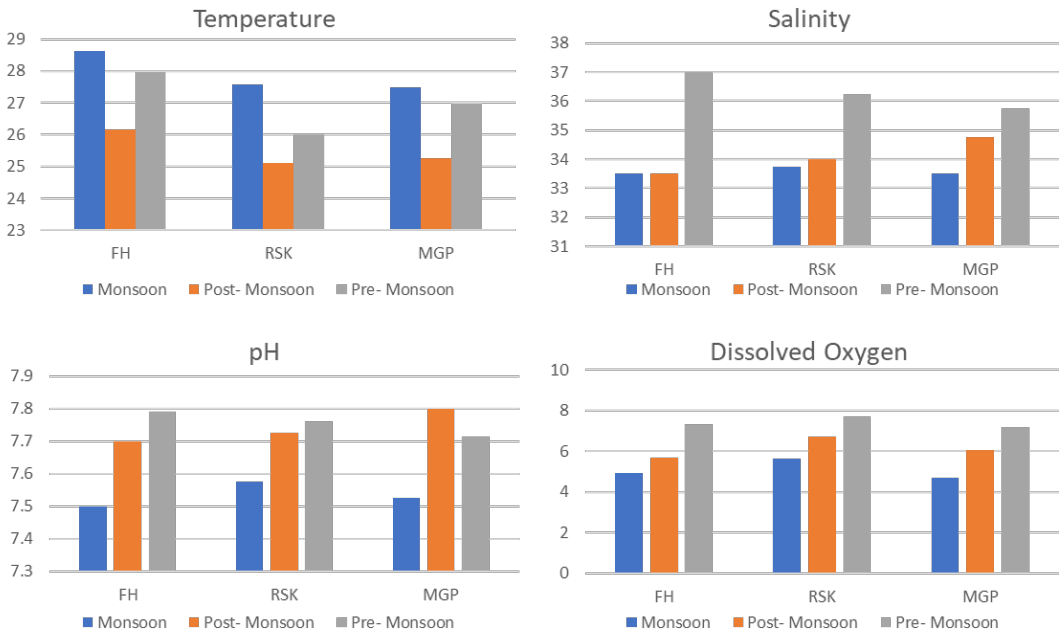
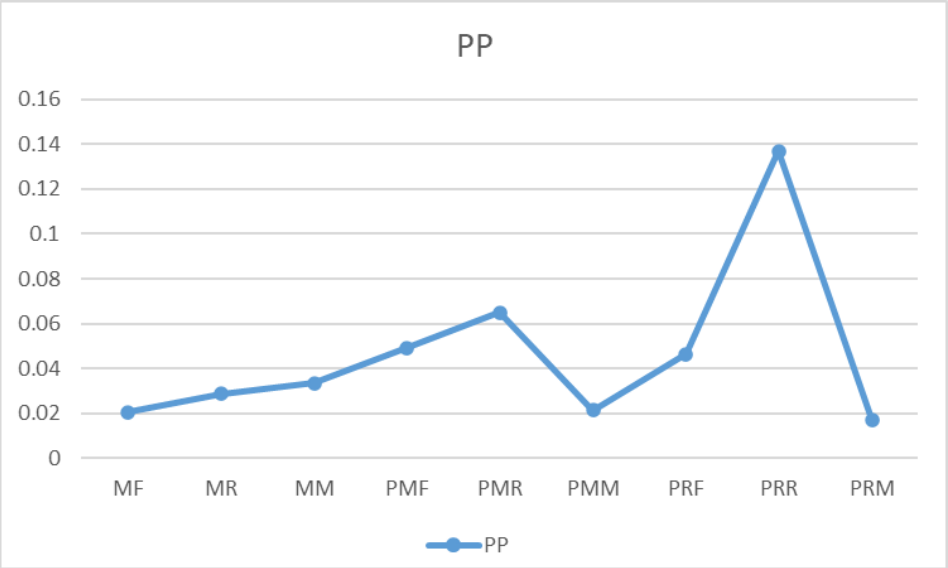
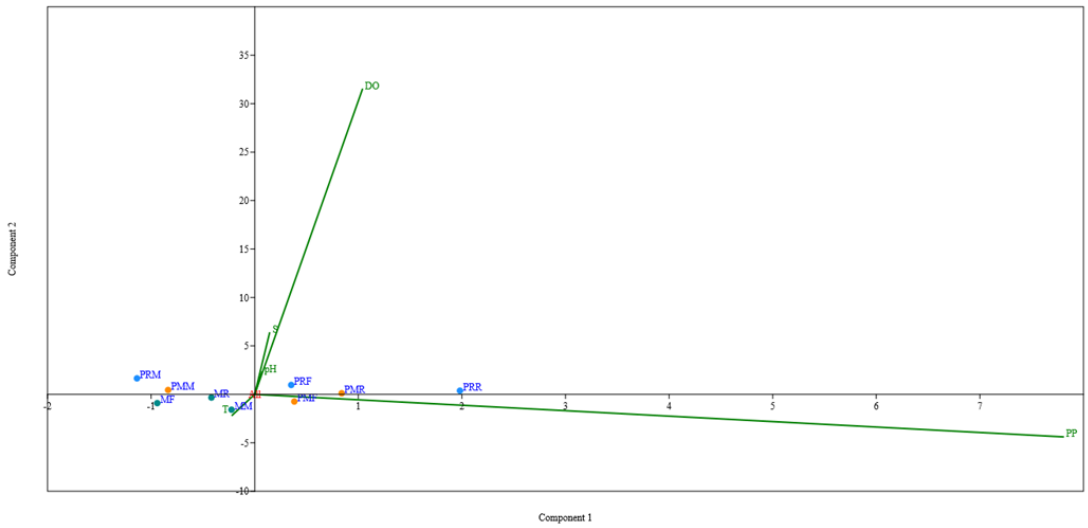


Supplementary Figure 1. Graphical representation of seasonal variation in physical factors: temperature, salinity, pH and dissolved oxygen.

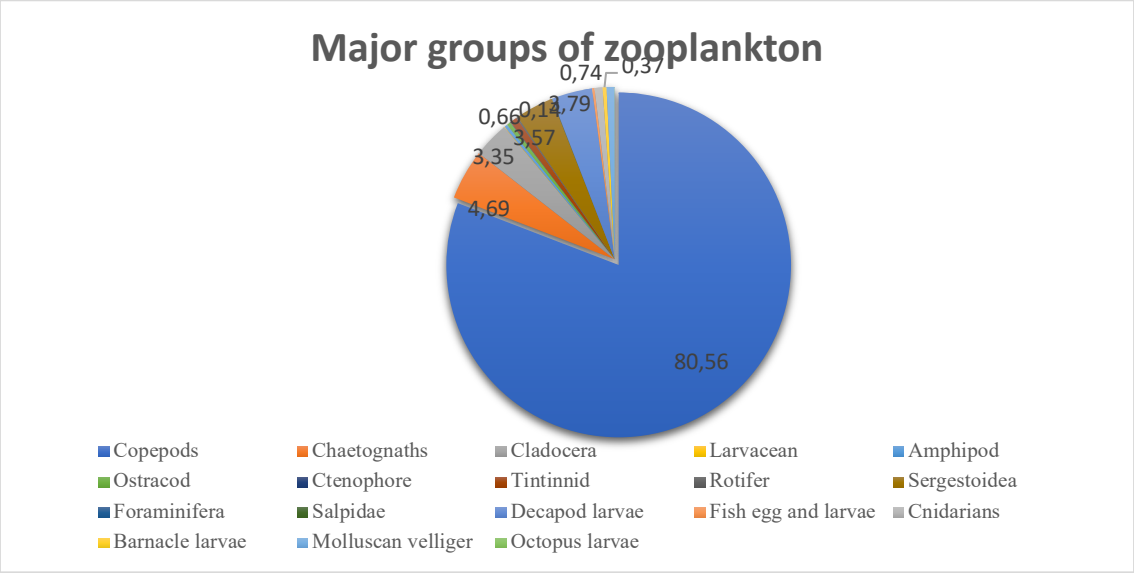


Supplementary Figure 2. Graphical representation of seasonal variation in primary productivity. F, Fishing Harbour; R, Rushikonda; M, Mangmaripeta; M, Monsoon season; PM, Post-Monsoon; PR, Pre-Monsoon.

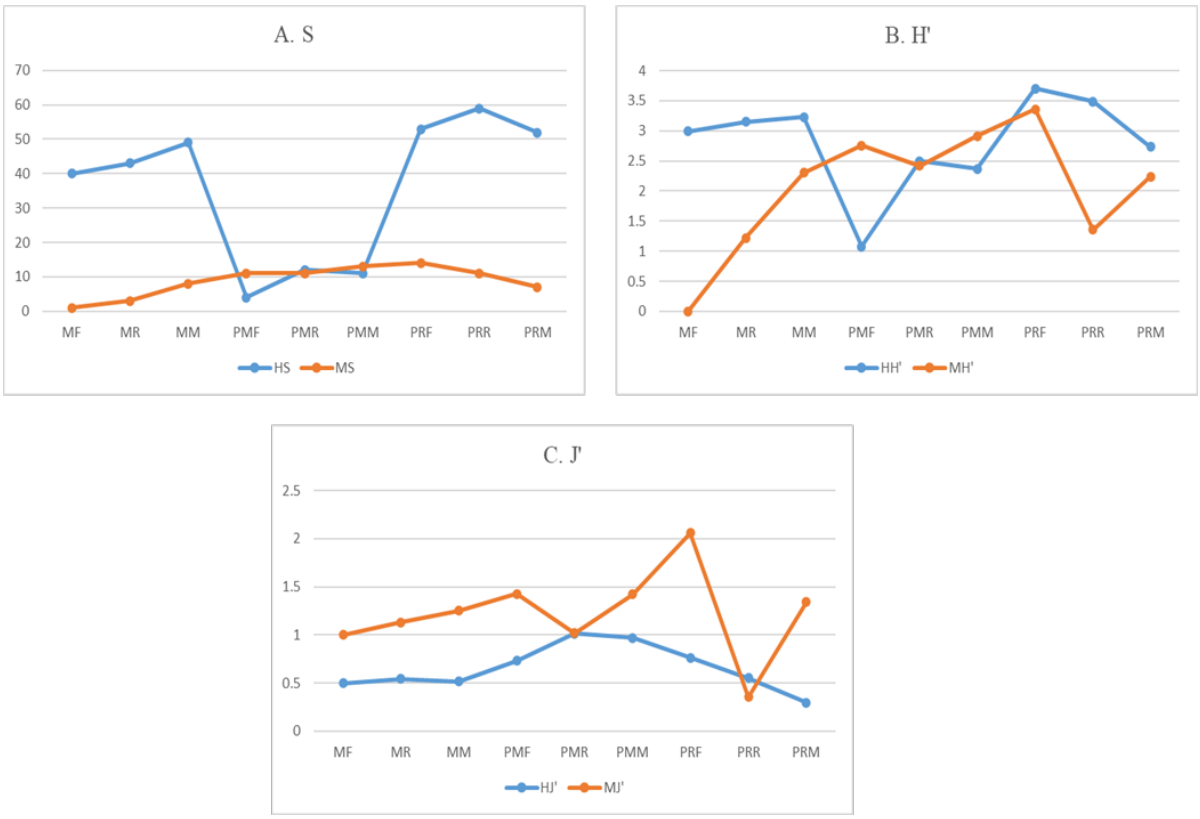


Supplementary Figure 3. Principal Component Analysis (PCA) graph representing a summary of physical factors.

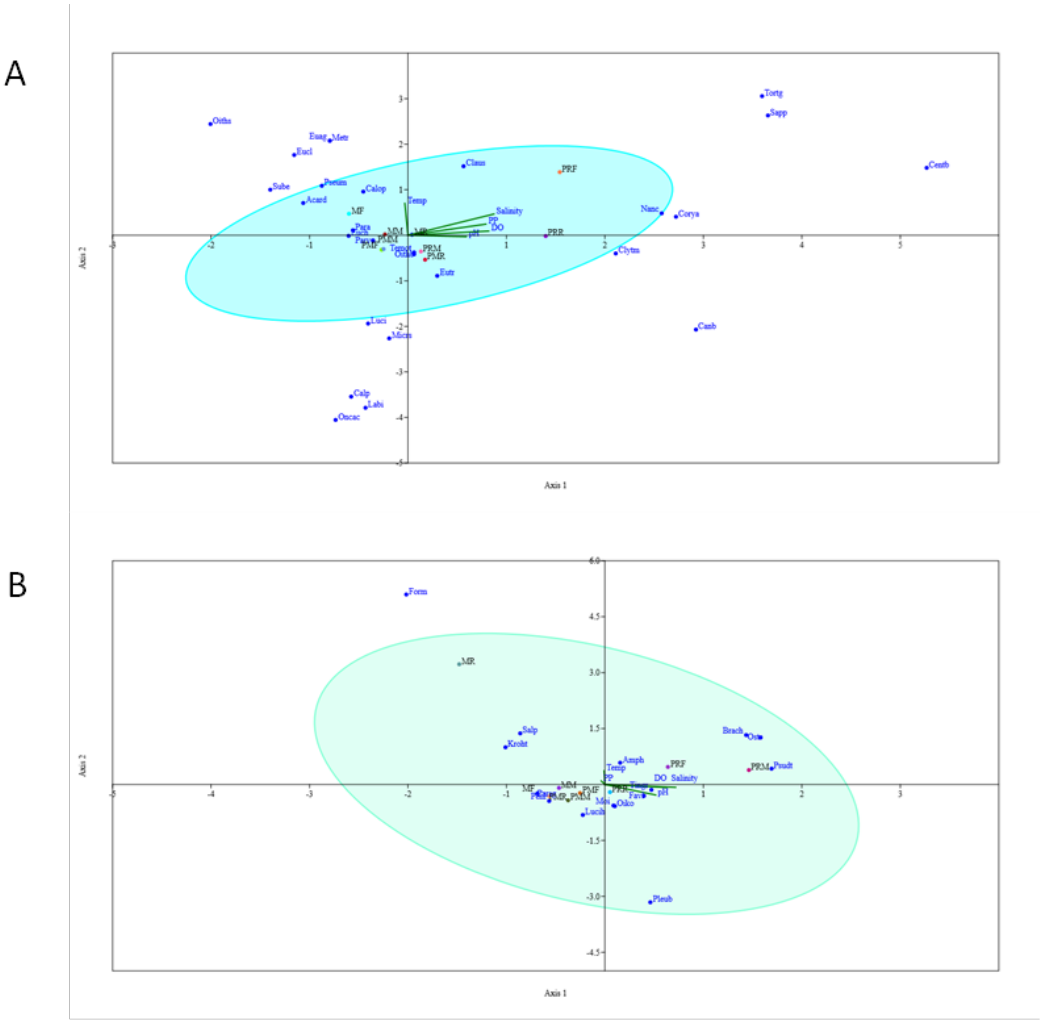
T, Temperature; S, Salinity; DO, Dissolved Oxygen; PP, Primary Productivity in three seasons (M, Monsoon season; PM, Post-Monsoon; PR, Pre-Monsoon) and three stations (F, Fishing Harbour; R, Rushikonda; M, Mangmaripeta).



Supplementary Figure 4. Pie chart representing the percentage of major groups of zooplankton.



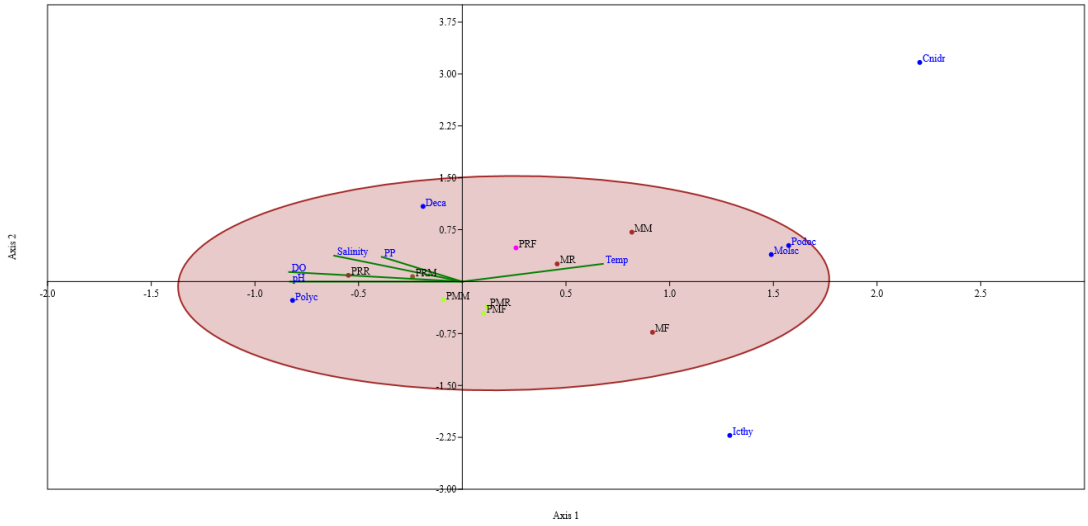
Supplementary Figure 5. Graphical representation of diversity indices (S, Number of species; H', Shannon Weiner index; J', evenness) in three seasons (M, Monsoon season; PM, Post-Monsoon; PR, Pre-Monsoon) and three stations (F, Fishing Harbour; R, Rushikonda; M, Mangmaripeta). ——— represent Holoplankton; ——— represent Meroplanktons



Supplementary Figure 6. Cannonical Correspondence analysis of Holoplankton groups with environmental factors. **A)** Dominant species from all family of copepods. Parvc- *Parvocalanus crassirostris*, Para- *Paracalanus sp.,* Nanc-*Nannocalanus sp.,* Sube- *Subeucalanus crassirostris,* Eucls- *Eucalanus subcrassus,* Euag- *Euaugaptilus sp.,* Claus- *Clausocalanus sp*., Euch- *Euchaeta marina,* Luci- *Lucicutia sp*., Metr- *Metridia sp.,* Labi-*Labidocera acuta*, Acard- *Acartia danae,* Canb- *Candacia bradyi,* Centb- *Centropages bradyi,* Pseum- *Pseudodiaptomus marina,* Temot- *Temora turbinata,* Tortg- *Tortanus gracilis,* Oithb- *Oithona brevicornis,* Oiths- *Oithona simplex,* Oncac- *Oncaea clevei*, Corya- *Corycaeus agilis,* Sapp- *Sapphirina sp.,* Eutr- *Euterpina,* Micrs- *Microsetella sp.,* Clytm- *Clytemnestra sp.*

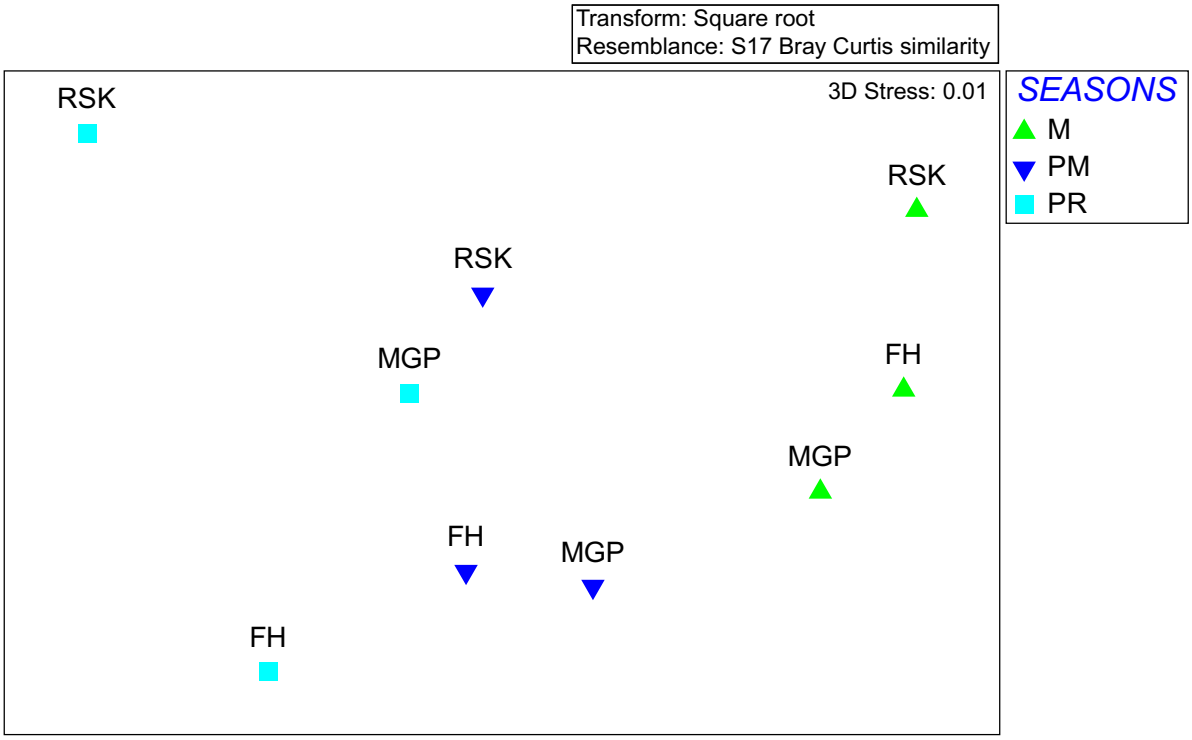
B) Dominant species of other non-copepod families. Parsg- *Parasagitta sp*., Kroht- *Krohnitta sp*., Penl- *Penilia sp*., Psudt- *Pseudevadne tergestina*, Moi- *Moina sp*., Oiko- *Oikopleura* sp., Amph- Amphipoda, Ostr- Ostracoda, Pleubrobrachia, Tingr- *Tintinnopsis gracilis*, Favl- *Favella sp.,* Brach-

Brachionus sp., Lucih- *Lucifer hanseni,* Form- Foraminifera, Salp- Salpidae in three seasons (M, Monsoon season; PM, Post-Monsoon; PR, Pre-Monsoon) and three stations (F, Fishing Harbour; R, Rushikonda; M, Mangmaripeta).

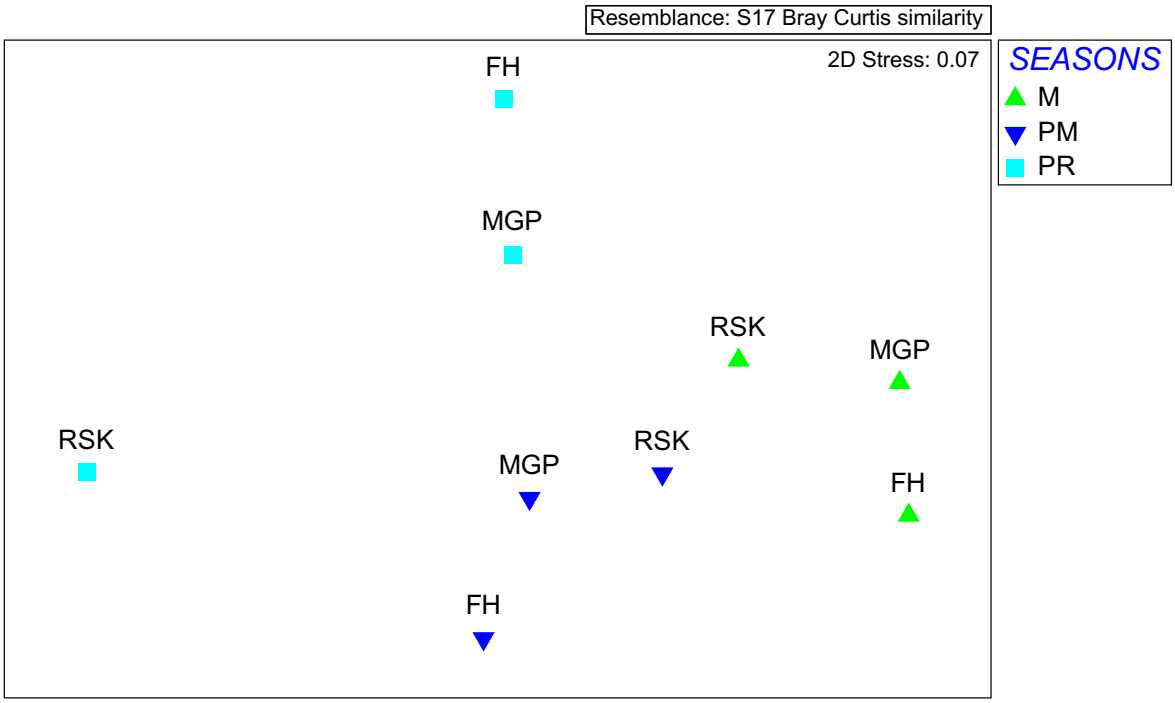


Supplementary Figure 7. Canonical Correspondence Analysis (CCA) of Meroplankton groups with environmental factors.

Deca, Decapod larvae; Molsc, Molluscan larvae; Icthy, Icthyoplankton; Podoc, Podocopidae (Barnacle) Larvae; Polyc, Polychaete larvae; Cnidr, Cnidarians; Bryoz, Byozoan larvae in three seasons (M, Monsoon season; PM, Post-Monsoon; PR, Pre-Monsoon) and three stations (F, Fishing Harbour; R, Rushikonda; M, Mangmaripeta).



Supplementary Figure 8. n-MDS Plot showing distribution of Holoplankton abundance in stations. FH, Fishing Harbour; RSK, Rushikonda; MGP, Mangmaripeta and across seasons (M, Monsoon season; PM, Post-Monsoon; PR, Pre-Monsoon) on Bray-Curtis similarity index.



Supplementary Figure 9. n-MDS Plot showing distribution of Meroplankton abundance in stations. FH, Fishing Harbour; RSK, Rushikonda; MGP, Mangmaripeta and across seasons (M, Monsoon season; PM, Post-Monsoon; PR- Pre-Monsoon) on Bray-Curtis similarity index.